

THE EFFECTS OF INDIVIDUAL AND COLLABORATIVE PROCESSING OF
WRITTEN CORRECTIVE FEEDBACK (WCF) ON STUDENTS' WRITING
PERFORMANCE

by
Ecem Akgül

Submitted to Graduate School of Educational Sciences
in Partial Fulfillment of the Requirements
for the Degree of Master of English Language Education

Yeditepe University

2023

THE EFFECTS OF INDIVIDUAL AND COLLABORATIVE PROCESSING OF
WRITTEN CORRECTIVE FEEDBACK (WCF) ON STUDENTS' WRITING
PERFORMANCE

APPROVED BY:

Assist. Prof. Dr. Hakan Şentürk
(Thesis Supervisor)
(Yeditepe University)

.....

Assist. Prof. Dr. Zeynep Koçoğlu
(Yeditepe University)

.....

Assist. Prof. Dr. Merve Selçuk
(Altınbaş University)

.....

DATE OF APPROVAL: 06/06/2023

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.

Name Surname Ecem Akgül

Signature

ABSTRACT

Although there is significant evidence supporting the positive role of written corrective feedback (WCF) in improving students' writing performance, research exploring the relationship between second language (L2) writing performance and the different types of WCF processing is limited. Therefore, the present study aimed to investigate the effects of individual and collaborative processing of WCF on students' overall writing performance. Adopting a mixed-method research design, 42 B1 level English Preparatory School students were evenly divided into individual and collaborative groups. The participants wrote four different paragraphs, subsequently generated second drafts, and were provided with WCF for each paragraph through error correction codes. The individual group reviewed the WCF individually, while the collaborative group reviewed the WCF collaboratively by conducting pair discussions before revising their work. The total scores of participants' paragraphs were analyzed within each feedback group separately and between groups. Additionally, the grammatical, lexical, and mechanical errors of participants were analyzed. Findings revealed that both the individual and collaborative processing of WCF is effective in improving students' overall writing performance. Between groups comparison revealed that the collaborative group outperformed the individual group in overall writing performance. While both groups improved their overall writing performance, neither group resolved their grammatical, lexical, or mechanical errors. Participants in the collaborative group considered collaboration an effective practice, whereas the individual group had mixed opinions. The findings are discussed within the context of teaching L2 writing and teachers' role in feedback practices.

Keywords: Written corrective feedback, teaching L2 writing, collaborative processing, individual processing

ÖZET

Yazılı düzeltici geribildirim öğrencilerin yazma performansını iyileştirmedeki olumlu rolünü destekleyen önemli kanıtlar bulunmasına rağmen, ikinci dil yazma performansı ile farklı yazılı düzeltici geribildirim işleme türleri arasındaki ilişkiyi araştıran çalışmalar sınırlıdır. Bu nedenle, bu çalışma, bireysel ve işbirlikçi yazılı düzeltici geribildirim işleme süreçlerinin öğrencilerin genel yazma performansına etkisini incelemeyi amaçlamıştır. Karışık yöntemli bir araştırma tasarımı benimseyen çalışmada, B1 seviyesindeki 42 İngilizce Hazırlık Okulu öğrencisi bireysel ve işbirlikçi geribildirim işleme gruplarına eşit olarak ayrılmıştır. Katılımcılar dört farklı paragraf yazmış, ardından ikinci taslaklarını oluşturmuş ve her paragraf için hata düzeltme kodları aracılığıyla yazılı düzeltici geribildirim almışlardır. Bireysel grup yazılı düzeltici geribildirimi inceleyip hatalarını bireysel olarak düzeltirken, işbirlikçi grup ikili gruplar halinde çalışmalarını gözden geçirmişlerdir. Katılımcıların paragraflarının toplam puanları, geri bildirim grubu içinde ve gruplar arasında analiz edilmiştir. Ayrıca, katılımcıların dilbilgisel, leksikal ve mekanik hataları analiz edilmiştir. Bulgular, yazılı düzeltici geribildirim bireysel ve işbirlikçi işlemenin öğrencilerin genel yazma performansını iyileştirmede etkili olduğunu ortaya koymuştur. Gruplar arasındaki karşılaştırma, işbirlikçi grubun genel yazma performansında bireysel gruptan daha iyi olduğunu göstermiştir. Her iki grup da genel yazma performansını iyileştirmiş olsa da, dilbilgisel, leksikal veya mekanik hatalarını çözememiştir. İşbirlikçi gruptaki katılımcılar işbirliğini etkili bir uygulama olarak değerlendirirken, bireysel grup karışık görüşler ortaya koymuştur. Bulgular, ikinci dilde yazma öğretimi bağlamında ve geri bildirim uygulamalarındaki öğretmenlerin rolü çerçevesinde tartışılmıştır.

Anahtar kelimeler: Yazılı düzeltici geribildirim, ikinci dil yazma öğretimi, işbirlikçi işleme, bireysel işleme

ACKNOWLEDGMENTS

First and foremost, I would like to express my deepest gratitude to my thesis supervisor, Assist. Prof. Hakan Şentürk, for his invaluable support, guidance, and encouragement throughout this journey. I am truly grateful for his contributions and insightful feedback.

I would like to extend my gratitude to my dearest friend Esra for her continuous support not only throughout this journey but also my whole life. Her friendship has provided a constant source of motivation and inspiration.

Finally, I would like to express my deepest appreciation to my dear family for their unconditional love, encouragement, and trust. Without their constant support and understanding, this accomplishment would not been possible.

TABLE OF CONTENTS

ABSTRACT.....	ii
ÖZET	iii
ACKNOWLEDGMENTS	iv
LIST OF TABLES.....	ix
LIST OF FIGURES	x
LIST OF ABBREVIATIONS.....	xi
CHAPTER 1 INTRODUCTION	1
1.1. Background of the Study	1
1.2. Statement of the Problem.....	5
1.3. Research Questions.....	6
1.4. Aim and Scope of the Study	6
1.5. Significance of the Study	7
1.6. Definition of the Terms.....	7
CHAPTER 2 LITERATURE REVIEW	9
2.1. Theoretical Background.....	9
2.2. Teaching Second Language Writing.....	12
2.3. Product vs. Process Approach to Writing.....	15
2.4. Written Corrective Feedback	18
2.4.1. Definition of corrective feedback	18
2.4.2. Types of written corrective feedback.....	20
2.4.3. Research on written corrective feedback	22
2.4.4. The controversial issue of written corrective feedback	33
CHAPTER 3 METHODOLOGY	36

3.1.	Introduction.....	36
3.2.	Research Method	37
3.3.	Participants and Setting.....	40
3.3.1.	Demographic information of the participants	42
3.4.	Data Collection Tools	44
3.4.1.	Data collection tools for quantitative data	44
3.4.1.1.	Student paragraphs.....	44
3.4.2.	Data collection tools for qualitative data	48
3.4.2.1.	Short-response reflection forms.....	48
3.5.	Data Collection Procedure	48
3.6.	Data Analysis	51
3.6.1.	Quantitative data analysis	51
3.6.1.1.	Between group comparisons of pretest and posttest.....	52
3.6.1.2.	Comparison of rubric categories.....	53
3.6.1.3.	Analyzing error numbers	53
3.6.1.4.	Within group comparison of pretest and posttest	54
3.6.2.	Qualitative data analysis	54
	CHAPTER 4 RESULTS	56
4.1.	Results of the Quantitative Data	56
4.1.1.	Between group comparisons of the total scores.....	56
4.1.2.	Analyzing error numbers	60
4.1.3.	Within group comparison of pretest and posttest	65
4.2.	Results of the Qualitative Data	68
4.2.1.	Findings of reflection forms.....	69

4.2.1.1.	Responses of guiding prompt 1.....	69
4.2.1.2.	Responses of guiding prompt 2.....	71
4.2.1.3.	Responses of guiding prompt 3.....	73
4.2.1.4.	Responses of guiding prompt 4.....	76
4.2.1.5.	Responses of guiding prompt 5.....	78
4.2.1.6.	Responses of guiding prompt 6.....	80
4.2.1.7.	Responses of guiding prompt 7.....	83
CHAPTER 5 DISCUSSION		87
5.1.	Summary	87
5.2.	Discussion of the Key Findings	87
CHAPTER 6 CONCLUSION.....		101
6.1.	Conclusion	101
6.2.	Pedagogical Implications	102
6.3.	Limitations	104
6.4.	Suggestions for Further Research	104
References.....		106
Appendices.....		124
Appendix A: Student Demographic Information Form		124
Appendix B: Writing Prompts		125
Appendix C: Error Correction Code Sheet		126
Appendix D: Error Correction Code Sheet with the Error Categories.....		127
Appendix E: Paragraph Scoring Rubric		128
Appendix F: Reflection Form Guiding Prompts for Individual Group.....		129
Appendix G: Reflection Form Guiding Prompts for Collaborative Group.....		130

Appendix H: Ethics Committee Approval	Hata! Yer işareti tanımlanmamış.
Appendix I: Consent Form TR.....	131
Appendix J: Consent Form ENG	132



LIST OF TABLES

Table 1 Research Methodology	39
Table 2 CEFR Levels Equivalents to Institutional Levels in Each Track	41
Table 3 Characteristics of Participants	43
Table 4 Interrater Reliability Analysis.....	48
Table 5 Treatment Procedure for Individual and Collaborative Groups	50
Table 6 Independent Samples T-test Results	57
Table 7 Normality Test Results of Rubric Categories	58
Table 8 Paired Samples T-test Results of Rubric Categories and Total Scores	58
Table 9 Wilcoxon Signed Rank Test Results of Rubric Categories	59
Table 10 Normality Test Results of Error Categories	60
Table 11 Mann Whitney U Test Results of Error Numbers	64
Table 12 Normality Test Results of Pretest and Posttest	66
Table 13 Paired Samples T-test Results for Individual and Collaborative Groups	67

LIST OF FIGURES

Figure 1 Zone of Proximal Development	10
Figure 2 Process Writing Model of Flower and Hayes (1981).....	17
Figure 3 Q-Q Plot for Pretest Grammatical Errors	61
Figure 4 Q-Q Plot for Pretest Lexical Errors	61
Figure 5 Q-Q Plot for Pretest Mechanical Errors	62
Figure 6 Q-Q Plot for Posttest Grammatical Errors.....	62
Figure 7 Q-Q Plot for Posttest Lexical Errors	63
Figure 8 Q-Q Plot for Posttest Mechanical Errors.....	63
Figure 9 Q-Q Plot for Pretest Total Scores	66
Figure 10 Q-Q Plot for Posttest Total Scores	67

LIST OF ABBREVIATIONS

CEFR -- Common European Framework

CF -- Corrective Feedback

EFL -- English as a Foreign Language

ESL -- English as a Second Language

ESP -- English for Specific Purposes

L1 -- First Language

L2 -- Second Language

ME -- Metalinguistic Explanation

RQ -- Research Question

SCT -- Sociocultural Theory

SD -- Standard Deviation

TAT -- Track Achievement Test

WCF -- Written Corrective Feedback

ZPD -- Zone of Proximal Development

CHAPTER 1

INTRODUCTION

The first chapter offers an outline of the background of the study, statement of the problem, and research questions. It also discusses the aim and scope of the study, significance of the study, and ends with defining the important terms.

1.1. Background of the Study

Writing as a language skill has been extensively researched due to its essential role in second language (L2) learning (Chastain, 1988). The ability to write effectively is widely regarded as crucial for academic success, as it serves as the primary method of assessing students' language skills and knowledge (Tan, 2011). Acknowledging the importance of writing as a language skill, providing feedback on students' written works has become popular over the past twenty years (Hyland & Hyland, 2006). However, providing feedback in L2 teaching is widely acknowledged as a controversial issue due to differing perspectives and research findings (Ferris, 1999). While some researchers argue that error correction is harmful and ineffective (Bruton, 2009; Truscott, 1996), others believe that providing feedback is an effective practice that enhances students' performance and accuracy (Ferris, 1999; Hyland & Hyland, 2006; Atmaca, 2016). Writing, as a challenging task even in one's native language (Flower & Hayes, 1981), has been investigated widely to address the controversies in L2 writing, especially after Truscott's (1996) compelling arguments about the ineffectiveness of WCF in L2 writing instruction. Many researchers have presented counterarguments to Truscott's (1996) claims and proved the effectiveness of WCF in L2 writing classes through their studies (Ferris, 1999; Hyland & Hyland, 2006).

As both writing and speaking are productive language skills, they are often compared in terms of the challenges they present. The challenges of L2 writing compared to speaking can be attributed to several factors. Firstly, the absence of supportive clues such as gestures, mimics, and other nonverbal signs is seen as a downside of writing when compared to speaking (Hedge, 2000). Unlike speakers who can rely on immediate feedback of listeners, writers are faced with the challenges of written works independently. Secondly, while writing typically adheres to standardized forms that are accepted socially, speech allows for variations (Mullany & Stockwell, 2010, pp. 84-85). In addition, a broad spectrum of structural knowledge as well as knowledge of style and organization is needed while writing. According to Celce-Murcia (1991), writing accurate and cohesive expressions in L2 is a significant achievement. Therefore, the recognition of writing as an achievement can be the inherent complexity for L2 learners, as it demands a high level of linguistic components, such as grammar, and vocabulary, along with cognitive strategies.

Writing involves not only the final product but also the various stages that learners progress through (Sokolik, 2003). This process entails various steps that learners need to undertake, including drafting, revising, and editing. The emphasis on the writing process rather than the final work has brought a fundamental change in teaching L2 writing. According to Hyland (2009), writing is a dynamic activity where writers engage in interactive communication, conveying their ideas in the most effective manner to the readers. With the emergence of the process approach, the role of teachers in providing WCF has gained importance. Researchers have directed their attention towards investigating teachers' role in the instructional process. Gupta and Woldemariam (2011) highlight that teachers are viewed as facilitators who can provide effective writing courses that enable students to acquire writing skills and

strategies. Aligned with the principles of the process approach, teachers are often expected to provide students with appropriate guidance and support throughout different writing stages such as drafting, revising, and editing. The role of teachers is considered vital in guiding students through these processes, ultimately helping them to enhance their proficiency in writing.

The appropriate form of WCF was another aspect that received considerable attention in L2 writing instruction. Since there are various types of WCF, the selection of an appropriate feedback method becomes essential. However, as Bitchener and Storch (2016) noted, there is no type of WCF that is universally optimal for learning (p.73). Therefore, an appropriate WCF is considered as the one that effectively addresses the specific needs of learners. To find the right feedback approach that fits to specific contexts, analyzing common ways of providing WCF might be helpful. One common approach of providing WCF is direct correction, where errors are identified and corrected by the teacher. This method explicitly highlights errors and provides suggestions for correct forms. Another approach is indirect correction, which focuses on providing comments or a type of guidance without explicitly correcting each error. Indirect error correction can be done through the implementation of error correction codes or highlighting specific errors without directly correcting them (Storch & Wigglesworth, 2010). The aim of indirect correction is to foster self-reflection and independent revision by encouraging students to identify their own mistakes. Peer feedback is another effective method, where students provide feedback to each other's writing which fosters collaboration and active engagement. While some researchers support providing direct WCF (Bitchener, 2008; Ellis et al., 2008), some believe that providing indirect feedback fosters students' engagement through self-correction and assistance in developing learner autonomy (Ferris, 2003; Ferris &

Roberts, 2001). On the other hand, some studies analyzed the impact of direct and indirect WCF and found no difference between them regarding students' writing performance (Robb et al., 1986; Semke, 1984). Metalinguistic feedback, where a metalinguistic clue such as error correction codes or brief grammatical descriptions are provided, is also considered effective since it enhances students' error comprehension (Bitchener, 2008; Bitchener et al., 2005; Nassaji, 2015). According to Ellis (2009a), metalinguistic feedback offers learners an explicit indication of the errors. However, it is crucial to state that indirect and metalinguistic feedback types demand higher cognitive effort. As the errors are not directly corrected, learners might feel encouraged to identify and rectify their own errors. As Hedge (2000) suggests, all these techniques are employed to promote the development of learners' writing skills. In sum, as each method has its own advantages and disadvantages, the choice of feedback approach depends on specific learning objectives, instructional context, and student needs. While there has been an increasing amount of research on WCF that explores the effect of different feedback types, further research is necessary to understand not only the effects of different feedback types, but also the circumstances in which they effectively enhance L2 writing performance (Ferris, 2010).

In recent years, collaboration in language classes has become increasingly popular for several reasons. First and foremost, collaborative activities give learners the chance to actively engage in the learning process. Sociocultural Theory (SCT) by Vygotsky (1978) suggests that learning is a socially constructed process that occurs through interactions and shared experiences. Collaboration enables learners to exchange ideas, share different perspectives through peer interaction in a social environment. In addition, collaboration encourages learners to become responsible for their own learning, as well as contributing to others' learning. Learners benefit from

each other's knowledge and promote meaningful interactions which creates a supportive learning environment. According to Vygotsky (1978), collaborative learning is associated with the Zone of Proximal Development (ZPD) which is defined as the difference between a learner's independent capabilities and their potential achievements with guidance and support from others. According to ZPD, collaborative work enhances learners' knowledge and skills which enables them to go beyond their individual capabilities. Numerous studies have investigated collaborative reviewing of errors in relation to students' writing performance and supported the effectiveness of collaboration on L2 writing performance after recognizing the importance of collaboration in L2 learning (Ellis & Shintani, 2014; Lee, 2017b; Storch, 2005; Wigglesworth & Storch, 2009).

1.2. Statement of the Problem

Writing, as a productive language skill, is a challenging skill specifically for L2 learners due to the active utilization of the target language in combination with certain skills and strategies. Since errors are an inevitable part of language learning, providing WCF becomes an important issue in language teaching. Receiving feedback on their written work plays a crucial role for L2 learners as it enables them to identify errors, make necessary adjustments, and improve overall writing performance and accuracy. With the integration of feedback, learners can develop their writing skills with increased confidence. Hence, learners need guidance and support from their teachers through their L2 writing journey to enhance their writing performance. While previous research has established the importance of providing feedback (Lee, 2017a; Wigglesworth & Storch, 2009), studies that specifically investigate the effects of individual and collaborative processing of WCF is limited. The impact of WCF on students' writing has received researchers' attention but did not gather students'

perceptions on the process itself. Moreover, the effectiveness of WCF, particularly in collaborative tasks, is still controversial as it requires students' eagerness and active involvement in the feedback process (Kim et al., 2020). Due to students' lack of interest, teachers often hesitate to integrate WCF into their teaching practices. On the other hand, as indirect WCF through error correction codes is cognitively demanding, students may not always know what error codes or indirect clues refer to. Therefore, there is a possibility that providing WCF may be detrimental, rather than resulting in improvement. For all these reasons, this study investigates individual and collaborative WCF processing and their effects on students' overall writing performance.

1.3. Research Questions

This study investigated the effects of individual and collaborative processing of WCF by answering the following research questions:

1. What are the effects of individual and collaborative processing of WCF on students' overall writing performance?
2. What is the impact of individual and collaborative processing of WCF on students' grammatical, lexical, and mechanical errors?
3. What are students' attitudes towards individual and collaborative processing of WCF?

1.4. Aim and Scope of the Study

This study aimed to examine the individual and collaborative processing of WCF and their effects on students' overall writing performance. The experimental group (collaborative WCF) received WCF with error correction codes and analyzed

their errors in pairs. The control group (individual WCF) reviewed the error correction codes and processed the WCF they received individually. This study aimed to distinguish between different types of WCF processing and detect whether one outweighed the other regarding students' writing performance. In addition, further investigation was done through collecting students' perceptions on each feedback processing type. Students' perceptions were examined in relation to their writing performance.

1.5. Significance of the Study

The primary objective of this study was to contribute to teaching the L2 writing field by investigating the effects of individual and collaborative processing of WCF on students' overall writing performance. The current study adopted a mixed-method research design. It conducted an analysis on error numbers of students' writings and investigated how they relate to both feedback processing types. The present study emphasized the importance of students' perceptions on different types of feedback processing, providing valuable insights for teachers to establish connections between students' writing performance and their approach.

1.6. Definition of the Terms

Collaborative Processing

Collaborative processing of written corrective feedback refers to an interactive and cooperative approach in which learners actively engage with the feedback they receive on their written work by their instructors and conduct peer discussions (Wigglesworth & Storch, 2012). In collaborative processing, two students conduct peer discussions on how to correct their errors by analyzing the error correction codes

and provide suggestions to each other on how to improve their overall writing performance.

Individual Processing

Individual processing of written corrective feedback refers to the process in which learners independently review, analyze, and incorporate the feedback they receive on their written work (Wigglesworth & Storch, 2012). Individual processing focuses on the learner's personal engagement with the feedback they receive from their instructor. They reflect on their errors, consider the explanations and examples given, and make revisions or improvements to their writing accordingly.

CHAPTER 2

LITERATURE REVIEW

The second chapter initially presents the theoretical background of the current study. It continues with discussing the previous studies that are relevant to the context and concluding with a review of studies focused specifically on written corrective feedback (WCF).

2.1. Theoretical Background

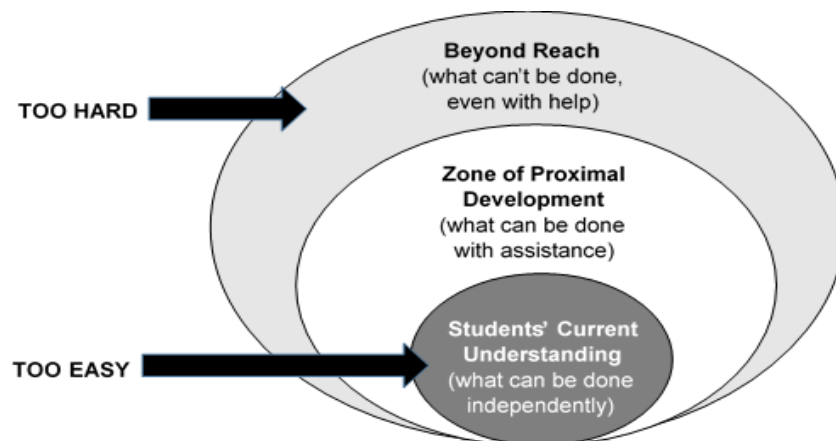
The role of collaboration in WCF has been widely discussed under various Second Language Acquisition theories due to its potential to facilitate the learners' writing development. While different theories have been discussed to explain the role of WCF in collaborative tasks, the most comprehensive theory that supports the positive influence of WCF is SCT by Vygotsky (1978). SCT depicts learning as a socially constructed process where social interaction plays a vital role. According to SCT, social interaction has a crucial role in cognitive development. Vygotsky (1978) proposed that learning occurs in two stages. Every aspect of a child's cultural development is manifested in two ways: initially, on a social level among people, and subsequently, on an individual level within the child. This phenomenon applies to various higher cognitive functions such as voluntary attention, logical memory, and concept formation. Essentially, these higher functions emerge from actual interpersonal interactions and relationships. Vygotsky (1978) emphasized the role of social interactions in shaping cognitive development. Vygotsky's (1978) view also includes the ZPD, which is a central idea in Sociocultural Theory. According to Vygotsky (1978), the ZPD can be described as the gap between a child's current level of development, assessed through independent problem-solving, and their potential

level of development, determined by problem-solving with the assistance of a knowledgeable adult or more skilled peers.

L2 learners mostly receive a form of collaborative scaffolding by their teachers or experienced peers which extends their knowledge and development. In other words, learners need some assistance along with the process they go through within themselves. In L2 writing instructions, corrective feedback holds a significant role in providing learners with the scaffolding necessary to move to the next level of development (Lee, 2018). Through collaborative processing of corrective feedback, learners receive both linguistic and social support, which facilitates the development of their writing skills. As a result, WCF becomes a crucial element within the sociocultural context of writing instruction. Vygotsky (1978) conceptualized the ZPD as a multifaceted process encompassing social, physical, and cognitive aspects (see Figure 1).

Figure 1

Zone of Proximal Development



Another important term in SCT is mediation. Learning is a socially mediated activity and individuals learn through interactions (Vygotsky, 1978). According to Lantolf and Thorne (2006), mediation refers to the mechanism by which individuals utilize culturally shaped artifacts, concepts, and activities to govern their interactions with the physical environment, as well as to regulate their own and others' social and cognitive processes. Lantolf and Thorne (2006) identified three types of mediation as proposed in SCT: (1) mediation in social interaction, (2) mediation through private speech, and (3) mediation by artifacts. In the context of corrective feedback, teachers or more experienced peers can provide mediation in social interaction, which is a support and guidance during the learning process. As learners engage in the mediation process through feedback, they can internalize the correct forms of language which will increase their language proficiency.

Aljaafreh and Lantolf (1994) investigated the role of WCF under the scope of SCT. They focused on several corrective feedback strategies, from implicit to explicit. Following their study, many researchers have investigated the role of WCF and found it as an effective practice (Nassaji & Swain, 2000; Zhu & Mitchell, 2012; Lee, 2017b). A great deal of studies investigated the effects of different WCF types within the framework of SCT (Lantolf & Thorne, 2006; Ellis & Shintani, 2014). Research has investigated the influence of feedback timing, frequency, and mode of delivery (Ferris & Roberts, 2001; Bitchener & Knoch, 2009; Sheen, 2007; Lee, 2011). Studies concluded that different types and modes of WCF can be effective in promoting L2 learning.

2.2. Teaching Second Language Writing

Writing is a crucial skill which has become a distinctive area of research since the 1980s (Hyland, 2019). It is also closely linked with academic success in L2 learning since students are commonly evaluated by their written work (Tan, 2011). Acknowledging the significance of writing as a fundamental language skill, scholars paid more attention to teaching writing. Since L2 writing initially became a distinguishing research area in the 1980s, a range of concepts supported the efforts of writing instructors to comprehend L2 teaching and learning (Hyland, 2019). As Friginal and Weigle (2014) claimed, L2 writing is a complex way of communication which requires a certain knowledge and combination of skills. In addition, Leki (2001) explored the complex nature of writing and argued that writing proficiency involves more than simply mastering grammatical and vocabulary. Kroll (1990) conceptualized the complex of writing by stating: ‘‘Writing proficiency exists on several different planes independently’’ (p.40). Kroll (1990) suggested that writing is a multifaceted skill that poses challenges not only for English as a Foreign Language (EFL) learners but also for native speakers of English.

It is crucial to grasp the broader context of language skills and their differentiation to understand the complex nature of writing skill. Language skills are commonly classified into two categories: receptive and productive skills. Receptive skills, often referred to as passive skills as they involve the comprehension and interpretation of incoming information, are reading and listening. They allow learners to obtain knowledge in a passive way without transmitting knowledge into production (Golkova & Hubackova, 2014). Productive skills are called active skills, including speaking and writing. Learners are supposed to ‘produce’ the knowledge they gained either by speaking or writing in the target language. There has been an ongoing debate

among researchers whether productive language skills are more complex than receptive language skills. The number of researchers who contend that one skill surpasses the other is limited. Some researchers argue that productive skills are more complex than receptive skills due to the demand for language output generation by learners (Swain, 1995; Bygate, 2001; Larsen-Freeman, 2003). However, some researchers support the idea that receptive skills may be more cognitively demanding than productive skills since they involve the ability to process and interpret (Long, 1983; Gass & Mackey, 2015). There are a great number of researchers who argue that receptive and productive language skills are equally complex and interdependent (Nunan, 1999; Swain & Lapkin, 2000; Gass & Selinker, 2008; Larsen-Freeman & Cameron, 2008; Ellis, 2012). As a result, it may be hard to conclude that writing is challenging because it is a productive skill. Rather, focusing on the nature of writing as a language skill would help researchers gain a deeper understanding of teaching L2 writing. Students find L2 writing difficult and challenging since they are required to apply a variety of unfamiliar linguistic and cognitive strategies (Selvaraj & Aziz, 2019). Writing is considered as a complex skill not only in L2 but also in first language (L1). However, compared to writing in L1, accurately expressing ideas in a written way in L2 poses even a greater complexity for students as one needs language proficiency along with writing ability (Celce-Murcia, 1991).

Writing and speaking are both productive skills, however, there are many differences which cause a great distinction when both are compared. Canale and Swain (1980) discussed the differences between speaking and writing and note that speaking is more spontaneous and interactive while writing is more organized and planned. In addition, they also suggest that speaking involves nonverbal clues while writing relies heavily on grammar and lexical accuracy. Ellis et al. (2008) also

highlighted that writing involves more complex syntax and vocabulary while speaking relies heavily on discourse markers and formulaic expressions. The study of Biber et al. (2003) also highlighted the differences between writing and speaking by focusing on formulaic expressions. Similarly, they concluded that speaking makes a great use of formulaic expressions while writing makes use of complex phrases and structures. Therefore, we can conclude that writing is considered challenging since learners need to combine syntactic and lexical knowledge. In addition, organizational aspects of writing also make writing challenging compared to speaking (Tangpermpoon, 2008). Writers without the ability to write appropriately in their L1 may not be successful in L2 writing since they need to combine their L2 knowledge with the ability to write. In addition, the distance between writers and readers makes writing more complex than speaking (Kintsch, 1998). Speakers can easily follow facial expressions, gestures, mimics, and immediate clues while writers cannot. On the other hand, writers have unlimited opportunities to plan, revise and edit their written work while speakers need to make instant decisions to express their ideas verbally (Van Lier, 1995), which is another characteristic that distinguishes between speaking and writing. In sum, writing is considered cognitively more challenging than speaking (Flower & Hayes, 1981) since writing requires a serious planning, combination of structural and content knowledge, appropriate choice of words, organization, and structure (Friginal & Weigle, 2014). Flower and Hayes (1981) explained the complexity of writing with their cognitive process theory. Their model supported the claim that writing is cognitively more challenging than speaking since writing involves an interactive process of generating, organizing, and revising ideas which requires a high level of cognitive effort.

The complex nature of writing led writing instructors to focus more on how to teach writing effectively as a language skill. As a result, L2 writing approaches emerged and researchers tried to cope with the challenges of teaching writing by following certain strategies of these approaches. According to Hyland (2019), teachers often exhibit a bias for one approach, but they often identify and use a variety of approaches. Although feedback has become an initial concept in L2 writing development, writing instructors believe that they cannot utilize feedback to its maximum potential (Hyland & Hyland, 2006). Research indicated that even if learners believe in their development in writing, instructors are not satisfied with the results (Lapp et al., 2012).

2.3. Product vs. Process Approach to Writing

The importance of providing feedback can be understood by examining the history of L2 writing approaches. Approaches to teaching L2 writing emerged in accordance with the areas that were given importance to. Two predominant approaches to teach writing are the product and process approaches.

Early in the 1940s, language instruction and assessment focused heavily on grammatical accuracy and correctness rather than the originality or creativity of written works (Grabe & Kaplan, 2016). In the past, controlled compositions were commonly used in writing instructions, and the focus was often limited to the sentence level development. Therefore, L2 writing focused on form rather than content. In other words, language structures were important while personal backgrounds of the writers were totally neglected. L2 writing was viewed as a habit formation, and it was assumed that learners should apply the linguistic structures presented by their teacher (Silva, 1990). This view emerged as a synthesis of ideas

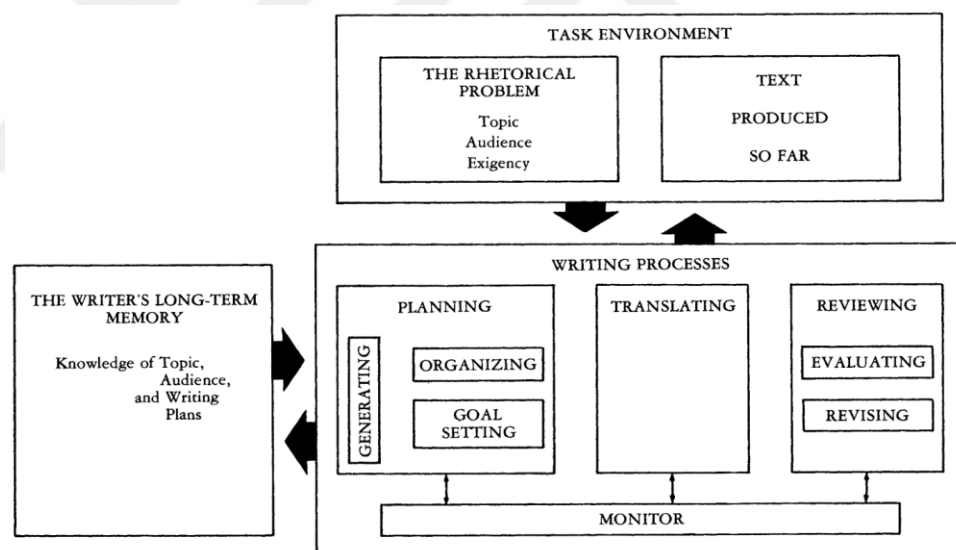
from structural linguists and behaviorist theories. Supporters of this view evaluated writing as a part of grammatical and lexical comprehension of the written work. According to Hyland (2019) and the structural view of writing, learners progress through four stages as they develop their writing skills: familiarization, controlled writing, guided writing, and free writing. In short, learners were supposed to keep certain grammatical and lexical structures in mind, manipulate and imitate the given structures before moving to free writing, where they form a piece of writing by using the structures that they have learned (Silva et al., 2001). This approach was called the "product approach to writing", which is described by Gabrielatos (2002) as a conventional approach where students are encouraged to imitate a model text that is typically introduced and examined in the initial stages of instruction. Processes that learners go through were neglected, the ultimate goal of writing was forming an accurate text with target structures. The actual component of communication, and meaning was left untouched in the structural view (Coffin, 2006). As a result, feedback in product approach was focused on correcting grammatical structures that were taught before.

The significance of feedback was widely recognized with the process approach to writing, which focuses on learners' journey undertaken to reach the final product (Blackmore-Squires, 2010). The process approach in writing places emphasis on the writing process itself rather than solely focusing on the final product. Flower and Hayes (1981) defined writing as a recursive process where planning, revising, and editing take place in a certain period. Process approach to writing puts an emphasis on writers as the creators of their own writing (Hairston, 1982; Hyland, 2019). It also helps learners understand the value of writing as a personal task which motivates them to write (Wigfield, 1994). The process approach seeks to allow students to

determine the format of writing considering their ideas rather than certain forms (Silva, 1990). When this view first emerged, researchers were concerned about how to teach writing by putting writers in the center. Flower and Hayes (1981) introduced a widely recognized framework for the process approach with planning, writing, and revising stages. Flower and Hayes (1981) stated that process writing does not have a linear order to follow which gives learners the freedom of producing their own work (see Figure 2). Flower and Hayes (1981) also claimed that writing has three essential elements which are the task-environment (anything other than the writer), writer's stored knowledge and plans, and writing processes.

Figure 2

Process Writing Model of Flower and Hayes (1981)



Since each writing piece is personal and no pre-determined structures are given, students need guidance in process writing. Therefore, giving feedback on writing gained more attention in process writing (Zamel, 1985). According to the process approach to writing, assisting students through their writing process is essential for their development. The aim is to gradually improve students' written

work as a creative act by putting students at the center. Feedback can provide guidance on areas that students need to improve as well as helping students to identify patterns of errors and encourage them to self-reflect on their writing processes (Ferris, 2003; Hyland & Hyland, 2006; Zammel, 1985). As Hyland and Hyland (2006) emphasized, feedback fosters learners' command of language, and specifically writing. Considering the feedback they receive, students improve themselves and become better, self-confident creators of their written works (Cho & Schunn, 2007; Ferris, 2003; Leki, 1990). Therefore, this study primarily aimed to investigate the effects of both WCF processing types on students' overall writing performance, following the process approach to maximize the effectiveness of WCF in improving students' writing performance.

2.4. Written Corrective Feedback

2.4.1. Definition of corrective feedback

Corrective feedback (CF) has gained significant attention among researchers in the last few decades (Bitchener et al., 2005). It has been crucial for the growth of writing, and students typically expect to receive corrections from their teachers (Hyland & Anan, 2006). Researchers defined CF under the scope of their research from different perspectives. An early and well-known definition of corrective feedback (CF) was Long's (1996) definition. Long (1996) defined CF as "any indication to a learner that his/her use of the target language is incorrect or imprecise in some respect" (p. 430). Long (1996) defined CF as negative evidence, which is the indication of ungrammatical parts of a work. Positive evidence, on the other hand, is grammatical and acceptable forms of target language. Lightbown and Spada (1999) defined CF as:

Any indication to the learners that their use of the target language is incorrect. This includes various responses that the learners receive.

When a language learner says, 'He go to school everyday', corrective feedback can be explicit, for example, 'no, you should say goes, not go' or implicit 'yes he goes to school every day', and may or may not include metalinguistic information. (Lightbown & Spada, 1999, pp. 171-172)

Although previous definitions were partly correct, other researchers defined CF in different ways to explain the underlying features of CF in a detailed way. Russel and Spada (2006) focused on types of feedback (explicit or implicit) and defined CF as the interlocutor provided to a learner which contains a proof of linguistic errors coming from various resources. On the other hand, Sheen and Ellis (2011) defined CF as "any feedback provided to learners in response to their errors that is intended to help them notice and correct those errors" (p. 261). They further emphasized the mode of feedback and stated that feedback can be provided on students' oral or written work (p. 593). Focal point of Richards and Schmidt's (2013) definition was WCF, which is explicit written comments and statements of teachers' regarding students' performance on the writing task aiming to improve their accuracy. According to Nassaji and Kartchava (2017), WCF refers to the written response provided to learners in response to their inaccurate or erroneous language output, with the aim of enhancing students' writing performance and accuracy. Regarding their research focus, it is crucial for researchers to define WCF in their own context to enhance writing performance of their students.

2.4.2. Types of written corrective feedback

Within the realm of teaching L2 writing, WCF has emerged as a highly debated and extensively explored topic (e.g. Polio, 2012). Therefore, many studies investigated various types of WCF from different perspectives such as collaboration in WCF (e.g. Wigglesworth & Storch, 2012), focus on grammar (e.g. VanPatten, 1986; Krashen, 1992), focused or unfocused WCF (e.g. Ferris, 2006; Sheen, 2007), direct WCF (e.g. Lalande, 1982), indirect WCF (e.g. Chandler, 2003), and metalinguistic WCF (e.g. Sheen, 2007). Although the importance of providing WCF in L2 writing instruction has been acknowledged by many researchers, there remains a significant degree of controversy about the most effective WCF type (Ferris, 2003).

Direct and indirect WCF are widely used in L2 writing classes (Sheen & Ellis, 2011). Direct WCF is giving the correct forms to the learners. Sheen and Ellis (2011) viewed direct WCF as an advantage if the learners are not aware of the correct form or not capable of self-correction. Indirect WCF involves signaling or indicating the error in the learners' written work without directly indicating the corrected form. This type of feedback can be implemented in various ways, such as underlining or highlighting the errors, using error correction codes or symbols, or providing marginal comments to solve specific language problems. In other words, it is a type of correction where the errors are not directly corrected. Lalande (1982) described indirect WCF as 'a guided learning and problem solving'. Teachers expect necessary corrections from the learners with indirect WCF. According to Ellis (2009a), indirect WCF can be done by either indicating the error only or both indicating and locating the error. WCF is a type of explicit feedback because learners obviously know that there is an error to correct, whether it is directly or indirectly mentioned.

Metalinguistic WCF is another type of WCF that involves explicitly indicating and explaining the errors to learners. It goes beyond simply signaling the presence of errors and by explicitly providing information about the nature of the errors, their underlying rules or principles, and how to correct them. This type of feedback aims to enhance learners' metalinguistic awareness by reflecting on and analyzing the language system itself. Combining the error correction codes with written explanations is the most popular way of providing metalinguistic feedback where learners are expected to find out the meanings of abbreviated codes and correct them accordingly. The feedback categories should be determined beforehand, and learners need to be aware of those categories to make necessary corrections. Researchers support the idea of providing metalinguistic feedback since it improves students' cognitive processing of feedback along with the development of explicit knowledge (e.g. Shintani & Ellis, 2013). With the help of metalinguistic feedback, learners can identify the discrepancy between their prior knowledge and the feedback they receive (Hashemian & Farhang-Ju, 2018).

Researchers conducted studies on different types of WCF and their effects on overall writing performance and accuracy. However, many of them had inconsistent results. Some suggested that direct WCF is more advantageous than indirect WCF in practice, especially with low level students (e.g. Ferris & Roberts, 2001). However, they also state that direct WCF may have limitations in terms of promoting long-term learning. Bitchener et al. (2005) supported direct oral and written metalinguistic feedback as a combination. Furthermore, a study by Sheen (2007) supported direct metalinguistic feedback over providing direct feedback only. However, Shintani et al. (2014) concluded that direct feedback is more effective when compared to metalinguistic feedback. In sum, researchers could not come to terms about the most

effective type of WCF because of the variety of research results conducted on each type. Therefore, by considering the positive effects of indirect and metalinguistic feedback, this study provided WCF with the error correction codes to investigate the effects of individual and collaborative processing of WCF on students' writing performance.

2.4.3. Research on written corrective feedback

WCF has gained significant importance in teaching L2 writing (Ferris, 2003). It has been investigated by many researchers throughout the history (Carroll & Swain, 1993; Ferris, 1999, 2002; Havranek, 2002; Lalande, 1982; Lyster, 1998; Loweven, 2004; Mackey et al., 2000; Mujtaba et al., 2021; Oliver & Mackey, 2003; Schmidt, 1990; Suzuki, 2008; Truscott, 1996; Wigglesworth & Storch, 2012). Truscott's (1996) empirical study was a turning point in the investigation of the effectiveness of WCF as it changed the conventional wisdom that WCF is effective and beneficial for students' writing improvement. Prior to Truscott's (1996) study, WCF was not considered a necessary issue in writing because writing as a skill was not as vital as other language skills (Bitchener, 2012). Although WCF has become quite popular recently, its role in writing is still a mystery (Bitchener & Knoch, 2010; Ferris, 2010; Hyland & Hyland, 2019). While some researchers believe that it is impractical and time-consuming (e.g. Truscott, 1996), some others believe that it is a must in writing classes (e.g. Ferris, 1997). Teachers generally invest a considerable time providing feedback to on students' written works either by focusing on some errors or all, with the belief that it is an essential component of improvement (Kang & Han, 2015). Providing feedback is essential to guide the learners and this significance has been widely acknowledged in L2 writing (Hyland & Hyland, 2006). However, research conducted on its effectiveness have yielded inconsistent results. Being the

implementers in practice, teachers' view of WCF is also controversial (Bitchener & Storch, 2016; Ferris, 2012; Lee, 2013). While some teachers support the ineffectiveness of WCF, some others strongly disagree with them. In addition, some teachers believe that they could not fully utilize WCF to have beneficial effects on L2 writing (Lee, 2017b).

The ongoing discussion surrounding WCF prompted researchers to undertake empirical investigations into its effectiveness across various contexts. Early studies primarily investigated the impact of feedback compared to no feedback, rather than focusing on the effects of specific WCF types. The majority of early studies concluded that providing feedback enhances learners' writing performance (Ashwell, 2000; Fathman, 1990; Gascoigne, 2004; Lalande, 1982; Sheppard, 1992).

As a well-known study, Lalande (1982) conducted empirical research with 60 German pre-intermediate level students and divided them into four groups: two control and two experimental. Participants wrote five essays and received WCF by their instructor. The control group reviewed WCF in a traditional manner as the instructor corrected their errors directly. The essays of two experimental groups were marked by using error correction codes and received indirect WCF. The experimental group was asked to interpret the codes to make corrections. Both groups were given fifty minutes to complete their revisional activities. Lalande (1982) concluded experimental indirect WCF groups outperformed the control groups. Lalande (1982) concluded that indirect WCF is an effective classroom practice which needs to be a part of writing classes.

Another research on the effectiveness of WCF was conducted by Ferris (1997) with 47 advanced learners. Three groups were assigned to write personal, narrative,

expository, and persuasive essays. The direct WCF group received corrections from their teacher while students in the indirect WCF group received coded corrections. Students wrote at least three drafts for each essay. During the treatment process, various in-class activities were conducted such as teaching reading and writing techniques, discussions on grammar and editing, participating in prewriting and revision exercises. Students received feedback along with the teacher's commentary from three categories: questions, requests, and imperatives. Ferris (1997) found that both groups improved their writing performance after the WCF treatment. The grammar comments provided by the teacher were found to be beneficial in improving students' writing skills. Ferris (1997) emphasized the significance of providing WCF to support learners in enhancing students' writing skills. This involves the provision of WCF by teachers and creating opportunities for students to practice and revise their work.

Ohta (2001) conducted a study with 30 Japanese EFL learners and provided WCF to their written works. Ohta (2001) argued that providing correct forms of language allowed students to compare their work with that of other writers. Through this process of comparative analysis, learners gained a deeper comprehension of the form-meaning relationships within the language they were studying. Specifically, Ohta (2001) found that the WCF enabled learners to identify errors and develop strategies for avoiding them in the future. Results indicated that WCF played a crucial role in L2 writing, allowing learners to become more proficient and effective writers over time.

Ferris and Roberts (2001) examined the effectiveness of coded and uncoded WCF. One group received coded and uncoded feedback, the other received no feedback. The study utilized a 50-minute diagnostic essay writing task as the

intervention. The findings revealed that the group receiving WCF, regardless of whether it was coded or uncoded, performed better than the control group. However, there was no statistically significant difference observed between the coded and uncoded feedback groups. The researchers concluded that providing either coded or uncoded feedback is more beneficial than no feedback at all, and both types of feedback can effectively enhance learners' writing skills.

Gascoigne's (2004) study with 25 L2 students also found positive effects of WCF on writing development. It was a study that utilized mixed-method research design, with pretests, posttests, surveys, and student interviews. At the beginning of each task, students were given 3 to 5 questions to guide the prewriting activities. Based on their pre-writing tasks, students wrote a short descriptive text with an average of 92 words in fifty minutes. The instructor commented on each task by providing four different types of comments and handed the drafts back to students. Students were given two days to revise their work in light of the instructor's feedback. This study was a replication of Ferris' (1997) study and supported the findings. Results indicated that the instructor's written comments helped students to improve their writing skills. Overall, WCF along with instructor's comments was found effective in improving students' writing skills.

Although some proved positive evidence of WCF, some had research design flaws (e.g. Ferris, 1997; Chandler, 2003; Russel & Spada, 2006; Sheen 2007; Bitchener & Knoch, 2009). For instance, some studies lacked a control group which was considered as a weakness (e.g. Ferris, 1997; Chandler, 2003). Therefore, it may not be possible to prove the effectiveness of WCF since there may be other factors influencing learners' improvement. In addition, some of these studies deliver unfocused feedback where they provide WCF for each error (e.g. Ferris, 1995;

Hyland, 1998). In other words, they do not focus on certain errors which may lead learners to ignore the underlying reasons of errors and focus on correcting them only. Some earlier research on WCF was seen as flawed because they delivered unfocused feedback, creating doubts on the effectiveness of WCF. Therefore, they were considered weak even if they supported the effectiveness of WCF.

There are many studies that could not find any positive evidence supporting the effectiveness of WCF. Semke (1984) conducted research with 141 first year German students. Students were assigned with a weekly free writing task. There were three groups; one received direct correction with no comments, the other received WCF along with teachers' comments, and the last one got coded feedback. In the end, no significant difference across the groups were found.

In Kepner's (1991) experimental study with 60 EFL learners, two experimental groups received WCF on their eight journal entries while other groups received no WCF. Results showed that WCF groups showed 15% of improvement compared with the control groups which was not significant. Kepner (1991) concluded that the WCF group did not improve their sentence-level errors.

Another study by Fazio (2001) was conducted with a larger group, 112 French students from four different classes. There were two groups and students were given weekly WCF on their journal entries from their instructor. The research investigated the impact of corrections, written comments, and a combination of both). The results indicated that none of the groups demonstrated significant improvements. According to Fazio (2001), the limited treatment time might be the reason for no significant improvement.

The issue of WCF in writing classes has been popular due to some initial studies having in their methodology that made it difficult to prove its effectiveness. Recent studies tried to fill the gaps in literature by focusing on neglected issues in early studies (e.g. Bitchener, 2008; Gholaminia et al., 2014; Kim & Emeliyanova, 2021; Lee, 2019; Sheen, 2010; Shintani & Ellis, 2013; Shintani et al., 2014; Zheng & Yu, 2018).

A quasi-experimental study by Sheen (2007) involved 91 students (two experimental groups and a control group). The study examined the effectiveness of direct and direct metalinguistic WCF on definite and indefinite articles. The inclusion of a control group provided a better understanding of the effectiveness of WCF. Following a pretest-treatment-posttest-delayed posttest design, Sheen (2007) concluded that both treatment groups outperformed the control group at the end of the experiment, with the direct metalinguistic WCF group achieving higher accuracy rates compared to the direct WCF group. The results underscored the importance of providing metalinguistic feedback with error correction codes, as it allows learners to comprehend the reasons behind their errors rather than merely receiving corrections. This study sheds light on different types of WCF and their effects on writing performance. It also highlights the significance of employing metalinguistic feedback, particularly through error correction codes, to enhance learners' writing skills.

Bitchener and Knoch (2008) investigated the effects of WCF on the referential indefinite and definite articles. The study involved three treatment groups: direct CF with written and oral explanations, direct CF with written ME, only direct CF, and a control group. The study lasted for eight weeks, during which the treatment groups got corrective feedback on their written assignments, while the control group received no feedback. The researchers concluded that all treatment groups showed significant

improvement in indefinite and definite articles, compared to the control group. However, no significant differences between the treatment groups were found. Bitchener and Knoch (2008) concluded that providing WCF, regardless of the type, can effectively improve students' writing skills in the targeted areas. They also suggested that further studies are needed to determine whether one feedback type is more effective than others.

As a follow-up study, Bitchener and Knoch (2009) conducted an additional experiment examining the effects of different feedback types on the referential definite and indefinite articles in English as a second language (ESL) writing. The study consisted of the same treatment groups as the previous study: direct CF with written and oral ME, direct CF only, direct CF with written ME only, and a control group. The study continued for four weeks and followed a pretest, treatment, immediate and delayed posttest design. In the end, all experimental groups improved their use of referential indefinite and definite articles. This suggests that all types of WCF were useful in improving the targeted grammatical structures. Overall, both studies by Bitchener and Knoch (2008, 2009) provide evidence that different types of WCF might be beneficial in improving ESL students' writing performance and targeted grammatical structures. However, more research is needed to determine the effective WCF type.

Bitchener and Knoch (2010) conducted another study on linguistic accuracy of the students. Their study involved 93 EFL students (one control and three experimental groups). The experimental groups were written metalinguistic explanation (ME), indirect WCF, and written ME and oral CF. Both the written ME and indirect WCF groups performed better than the control group in terms of their linguistic accuracy. Significant differences were found between the pretest and

posttest results on the accuracy, after receiving WCF as the treatment. Overall, Bitchener and Knoch (2010) concluded that WCF is an effective practice to improve writing performance as well as accuracy.

Shintani and Ellis (2013, 2014) conducted two studies by examining students' use of grammatical structures after receiving WCF. In their 2013 study, they focused on definite articles and formed a direct CF group, ME group, and a control group. The pretests and posttests results were not significant regarding the accuracy of definite article use between the direct CF and ME groups. However, the ME group showed a slightly better performance than the direct CF group. As a follow-up study, Shintani and Ellis (2014) investigated the use of hypothetical conditionals and indefinite articles in relation to WCF. They divided the groups as ME, direct CF, ME with revision, direct CF with revision, and a control group. As a result, all types of feedback were found helpful in improving the accurate use of hypothetical conditionals. However, for indefinite articles, none of the feedback types were effective in improving students' writing and target structures. In addition, direct CF was more effective than ME in improving the accurate use of hypothetical conditionals. Both studies by Shintani and Ellis (2014) highlight the importance of implementing different types of WCF in EFL writing, especially on specific grammatical structures. The results suggest that the effectiveness of WCF may vary depending on the specific grammatical structure being targeted. Additionally, the studies suggest that direct CF may guide students better than ME in improving the use of certain grammatical structures.

Shintani et al.'s (2014) study was with five randomized groups of students who received WCF on their writing for more than five weeks. The groups included the direct WCF, ME, ME with revision, direct WCF with revision, and a control

group. The direct WCF group was provided with written comments of the teacher with directly corrected errors, while the ME group received comments that explained the grammatical rules that they had violated without directly correcting the errors. The ME with revision group received ME comments and were also given the chance to make necessary revisions on their writing, while the direct WCF with revision group received both direct correction and the chance to revise. The researchers found that all types of feedback had a positive impact on the students' overall writing performance. However, the direct WCF group was found to have longer-lasting effects on the students' writing accuracy than the ME group. The ME with revision and direct WCF with revision groups had similar effects to the direct WCF group, suggesting revision opportunities can enhance the utilization of feedback. In conclusion, Shintani et al. (2014) concluded that providing WCF to ESL students is crucial and effective in improving their writing performance and accuracy.

A study by Suzuki et al. (2019) investigated learners' accuracy of indefinite article and past perfect tense use after WCF treatment. The study involved four groups of students who received various types of WCF over four weeks. The first group got direct CF and ME for their errors, while the second group got direct CF only. The third group got indirect CF and ME, where the teacher provided general comments about the grammatical rule. The fourth group received indirect CF only, where the teacher provided general comments about the grammatical rule without indicating the location of the error. All four groups improved their usage of indefinite article and past perfect tense use significantly. However, there was no difference between the direct WCF and indirect WCF groups. Additionally, ME groups showed slightly more improvement than the groups that received WCF only. The study supported the implementation of both direct and indirect WCF in ESL writing. The study also

suggests that providing ME along with WCF can enhance students' writing performance.

Focused and unfocused feedback was also investigated by many researchers under the scope of WCF. A quasi-experimental study by Ellis et al. (2008) investigated the effectiveness of focused and unfocused feedback in improving the accuracy of definite and indefinite articles, as well as other grammar structures. The groups (focused WCF, unfocused WCF, and writing practice) took a pretest and posttest as well as a delayed posttest. The focused WCF group was provided with direct feedback on their errors, while the unfocused WCF group was provided with general feedback on their writing without any reference to the target structures. The writing practice group received no feedback, but they continued practicing writing. The study lasted for four weeks, during which students in the focused WCF group received individualized feedback. Both written and oral feedback were provided to students, focusing specifically on the target structures. The feedback that the unfocused WCF group received was similar, but it was not specifically focused on the target structures. The focused WCF demonstrated a better performance on the accuracy of the target structures. The writing practice group also showed significant improvement, but not greater than the focused WCF group. No significant improvement was found between the unfocused WCF and the control groups. In addition, the researchers found that the focused WCF group also performed better than the other groups in other grammar structures such as prepositions, irregular past tense, copula be, and regular past tense. In conclusion, focused WCF was more beneficial in improving specific target structures than unfocused WCF or writing practice alone. They also suggest that teachers should prioritize giving feedback on specific errors related to the target structures, rather than giving general feedback on writing.

Frear and Chiu (2015) examined the effects of providing focused and unfocused WCF on English articles with 67 Chinese university students. It was a quasi-experimental study. The groups were focused indirect WCF, unfocused indirect WCF, and a control group. Participants wrote a picture description as the pretest. Following the pretest, they received treatment in the form of either focused or unfocused WCF. The instructor provided WCF based on the use of definite and indefinite articles. The focused group got feedback only on article errors, while the unfocused group received feedback on other language errors along with the articles. After the treatment, the participants completed a posttest, which was the same as the pretest. As a result, WCF groups outperformed the control group with no significant differences between the experimental groups in terms of accuracy. The researchers suggested the sample size or the use of indirect feedback might have influenced the lack of improvement. Nonetheless, the study suggests that both focused and unfocused WCF can be beneficial in improving the use of English articles of Chinese university students.

Along with the studies that focused on revision of the previous works, several studies focused on new pieces of writing (Ellis et al., 2008; Karim & Nassaji, 2018; Liu, 2008; López et al, 2018). Truscott and Hsu (2008) conducted a study in which the experimental group received WCF on two in-class writing tasks. Experimental group received WCF by underlined errors while the control group got feedback with no marks. At the end of the treatment, the experimental group outperformed the control group. As one of the recent studies, Karim and Nassaji (2018) found no significant effect of WCF on new pieces of writing and revealed that there is no significant impact of direct WCF on grammatical accuracy, only a short-term transfer effect was detected.

In conclusion, most of the recent studies on WCF paid attention to different types of WCF in different contexts to investigate the untouched issues in the literature. The present study aimed to address the issue providing WCF through error correction codes. This approach was adopted based on existing literature that supports the effectiveness of both indirect and metalinguistic WCF.

2.4.4. The controversial issue of written corrective feedback

The controversial issue of providing WCF in L2 classes dates back to Truscott's (1996) empirical study. Truscott (1996) firmly claimed that WCF should be abolished from writing classes because of three main reasons: (1) it is an ineffective practice, (2) it is impractical, and (3) it has possible damaging effects on students. Truscott (1996) believed that while correcting students' errors might help them to get rid of some errors, it does not help them to acquire a new target language. In conclusion, he believed there is no need to include WCF in L2 writing classes as it does not help them to learn something new in the long-term. According to Truscott (1996), WCF is an ineffective practice since it results in no change of the accuracy. Truscott (1996) also claimed that researchers neglected the critical view of the correction process along with the theoretical challenges that WCF would cause. Truscott (1996) also criticized researchers who supported WCF by claiming that they do not consider negative effects of grammar correction on students' attitudes along with the time and effort grammar correction takes. In short, Truscott (1996) strongly claimed that WCF should be abolished from L2 writing classes since its negative sides outweigh the positive ones.

Truscott's (1996) strong claims had a tremendous effect on the L2 writing research area, which generated a significant debate on the efficacy of providing WCF

in writing classes, ultimately leading to a division among researchers. While a considerable amount of research supported the ineffectiveness of WCF (e.g., Bruton, 2009; Ellis; 2008; Truscott, 2007; Storch, 2010), many researchers disputed Truscott's claim and supported the power of the correction in writing classes (e.g., Atmaca, 2016; Ferris, 1997, 1999; Lalande, 1982).

As opposed to Truscott, Ferris (1999) argued that the effectiveness of WCF is closely related with the feedback quality students receive. In other words, Ferris (1999) supported that accurate and consistent feedback worked well in L2 writing classes. However, Ferris' view was not widely supported since the term "quality" was found to be rather subjective. Furthermore, Atmaca (2016) gathered perceptions of EFL teachers and students regarding WCF in writing classes and concluded that not providing feedback is not a matter of choice. Rather, providing WCF is a must to enhance students' writing performance and skill. Additionally, many students find WCF quite useful and essential in writing classes and they have the expectation of receiving corrections from their teachers (Atmaca, 2016; Hyland & Hyland, 2006; Lalande, 1982; Lee, 2004). However, according to Truscott (1996), students bring their past experiences to language classes, and they always expect what worked for them before, without being aware of better options where there is no place for WCF. In accordance with Truscott's (1996) view, students were not in the place of making decisions in such practices. In short, Truscott (1996) supported that students' beliefs and expectations cannot be a reliable roadmap to choose the appropriate way of teaching writing.

Another controversial issue is teachers' role in giving WCF. Researchers argue that not all teachers are consistent with the type of feedback they give (Semke, 1984; Lightbown, 1985, Hyland & Hyland, 2006). Types of errors teachers focus on

depend on the context, level, and background of students and teachers. According to several researchers, not being consistent may result in harm instead of improvement in writing. Therefore, they support eliminating WCF in writing classes. Teachers' involvement in WCF is another widely discussed topic. Which errors should teachers focus on or to what extent they need to correct them is still a controversial issue. In addition, teachers as correctors may not know the underlying reasons of learner errors, which affects the effectiveness of WCF given by teachers (Lightbown, 1985). Moreover, Zamel (1985) believed that some teachers focus on learners' texts as final works and give WCF by focusing on grammar rather than giving content-specific feedback. Some teachers view writing as a process and value each stage including the content. Considering the differences between teachers' way of providing feedback and their approach to teaching writing, several researchers believe that WCF given by teachers are ineffective (Chandler, 2003; Lee, 2013; Truscott, 1996). However, Leki (1990) and Ferris (1995) disagreed with this view and claimed that teachers are capable enough to detect learner errors regardless of their view, and they should not be forced to analyze and correct all the errors. They claimed that teachers can be the judges of their students' work, and they can determine the errors that need correction.

CHAPTER 3

METHODOLOGY

The third chapter presents a brief introduction and concise overview of the methodology employed in this study, emphasizing the key aspects that underpin the research design. It provides a detailed account of the participants along with the methods, techniques, and procedures used to collect, analyze, and interpret data.

3.1. Introduction

This study examined the impact of both individual and collaborative processing of WCF on students' writing performance. In addition, students' attitudes towards error correction and specific WCF processing types were gathered. The present study sought to explore how these different processing methods influenced students' writing abilities and their perceptions of individual and collaborative feedback processing. The study was a quasi-experimental study that adopted a mixed-methods research design. The quantitative data was collected by following a pretest-treatment-posttest structure while the qualitative data was collected from the students' short-responses regarding individual and collaborative processing. Participants were 42 B1 Level English Preparatory School students from two intact classes. The experiment lasted for 8 weeks in two experimental classes. The treatment group processed the instructors' feedback collaboratively, whereas the control group processed WCF individually. Both the individual and collaborative WCF processing groups had 40 minutes to write four different paragraphs every two weeks and write the second drafts for each in the following week. The first paragraphs were taken as the pretest and the last ones were the posttest. The collaborative WCF group had 20-

25 minutes while the individual WCF group had 10-15 minutes to make revisions based on the instructors' WCF.

3.2. Research Method

The current study incorporated both qualitative and quantitative research methods and adopted a mixed-method research design. According to Creswell and Clark (2017), the researcher gathers, examines, and combines both quantitative and qualitative data within a single study or a multi-stage investigation in a mixed method research (p.2). It is necessary to be familiar with the fundamental aspects of both research approaches to conduct mixed methods research. Quantitative research is a scientific method which relies on measurement and observation to collect numerical data. The aim of quantitative research is to generate empirical evidence, test hypotheses, and establish cause and effect relationships to generalize statistical findings to a larger population (Creswell, 2014). In educational research, quantitative research is commonly used to enhance teaching techniques and student outcomes, resulting in an objective analysis of educational phenomena (Gall & Borg, 1989). Using quantitative research techniques helps researchers to ensure that educational practices are evidence-based and effective in student improvement. However, using quantitative research by itself may not be enough to explain a complex phenomenon in an educational context. Since education is an area which requires a deep understanding of such phenomena, the help of qualitative research is needed. According to Merriam (2009), qualitative research is a scientific method of inquiry that seeks to understand a complex social phenomenon through the interpretation of subjective experiences. Education is considered as a social phenomenon which requires a deep understanding (Durkheim, 1956; Bourdieu, 1977; Lareau &

Weininger, 2003), therefore, the support of qualitative research is needed. Creswell (2014) emphasizes the importance of qualitative research in educational contexts and focuses on teacher beliefs, student experiences, and school culture as complex educational phenomena which cannot be explained with quantitative data by itself. Data collected through interviews, observations, focus groups, and reflective essays allows researchers to identify underlying reasons for such complex phenomena and provides valuable insights into teachers and students' educational experiences. Since both qualitative and quantitative research methods are important in educational research, researchers tend to combine qualitative and quantitative research methods into their studies. Mixed-method research provides a deeper understanding of educational phenomena than quantitative or qualitative research can provide by themselves (Creswell & Plano Clark, 2018). Mixed-method research strengthens the study and provides a more complete picture of the complexity of an educational phenomenon. For these reasons, this study adopts a mixed-method research design to analyze the effects of different processing types of WCF and students' insights on both processing methods.

Students' paragraphs comprised the quantitative data of the study. The aim of collecting student paragraphs was to investigate the effects of each WCF type and analyze the error numbers of each before and after the treatment. Research Questions 1 and 2 were answered by analyzing the pretest and posttests quantitatively.

The qualitative data was collected through short-response reflection forms. Reflection forms were crucial to answer Research Question 3, investigating students' attitudes towards both the individual and collaborative processing of WCF. The qualitative data complemented and enriched the quantitative findings by providing

deeper insights into the feedback practices under investigation. A summary table for research methodology is presented in Table 1.

Table 1

Research Methodology

<i>Research Questions</i>	<i>Data Collection Tools</i>	<i>Data Analysis</i>
1. What are the effects of individual and collaborative processing of WCF on students' overall writing performance?	Student Paragraphs	Between Groups Comparison of Posttest (Independent Samples T-Test) Within Group Comparison of Pretest and Posttest (Paired Samples T-Test) Comparison of Rubric Categories (Paired Samples T-Test & Wilcoxon Signed Rank Test)
2. What is the impact of individual and collaborative processing of WCF on students' grammatical, lexical, and mechanical errors?	Student Paragraphs	Analyzing Error Numbers (Mann Whitney U Test)
3. What are students' attitudes towards individual and collaborative processing of WCF?	Short-Response Reflection Forms	Direct Quotes of Students

3.3. Participants and Setting

Participants were forty-two university students studying in English preparatory classes at a private university in Istanbul, Turkey. According to the institution, students who get 80 and higher out of 100 from the proficiency exam can start their studies at their faculties. The proficiency exam is prepared by the institution and consists of two phases: main part and speaking. The main part of the exam has five parts: listening, writing, reading, use of English, and vocabulary. Students who stay in the score range between 60 and 75 must take an additional speaking exam which consists of three parts: warm-up, monologue, and dialogue questions. Both monologue and dialogue questions are chosen from common, daily-life topics that do not require any background knowledge or preparation. Students are given two minutes in the monologue section: one minute to think and one more to answer the question. Following the monologue section, students are asked to conduct a dialogue with the instructor by answering the questions. Students who get 80 or more in the speaking exam are considered eligible to pass the exam and continue as freshmen students. Students who are not eligible to pass the exam are placed in their preparatory classes after taking the placement test that is prepared by the institution. Proficiency and placement exams are prepared by instructors and reviewed by experienced proofreaders and approvers who are also instructors specialized in exam preparation. Due to absence of a testing office within the institution, there is no piloting of exams or any assessment of their reliability or validity conducted. Along with the placement test results, the institution follows a ‘unit’ system in which students are grouped in accordance with their departments. The aim of the institution with a unit-based placement system is to get students familiar with their departmental studies with the ESP (English for Specific Purposes) courses they take in the second semester. The

institution follows a ‘level-based system’ and ‘Track system’ in each unit. In the Track system, one semester is divided into two Tracks. In other words, the preparatory studies last for four Tracks; Track 1 and 2 for the first semester, Track 3 and 4 for the second semester. According to the placement exam results and level-based system, the classes are divided as low, medium, and high levels which are equal to different Common European Framework (CEFR) levels as students keep improving themselves and passing the Tracks. For instance, medium-level students are considered as CEFR A2 level in Track 1, B1 in Track 2, B1+ in Track 3, and B2 in Track 4. In short, each level has a different CEFR equivalent in each Track. At the end of each Track, students are reclassified according to their Track Achievement Test (TAT) results. The CEFR level equivalence of each Track is determined by the institution (see Table 2).

Table 2

CEFR Levels Equivalents to Institutional Levels in Each Track

<i>Institutional Levels</i>	<i>CEFR Levels</i>			
	<i>Track 1</i>	<i>Track 2</i>	<i>Track 3</i>	<i>Track 4</i>
Low	A1, A2	A2, B1	B1+	B2
Medium	A2	B1	B1+	B2
High	B1	B1+	B2	B2+

The present study started at the beginning of Track 2 and continued throughout eight weeks, until Track 3. Therefore, medium-level students at the beginning of Track 2 were at CEFR A2 level and expected to become CEFR B1 level at the end of Track 2. Based on the unit system that the institution applies, the participants were all engineering and architecture students. The researcher employed convenience sampling as she conducted the research in two of her classes that were

already available. The researcher conducted the study in her main course classes since being the writing instructor of one of these classes would be a confounding variable, which is defined as an extraneous variable that is not the focus of a study but affects the relationship between dependent and independent variables (Grimes & Schulz, 2002).

Students' current levels were determined after the TAT conducted by the institution at the end of Track 1. As both groups were medium-level students, each class was assigned as the individual and collaborative WCF processing randomly. Since randomization was not possible, the study is a quasi-experimental study. Each group consisted of 25 students at the beginning of the treatment process. However, those who could not attend the classes regularly were eliminated to ensure the internal validity and prevent having missing data. At the end, both the individual and collaborative WCF groups consisted of 21 students in total.

3.3.1. Demographic information of the participants

The researcher collected participants' demographic information through a demographic form (see Appendix A). According to the information gathered through the demographic form, participants were non-native speakers of English, aged between 17 and 23. Each group consisted of twenty-one students. The control group consisted of 11 females and 10 males while the experimental group had 13 females and 8 males. There were twenty-nine native speakers of Turkish and thirteen non-native speakers of Turkish. All the non-native speakers of Turkish were from Middle Eastern countries such as Iran, Morocco, Yemen, Lebanon, Azerbaijan, and Turkmenistan whose native languages were Arabic, Persian, Azerbaijani, and Turkmen. The participants had been learning EFL for approximately seven years. In

other words, students had already gained experience in learning EFL before joining the preparatory classes. Twenty-three of the participants stated that no one in their house speaks English while nineteen of them stated that at least one person in their house speaks English. Thirty-nine of the participants stated that English is not utilized in their household for everyday conversation. A clear majority of the participants do not speak English at home. In short, most of the participants learn EFL in an educational context rather than using it as a tool of communication in daily life. Twenty participants stated that they had started to study English at primary, fifteen at secondary, three at high school, and two at kindergarten and university, respectively. To understand the EFL writing background of the participants, the last question of the demographic form was whether they had taken English writing courses before. Thirty-two participants stated that they had not taken any writing courses before, while only ten participants had taken writing courses before their preparatory studies. Characteristics of the participants are presented in Table 3 below.

Table 3

Characteristics of Participants

<i>Characteristics</i>		<i>Individual Group (N)</i>	<i>Collaborative Group (N)</i>
Gender	Female	11	13
	Male	10	8
Native Language	Turkish	14	15
	Non-Turkish	7	6
<i>Both Groups (N)</i>			
English Spoken	Yes	3	

at Home	No	39
Previous Writing Courses Taken	Yes	10
	No	32
English Learning Experience	Approximately 7 years	
	Kindergarten	2
	Primary	20
English Learning Started at	Secondary	15
	High School	3
	University	2

3.4. Data Collection Tools

Pretest and posttests comprised the quantitative data of the study.

Additionally, a short-response reflection form was administered for the qualitative data. Through the short-response reflection forms, the researcher aimed to understand the students' attitudes towards WCF in general along with each feedback processing type (individual or collaborative) to support the quantitative data.

3.4.1. Data collection tools for quantitative data

3.4.1.1. Student paragraphs

A pre-test with two writing prompts was administered in Week 1 to both individual and collaborative WCF groups to measure their existing writing performance. Participants were supposed to write short paragraphs (150-200 words) by choosing one of the writing prompts given by the researcher (see Appendix B).

Students had not started to take the writing course when the pretest was administered. Thus, the researcher chose the writing prompts by considering the students' familiarity of the paragraph types and topics to prevent possible problems that might occur. Therefore, students wrote either narrative or opinion paragraphs depending on the topics which were chosen from the coursebooks they had covered in their main courses during Track 1. In Week 1, Week 3, and Week 5, students were asked to write three paragraphs as a part of the treatment process. After the WCF provided by the instructor, students reviewed the first drafts of the paragraphs either individually or collaboratively according to the group they were in. The students wrote their second drafts in Week 2, Week 4, and Week 6 by considering the teachers' WCF. In Week 7, both groups were given the posttest to analyze the impact of the treatment.

During the treatment, the researcher gave WCF using the error correction codes that were developed and currently used by the institution (see Appendix C). Students were all familiar with the error correction codes since they were actively using them in Track 1. There were twelve error codes listed in the error correction code sheet. The researcher divided the errors into three categories to detect what kinds of errors students produce in their writings: grammatical, lexical, and mechanical. In his book "Errors in Language Learning and Use", James (2013) classified grammatical errors into five categories: omission, addition, substitution, misordering, and agreement errors. According to James (2013), omission errors occur when a learner leaves out or fails to include a necessary element in a sentence or grammatical structure such as omitting articles, auxiliary verbs, or other grammatical markers. Addition errors happen when a learner adds an unnecessary element to a sentence or grammatical structure. Substitution errors involve replacing one grammatical element with another, resulting in an incorrect structure such as substituting a verb form with

an incorrect tense or replacing a pronoun with an inappropriate one. Misordering errors occur when the order of words or phrases within a sentence or grammatical structure is incorrect. Finally, agreement errors refer to mistakes in subject-verb agreement, noun-adjective agreement, or other agreement rules within a sentence or construction. By considering James' (2013) framework, the current study categorized four of the errors on the error correction code sheet as grammatical errors (GR-grammar, A- article, N- countable/uncountable, and T-verb tense). James (2013) defined lexical errors as the different types of knowledge individuals possess about words and categorized lexical errors into three categories: selection errors, formation errors, and use errors. According to James (2013), selection errors occur when a learner chooses an incorrect word or phrase to convey a specific meaning. Formation errors involve the incorrect formation or construction of words. This can include errors in word order, word formation processes. Use errors refer to errors in using words or phrases appropriately within a specific linguistic or social context.

Considering James' (2013) framework, the current study categorized five of the errors in the error correction code sheet as lexical errors (MW-missing word, EW-extra word, WF-word formation, WW-wrong word, and PR-preposition). Crossley et al. (2019) defined mechanical errors as spelling and punctuation errors made by the learners. Therefore, the current study conceptualized mechanical error categories same as Crossley et al. (2019) and categorized three of the errors on the error correction code sheet (S- spelling, P-punctuation, C-capitalization) as mechanical errors. Formality was also a category in the error correction code sheet, which is not necessarily considered as an error in these three main categories. During the experiment, the researcher asked the participants to write their paragraphs without paying attention to formality so that they would write their paragraphs freely. Since

formality was not a criterion in the scoring rubric, it did not affect the total scores that students got at the end. Therefore, the formality category was excluded from the error correction code sheet. The error correction sheet with the specific categories is presented in Appendix D. The Error correction code sheet was essential to examine the error types and answer Research Question 2.

In addition to error correction codes, each paragraph was evaluated by using a scoring rubric that was developed and is currently used by the institution for paragraph grading (see Appendix E). The scoring rubric was developed only for evaluating paragraphs. Therefore, it was suitable to use for the current study. The scoring rubric has four main categories: organization, sentence structure, use of English, and word choice. Each category is worth 25 points with four score ranges: 0-5, 6-10, 11-16, 17-25. The scoring rubric is used by the researcher to answer Research Question 1, the effects of individual and collaborative processing of WCF on students' writing performance.

To ensure the reliability of the pretest and posttest scores, two different raters evaluated students' paragraphs. In accordance with Larsen-Hall (2016), the use of Cronbach's Alpha reliability coefficient is used when assessing the agreement between data from multiple judges. Therefore, the total scores were compared between Rater 1 and Rater 2, allowing for the calculation of a Cronbach's Alpha value. The interrater reliability indicated a high level of reliability for each category (see Table 4).

Table 4*Interrater Reliability Analysis*

<i>Categories</i>	<i>α Pretest</i>	<i>α Posttest</i>
Organization	.823	.933
Sentence Structure	.874	.906
Use of English	.851	.969
Word Choice	.909	.872
Total	.975	.954

3.4.2. Data collection tools for qualitative data**3.4.2.1. Short-response reflection forms**

A short-response reflection form was administered in Week 8 through Google Forms. Each group was guided with seven guiding prompts and asked to write their reflections on the whole treatment process related to individual and collaborative processing of WCF (see Appendix F and G). The aim of administering a reflection form was to analyze students' perceptions towards using error correction codes in writing courses. The researcher collected the short responses to analyze students' reaction to receiving WCF in writing courses and see the effects of individual and collaborative processing WCF. The responses were analyzed as direct quotations to capture the participants' experiences and provide evidence to support the quantitative data results.

3.5. Data Collection Procedure

Data was collected during the main course lessons of both WCF groups on a weekly basis. Initially, ethics committee approval was taken to ensure that the research adhere to ethical principles (see Appendix H). Before starting the

intervention, participants' consent was taken with Turkish and English consent forms (see Appendix I and J). The students were provided with two different topics every two weeks and expected to form a short paragraph with 150-200 words limit. The instructor provided WCF to each paragraph by using error correction codes and conducted a feedback session the following week. The individual WCF group was given 10-15 minutes to check their first draft individually before writing their second drafts. The collaborative WCF group, on the other hand, conducted a peer feedback session that lasted for 20 -25 minutes before writing their second drafts. Both groups received feedback through error correction codes and were given 40 minutes for the second drafts within the feedback session under the supervision of the researcher.

Data collection procedure lasted for eight weeks. The researcher provided two writing prompts for each week, which equals to eight topics in total. The prompts were chosen from the main course books which do not require any background knowledge or research. Since students were already familiar with the error correction codes, the instructor briefly reminded how to interpret each error code by providing examples. In Week 1 of the experiment, the students wrote an opinion or a narrative paragraph on one of the topics. The first paragraphs of both groups were taken as the pretest. In addition, the students wrote their first drafts of Task 1 within Week 1. In Week 2, the students checked the errors of Task 1 provided by the researcher either individually or collaboratively depending on the groups they were in. The individual group was given 10-15 minutes to review the error correction sheet and detect their errors individually. Then, individual group was expected to make corrections and take notes on their first drafts. On the other hand, the collaborative group was given 20-25 minutes to review the error correction code sheet and have a small pair discussion to detect the errors as well as possible ways to correct them. Each pair was expected to

help their friends detect what error corrections refer to and offer suggestions on how to correct errors. Students in the collaborative group conducted small pair discussions and noted down their ideas on their first drafts. Following that, students in both groups revised and edited their first drafts within 40 minutes, under the supervision of their instructor. The process continued among the students, the instructor did not interfere with it or answer any questions regarding the errors. In Weeks 1, 3, 5, and 7, the students wrote their first drafts. In Weeks 2, 4, 6, and 8, they were asked to review their errors and conduct pair discussions in the given time before forming their second drafts. In Week 7, the students wrote their last paragraphs as the posttest. In Week 8, they wrote their reflections on the online short-response reflection form. The aim was to investigate students' attitudes towards each feedback processing type. The reflection form also served as a valuable resource to support the quantitative data gathered from the student paragraphs. The data collection procedure is presented in Table 5.

Table 5

Treatment Procedure for Individual and Collaborative Groups

<i>Weeks</i>	<i>Individual WCF Group</i>	<i>Collaborative WCF Group</i>
Week 1	Administering the pretest Administering Task 1 A brief instruction of Error Correction Codes Instructor provides WCF on Task 1	Administering the pretest Administering Task 1 A brief instruction of Error Correction Codes Instructor provides WCF on Task 1
Week 2	A brief instruction on individual error correction process Feedback session of Task 1 10-15 minutes for individual error correction Writing the second draft of Task 1	A brief instruction on collaborative error correction process Feedback session of Task 1 20 -25 minutes for peer discussions Writing the second draft of Task 1

Week 3	Administering Task 2 Instructor provides WCF on Task 2	Administering Task 2 Instructor provides WCF on Task 2
Week 4	Feedback session of Task 2 10-15 minutes for individual error correction Writing the second draft of Task 2	Feedback session of Task 2 20-25 minutes for peer discussions Writing the second draft of Task 2
Week 5	Administering Task 3 Instructor provides WCF on Task 3	Administering Task 3 Instructor provides WCF on Task 3
Week 6	Feedback session of Task 3 10-15 minutes for individual error correction Writing the second draft of Task 3	Feedback session of Task 3 20-25 minutes for peer discussions Writing the second draft of Task 3
Week 7	Administering the posttest Administering Task 4 Instructor provides WCF on Task 4	Administering the posttest Administering Task 4 Instructor provides WCF on Task 4
Week 8	Feedback session of Task 4 10-15 minutes for individual error correction Writing the second draft of Task 4 Administering the online short-response reflection form about the effectiveness of individual processing of WCF	Feedback session of Task 4 20-25 minutes for peer discussions Writing the second draft of Task 4 Administering the online short-response reflection form about the effectiveness of collaborative processing of WCF

3.6. Data Analysis

3.6.1. Quantitative data analysis

Initially, normality assumptions were checked both for error numbers in each group and pretest and posttest comparisons before the quantitative data analysis.

Normality tests have a great importance in statistical analysis since inappropriate statistical tests may lead to serious consequences such as biased estimates and incorrect conclusions (Mundry & Fischer, 2018). Depending on the normality assumptions of statistical data, researchers first need to choose between parametric and nonparametric tests. Salkind and Frey (2021) explain the assumptions of parametric and nonparametric tests as ‘parametric tests require the assumption of normal distribution, while nonparametric tests do not.’ (p. 337). The assumption of normality is a critical issue in statistical analysis since the violation of normality may lead to incorrect conclusions (Mertler, 2018). Therefore, it is important to conduct a normality test to check the distribution of the data before choosing the appropriate statistical test. When conducting normality tests, it is crucial to select the most suitable test based on factors such as the sample size, the distribution's shape, and the specific research questions at hand. Shapiro-Wilk test is an appropriate normality test for the study since it is recommended for small to moderate sample sizes ($n < 50$) with normally distributed data (Shapiro & Wilk, 1965). Therefore, the normality assumption tests for each category are checked by using the Shapiro-Wilk test.

3.6.1.1. Between group comparisons of pretest and posttest

Along with the within group comparison, between group comparisons are also necessary to investigate the effects of individual and collaborative processing of WCF on students' overall paragraph writing improvement. Additionally, by conducting between-group comparisons, the researchers were able to examine the effects of WCF across both the feedback and control groups. This analysis allowed them to determine which group performed better than the other, thus shedding light on the impact of WCF on writing performance. To compare the scores of the two independent groups, namely the individual and collaborative WCF groups, the researchers utilized the

independent samples t-test. This statistical analysis is widely employed for between-group comparisons and enables researchers to assess the differences between the means of two distinct groups (Howell, 2012).

3.6.1.2. Comparison of rubric categories

In addition to the posttest scores comparison, the scores of four assessment categories in the rubric (organization, sentence structure, use of English, word choice) were compared separately to analyze the students' improvement in each category. Results for all rubric categories in both the pretest and posttest deviated from normality ($p < .05$). Therefore, the researcher initially used a paired samples t-test to compare the scores of each rubric category and support the parametric test results by conducting a Wilcoxon Signed Rank Test, which is a non-parametric test that is commonly used to compare related or paired samples. It is employed to determine the differences between the two sets of data. (Wilcoxon, 1945).

3.6.1.3. Analyzing error numbers

The researcher initially grouped the errors into four categories: grammatical, lexical, mechanical, and syntactic errors to answer Research Question 2. However, the syntactic error category was excluded from the experiment as only two students made syntactic errors both in their pretests and posttest. This decision was made as the results may not be generalizable due to relatively small sample size. At the end, the errors were grouped as three main categories: grammatical, lexical, and mechanical. Based on the WCF given by the research with the error correction codes, error numbers of both the pretest and posttest were categorized accordingly. Shapiro-Wilk test results indicated that error numbers of both groups had non-normal distribution ($p < .05$). Therefore, the errors were also analyzed with the Mann Whitney U test. As it

is a non-parametric statistical test that is suitable for analyzing non-normal data, small sample sizes ($n < 50$), and two independent samples, it was suitable for the study. It helps researchers to compare the distributions of the two groups and assesses the differences between groups (Mann & Whitney, 1947).

3.6.1.4. Within group comparison of pretest and posttest

Within group comparisons are essential to investigate the effects of individual and collaborative processing of WCF on students' paragraph writing performance.

Within group comparisons provide the researcher with the opportunity to examine the effects of WCF depending on the feedback processing type, which helps to draw conclusions on the effectiveness of each feedback processing type independently. The Shapiro-Wilk test is suitable to assess the normality of a dataset by examining the correlation between the sample data and the expected normal scores. In the context of the present study, the Shapiro-Wilk test can be applied to check the normality of the scores. According to Shapiro-Wilk test results, the scores of the pretest and posttest were normally distributed. Therefore, the pretest and posttest results of both groups were compared separately with a paired samples t-test, as it relies on the assumption that the differences between the paired observations, such as the pretest and posttest scores, follow a normal distribution and are independent of each other (Field, 2013).

3.6.2. Qualitative data analysis

To investigate students' attitudes towards individual and collaborative processing of WCF and answer Research Question 3, the qualitative data gathered through the short-response feedback forms was analyzed by including participants' direct quotations. The aim of including direct quotations was to convey participants' thoughts in their own words which conveys the richness and complexity of

participants' experiences and perspectives (Braun & Clarke, 2019). Initially, the data were transcribed from the feedback forms into a digital format for ease of analysis. Following this, the researcher reread the data several times to understand the content deeper and identify key themes better. The focus was particularly on participants' own words using direct quotations. The use of direct quotes was considered essential to convey the richness of participants' experiences and perspectives, as it allowed for an accurate representation of participants' thoughts and feelings in their own words (Braun & Clarke, 2014). In addition, the use of direct quotes helped to enhance the credibility of the analysis, as it provided a verifiable source of evidence for the findings. Overall, the examination of qualitative data obtained from the short-response feedback forms revealed several significant findings, providing valuable insights into the participants' perspectives regarding the individual and collaborative processing of feedback. The quotations were also essential for suggestions for further research and future improvements on the feedback processes as well as classroom practices.

CHAPTER 4

RESULTS

The fourth chapter presents the quantitative and the qualitative data results and answer the following research questions:

1. What are the effects of individual and collaborative processing of WCF on students' overall writing performance?
2. What is the impact of individual and collaborative processing of WCF on students' grammatical, lexical, and mechanical errors?
3. What are students' attitudes towards individual and collaborative processing of WCF?

4.1. Results of the Quantitative Data

The first research question (*RQ1: What are the effects of individual and collaborative processing of WCF on students' paragraph writing performance?*) was answered by analyzing and comparing total scores and scores for each rubric category. Between groups and within groups comparisons are presented below in the following sections.

4.1.1. Between group comparisons of the total scores

The total scores of both WCF groups were analyzed to investigate whether one feedback group outperformed the other. The scores were analyzed with an independent samples t-test (see Table 6).

Table 6*Independent Samples T-test Results*

	<i>Individual (N=21)</i>		<i>Collaborative (N=21)</i>		<i>%95 CI for Cohen's d</i>				
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>	<i>Lower</i>	<i>Upper</i>
Pretest	76.10	4.08	76.90	3.16	-.718	40	.477	-3.08	1.46
Posttest	83.71	3.48	88.48	2.80	-4.88	40	.000	-6.73	-2.79

* $p < .05$

The independent samples t-test results show no significant difference between the pretest scores of individual ($M=76.10$, $SD=4.08$) and collaborative ($M=76.90$, $SD=3.16$) groups. On the other hand, the t and p values of both groups ($t= -4.88$, $p=.000$) indicate that the posttest scores were significantly different regarding the between group comparisons. Results indicated that the difference between the means of the individual group ($M=83.71$, $SD=3.48$, $t=-4.88$) and the collaborative group ($M=88.48$, $SD=2.80$, $t=-4.88$) were statistically significant. In other words, the treatment was effective for both groups regardless of the feedback processing groups of students.

Furthermore, a paired samples t-test was used to explore the impact of the treatment on each rubric category and the overall scores. The aim was to investigate the effectiveness of the treatment on each rubric category. Initially, a normality test was conducted on the rubric categories (see Table 7).

Table 7*Normality Test Results of Rubric Categories*

<i>Rubric Categories</i>	<i>Pretest</i>			<i>Posttest</i>		
	<i>SW</i>	<i>df</i>	<i>p</i>	<i>SW</i>	<i>df</i>	<i>p</i>
Organization	.887	42	.001	.865	42	.000
Sentence Structure	.719	42	.000	.933	42	.017
Use of English	.930	42	.013	.919	42	.005
Word Choice	.923	42	.007	.856	42	.000

* $p < .05$

As seen in Table 7 above, the results for all rubric categories in both the pretest and posttest deviated from normality ($p < .05$). However, since the distribution was normal for the total scores, initially a paired samples t-test was conducted on rubric categories together with the total scores. The paired samples t-test results are presented below (see Table 8).

Table 8*Paired Samples T-test Results of Rubric Categories and Total Scores*

<i>Rubric Categories</i>	<i>Pretest</i>		<i>Posttest</i>		<i>t</i>	<i>df</i>	<i>p</i>	<i>Cohen's d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				
Organization	20.38	1.08	22.07	1.19	-8.70	41	.000	-1.69
Sentence Structure	18.74	1.72	21.48	1.17	-9.53	41	.000	-2.73
Use of English	18.83	1.54	21.33	1.18	-10.78	41	.000	-2.20
Word Choice	18.55	1.38	21.21	1.33	-11.97	41	.000	-2.66
Total	76.50	3.63	86.10	3.94	-17.26	41	.000	-9.59

* $p < .05$

As seen in Table 8 above, all five variables showed statistically significant differences in the pretest and posttest. The p -values of each variable ($p < .001$, *Cohen's d* > 0.80) indicated that students significantly improved in all the categories: organization ($t=-8.70$), sentence structure ($t=-9.53$), use of English ($t=-10.78$), word choice ($t=-11.97$), and total scores ($t=-17.26$). *Cohen's d* values were negative for all variables, which indicate that the scores improved from the pretest to posttest with larger effect sizes. The largest effect size among rubric categories was for sentence structure (*Cohen's d* $=-2.73$). Following sentence structure, students improved their word choice (*Cohen's d* $=-2.66$), use of English (*Cohen's d* $=-2.20$), and organization (*Cohen's d* $=-1.69$), respectively. Since the total scores were out of one hundred, the largest effect size was observed for the total score (*Cohen's d* $= -9.59$).

Given the slight deviation from normality ($p < .001$) in the pretest and posttest scores of the rubric categories, Wilcoxon Signed Rank Tests were conducted on these variables to ensure consistency and provide additional support for the findings by employing both parametric and non-parametric analyses (see Table 9).

Table 9

Wilcoxon Signed Rank Test Results of Rubric Categories

<i>Rubric Categories</i>	<i>Mean Ranks</i>		<i>Sum of Rank</i>		<i>Z</i>	<i>p</i>
	<i>Negative</i>	<i>Positive</i>	<i>Negative</i>	<i>Positive</i>		
Organization	7.00	18.83	7.00	659.00	-5.19	.000
Sentence Structure	28.00	20.31	28.00	792.00	-5.16	.000
Use of English	.000	20.00	.000	780.00	-5.47	.000
Word Choice	.000	20.50	.000	820.00	-5.54	.000

* $p < .05$

As seen in Table 9, the results indicate that the negative ranks had significantly lower mean ranks compared to positive ranks ($p=.000$). Z scores for all categories were negative, indicating that the negative ranks were significantly lower than the positive ranks. The significant p-values for each rubric category ($p < .05$) suggest that the differences between the negative and positive aspects were not likely due to chance. Overall, the non-parametric test results support the parametric test results and show that all the variables display statistically significant results between the negative and positive groups for all categories. In conclusion, there was a significant improvement on the rubric categories.

4.1.2. Analyzing error numbers

The aim of analyzing the error numbers was to investigate the second research question (RQ2: *What is the impact of individual and collaborative processing of WCF on students' grammatical, lexical, and mechanical errors?*). Before analyzing the errors in three categories, a Shapiro-Wilk test was performed on each error category and feedback group (see Table 10).

Table 10

Normality Test Results of Error Categories

<i>Error Categories</i>	<i>Pretest</i>			<i>Posttest</i>		
	<i>SW</i>	<i>df</i>	<i>p</i>	<i>SW</i>	<i>df</i>	<i>p</i>
Grammatical	.901	42	.002	.742	42	.000
Lexical	.870	42	.000	.802	42	.000
Mechanical	.895	42	.001	.640	42	.000

* $p < .05$

The Shapiro-Wilk test statistics for all error categories were less than 1 ($SW < 1$), which showed that the data deviated from normality. The Q-Q Plots for each error category are presented below to support the normality test results (see Figure 3, Figure 4, Figure 5, Figure 6, Figure 7, Figure 8).

Figure 3

Q-Q Plot for Pretest Grammatical Errors

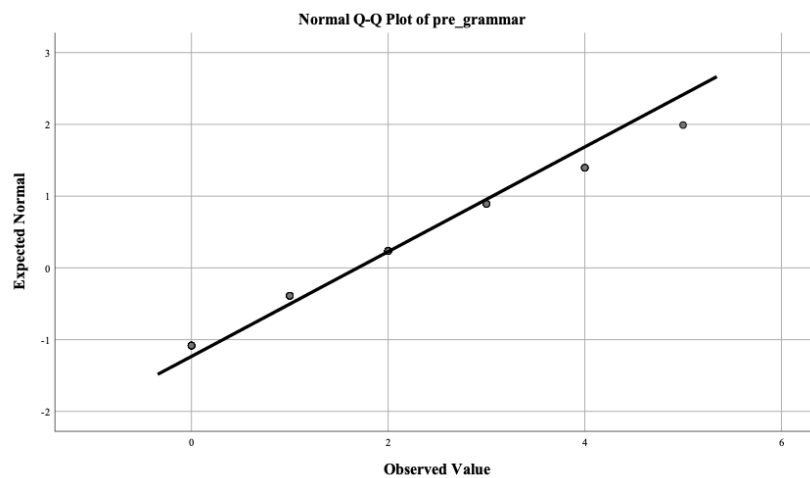


Figure 4

Q-Q Plot for Pretest Lexical Errors

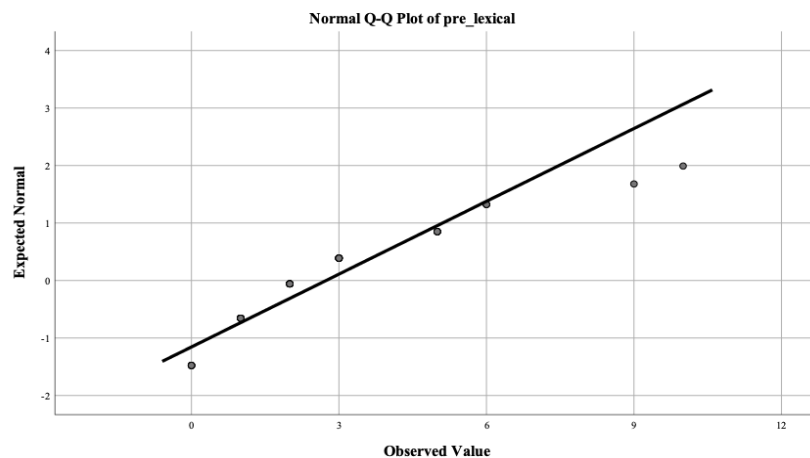
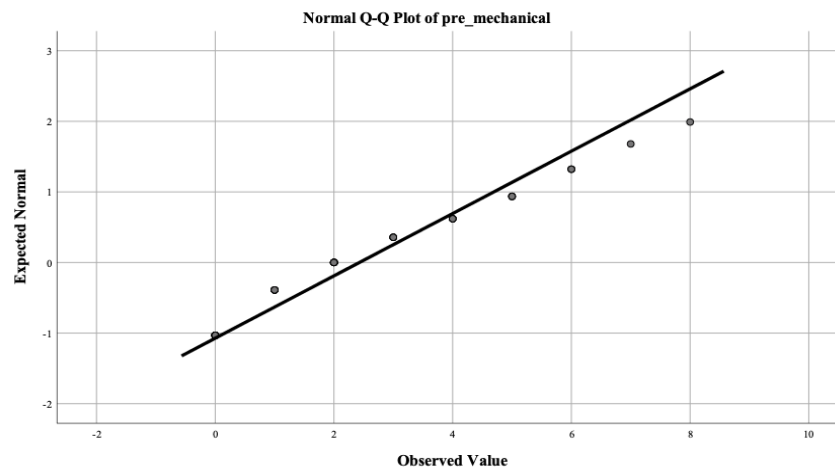


Figure 5

Q-Q Plot for Pretest Mechanical Errors

**Figure 6**

Q-Q Plot for Posttest Grammatical Errors

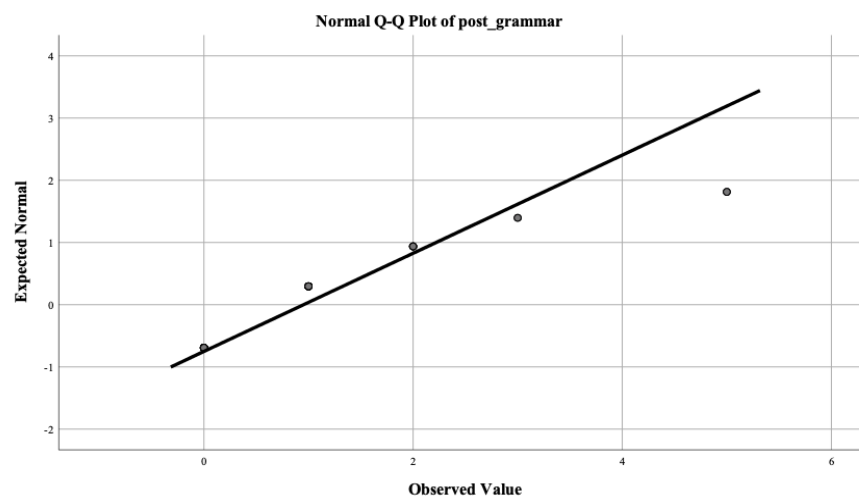
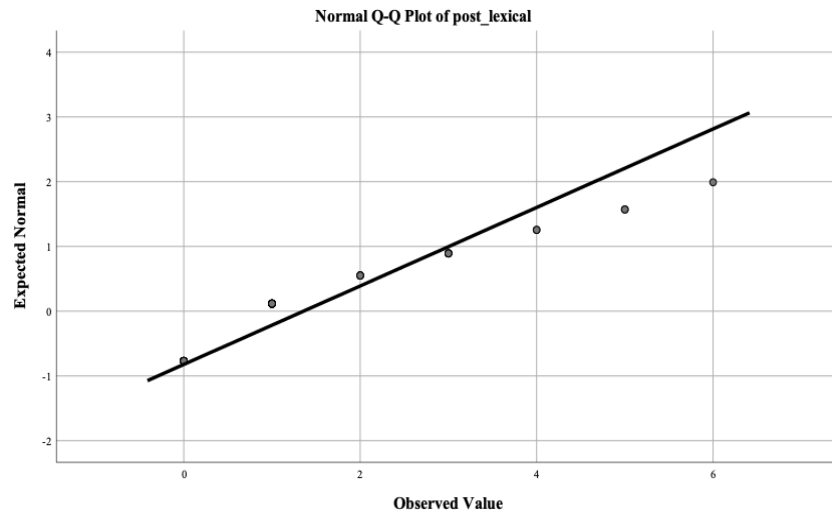
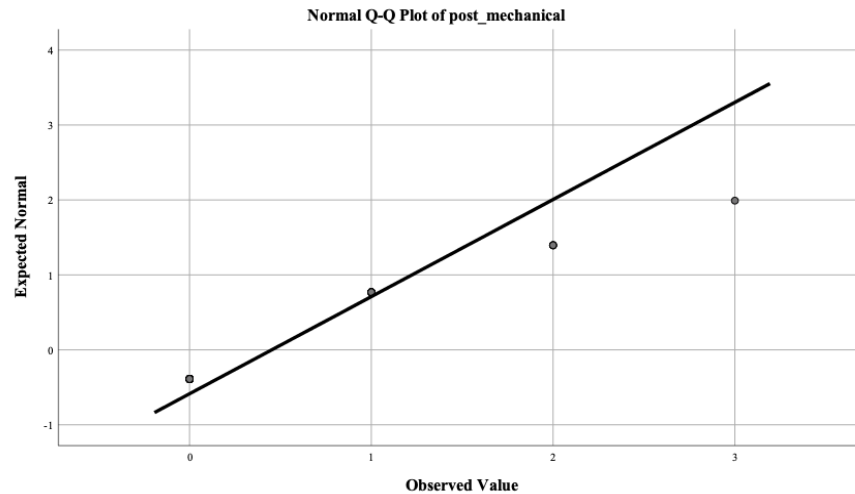


Figure 7*Q-Q Plot for Posttest Lexical Errors***Figure 8***Q-Q Plot for Posttest Mechanical Errors*

As seen in Table 10 and Figures 3, 4, 5, 6, 7, and 8, all error categories deviated from normality ($p < .05$) in both the pretest and posttest. Therefore, errors were analyzed by using the Mann Whitney U test. The results for each feedback group are presented below.

Table 11*Mann Whitney U Test Results of Error Numbers*

Error Categories	Mean Rank		Sum of Ranks		U	Z	p
	Individual	Collaborative	Individual	Collaborative			
Pretest							
Grammatical	26.24	16.76	551.00	352.00	121.00	-2.58	.010
Lexical	23.28	19.17	500.50	402.50	171.50	-1.25	.210
Mechanical	26.62	16.38	559.00	344.00	113.00	-2.75	.006
Posttest							
Grammatical	20.98	22.02	440.50	462.00	209.50	-.29	.766
Lexical	22.17	20.83	465.00	437.50	206.50	-.37	.711
Mechanical	19.10	23.90	401.00	502.00	170.00	-1.56	.119

* $p < .05$

The mean rank for the pretest grammatical errors was 26.24 and 20.98 in the posttest for the individual group while it was 16.76 in the pretest and 22.02 in the posttest for the collaborative group. While the individual group decreased the grammatical errors in their posttest, the collaborative group increased their errors. Results were significantly different in the pretest grammatical errors ($p=0.10$) but not in the posttest ($p=.766$). In conclusion, there was no significant improvement in grammatical error numbers of individual and collaborative groups from pretest to posttest. While the grammatical errors were statistically significant in the pretest, it was not significant in the posttest.

The mean rank for lexical errors of the individual group decreased from 23.28 in the pretest to 22.17 in the posttest. The mean rank for the collaborative group increased from 19.17 in the pretest to 20.83 in the posttest. The Mann Whitney U test indicates that there was no significant difference in the pretest ($p=.210$) and the

posttest ($p=.711$) lexical errors. In conclusion, both groups were not statistically improved in the lexical category from the pretest to the posttest. The pretest and posttest mean ranks for lexical errors in both groups were similar.

The mean rank for mechanical errors in the individual group was 26.62 during the pretest and 19.10 during the posttest. For the collaborative group, it was 16.38 during the pretest and 23.90 during the posttest. In other words, while the individual group decreased the mechanical errors, the collaborative group increased the errors they made in the posttest. Mann Whitney U test indicate a significant difference between the mechanical errors in the pretest ($p=.006$) but not in the posttest ($p=.119$). In conclusion, there were no statistically significant differences observed in the posttest of both groups in mechanical errors.

Overall, the individual group made more errors than the collaborative group in grammatical ($p=0.10$) and mechanical ($p=.006$) error categories in the pretest. However, there were no significant differences for the pretest lexical errors ($p=.210$), between the two groups. In conclusion, there were no significant differences observed in any of the error categories between the two groups in the posttests ($p>.05$). Both groups showed similar improvement in the posttest, with the individual group decreasing their error numbers in the posttest.

4.1.3. Within group comparison of pretest and posttest

The pretest and posttests were compared within groups to investigate the improvement of both individual and collaborative groups separately regardless of the feedback processing type. Initially, the normality of pretest and posttest scores were checked with a Shapiro-Wilk test (see Table 12).

Table 12*Normality Test Results of Pretest and Posttest*

<i>Total Scores</i>	<i>SW</i>	<i>df</i>	<i>p</i>
Pretest	.971	42	.351
Posttest	.969	42	.317

— * $p < .05$

As seen in Table 12 above, the paired differences of pretest and posttests for both groups were normally distributed ($p > .05$). In addition to Shapiro-Wilk test results, the Q-Q plots for both groups are presented below to show the normal distributions and identify the differences (see Figures 9, 10).

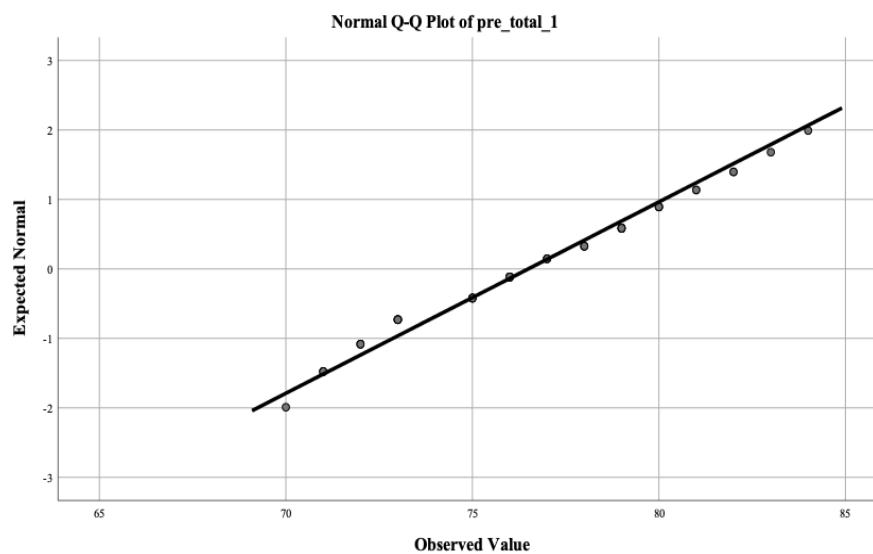
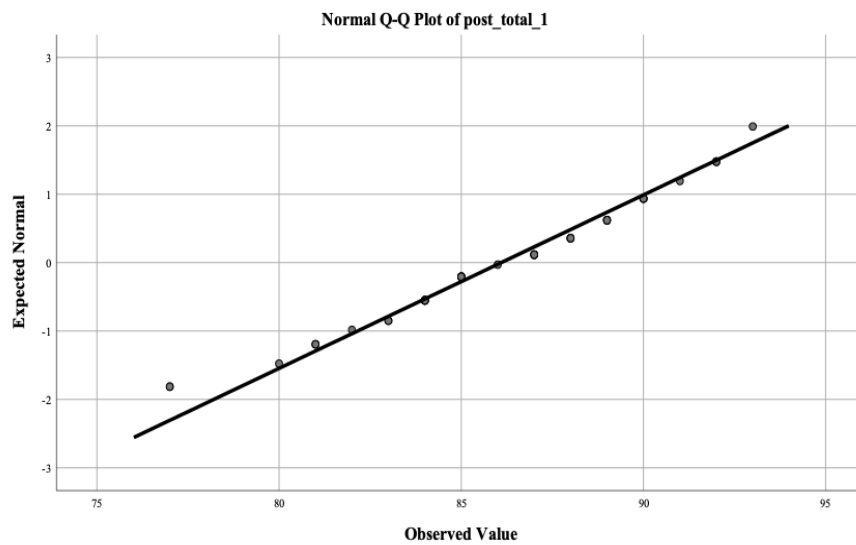
Figure 9*Q-Q Plot for Pretest Total Scores*

Figure 10*Q-Q Plot for Posttest Total Scores*

The Q-Q Plots (Figure 9, Figure 10) support the Shapiro-Wilk test results and indicate that the distributions are normal. This provides sufficient evidence to employ a parametric test to analyze the quantitative data. Therefore, a paired samples t-test was used to compare the pretest and posttest scores of each feedback group to see whether one feedback group outperformed the other (see Table 13).

Table 13*Paired Samples T-test Results for Individual and Collaborative Groups*

	<i>Pretest</i>		<i>Posttest</i>		<i>t</i>	<i>df</i>	<i>p</i>	<i>%95 CI for Cohen's d</i>	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				<i>Lower</i>	<i>Upper</i>
Individual	76.10	4.08	83.71	3.48	-15.38	20	.000	-8.65	-6.58
Collaborative	76.90	3.16	88.48	2.80	-14.56	20	.000	-13.22	-9.91

* $p < .05$

As seen in Table 13, the mean pretest score of the individual group was 76.10 ($SD = 4.08$), while the mean posttest score was 83.71 ($SD = 3.48$). Results indicate a significant difference between the pretest and posttest scores ($t = -15.38$, $p < .05$). The

lower and upper bounds of the Cohen's d were -8.65 and -6.58, which indicate a large effect size. Overall, the pretest and posttest scores of the individual group statistically improved.

The mean pretest score of the collaborative group was 76.90 ($SD=3.16$) and the mean posttest score was 88.48 ($SD=2.80$). According to the paired samples t -test results, there was a significant difference between the pretest and posttest scores ($t=-14.56, p < .001$). Cohen's d of the collaborative group ranged from -13.22 to -9.91, which suggests a larger effect size. Results suggest that the scores are statistically significant indicating a substantial impact on the collaborative group performance.

Overall, when both groups were compared separately, we can conclude that both the individual and collaborative groups outperformed in the posttests, as indicated by their higher posttest mean score and a larger effect size.

4.2. Results of the Qualitative Data

The short-response reflection forms were analyzed by including direct quotations from participants' responses (*RQ3: What are students' attitudes towards individual and collaborative processing of WCF?*). Direct quotations allow researchers to support the findings and illustrate the themes that might emerge from the data. Direct quotations can provide richness and depth to the analysis by allowing the participants' experiences to be conveyed in their own words (Smith, 2015). The quotes presented below are students' direct quotations, without any grammatical corrections made.

4.2.1. Findings of reflection forms

4.2.1.1. Responses of guiding prompt 1

The first prompt on the reflection form aimed to understand students' attitudes towards using error correction codes in writing classes (*P1: What do you think of using error correction codes in writing classes?*). Prompt 1 provides insights into students' views regarding the effectiveness of using error codes in writing classes. Students' responses offer perspectives on the feasibility of incorporating WCF through error correction codes into L2 writing classes. Responses of both groups were analyzed separately to understand the attitudes of each group better.

Responses of the individual group regarding the usage of error codes in writing classes indicated that most of the students find the use of these codes to be beneficial and helpful. The students believe that using these codes is useful for improving their writing skills, identifying their mistakes, and understanding why they made these mistakes.

The students' attitudes towards using error correction codes in writing classes were generally positive. The codes were perceived as a helpful tool to improve writing skills and correcting mistakes. Several students emphasized the usefulness of the codes in enabling them to identify and learn from their mistakes. They have also mentioned that the codes made it easier to correct mistakes without the need for extensive teacher input.

"It is really important to change our mistakes. We learn what we should not do.

Like on target. We develop our writing skills with these codes."

"It helped me too much. I realized my mistakes when I checked the error correction codes, and it helped me to find my mistakes."

Some students also appreciated the efficiency of the codes, which allowed them to correct their work quickly and easily.

"These codes help a lot when the correction comes too fast. That is why I can say these codes are useful."

"I think using these codes is useful and increases course efficiency. Creating a list of universal symbols for all students is practical and catchy for everyone."

Overall, the individual group indicated that they found the error correction codes to be a valuable tool for improving their writing skills. However, among all participants, there was a student who acknowledged that it took some time to adjust to using the codes.

"At the beginning, I felt a bit confused because I needed to check again and again. I was forced to remember the code. But after, it happened easier and shorter."

Nevertheless, many students expressed positive feedback towards WCF through error correction codes.

The collaborative group viewed the error correction codes as a beneficial practice for improving writing skills.

"I think the correction of our mistakes plays a big role in improving our writing. Seeing our mistakes makes our grammar better and warns us not to make the same mistakes."

As seen in the student quotation above, the efficiency of using error codes was supported by students. Several other students also commented on the usefulness of error correction codes in identifying and correcting mistakes in writing.

“In my opinion, using these codes is very comfortable. Because you don’t have to write long sentences which take more space.”

"It helped me too much. I realized my mistakes when I checked the error correction codes, and it helped me to find my mistakes."

"Using codes was very useful and very effective to detect our mistakes."

The positive feedback from students regarding the implementation of error codes in writing classes suggests that this practice could be a valuable tool for helping students to improve their writing performance. As one student commented:

"I think it is very useful for me, and it also helps my English skills, especially my writing skills."

Overall, the collaborative group’s comments suggest that error correction codes are viewed positively and could be an effective tool for improving writing skills.

4.2.1.2. Responses of guiding prompt 2

The second prompt was about the error correction code sheet and asked students whether they had trouble with understanding any of the codes (*P2: Please check the error correction code sheet below. Is there any error correction code that you find hard to understand? Why?*). Prompt 2 provides insights into students’ comprehension of specific error correction codes and the ones they find challenging. Prompt 2 is helpful to detect the underlying reasons of students’ error numbers and categories they had trouble with.

The individual group found the error correction code sheet generally understandable and helpful, but there are a few codes that some students found difficult to remember or understand.

“Maybe Word Order and Word Formation can confuse students about which rule is which symbol. And the N code is not easy to remember when the student tries to memorizes the code descriptions and focuses on "Countable-Uncountable" rather than "Number".”

“I could sometimes get confused in the missing word part; it was difficult to find which word I missed. Other than that, I think others' explanations are sufficient. “

“I think prepositions are the hardest. Because this subject a bit confusing so I found hard to understand my mistakes.”

On the other hand, many students found the error correction code sheet to be easy to understand, with detailed explanations and examples provided for each topic.

“Error correction code sheet is too easy to understand because every topic is explained with details and examples.”

“I think the table is not difficult to understand. The examples given make it easy to understand.”

Overall, it seems that the error correction code sheet is useful for students in improving their writing, but there may be some codes that require extra attention and practice.

Similarly, the collaborative group did not have significant difficulty in understanding the error correction code sheet. Many students found error codes easy

to understand. The comments below suggest that the codes were generally easy to comprehend and did not present any significant challenges for most students.

"I think the error codes are easy and clear enough to understand."

"No, everything on the error correction sheet is clear and easy to understand."

"It's all clear with given examples and comments."

However, a few students expressed some difficulty in understanding certain aspects of the error correction code sheet. This suggests that some students may benefit from additional clarification or examples regarding the specific usage of certain codes.

"When I see this (error correction code sheet) I know I have a grammatical error but I don't know what tense my mistake is."

‘The only last one (M/?) is hard to understand. Maybe another symbol can be more helpful.’

In conclusion, while most students did not report any significant difficulty in understanding the error correction code sheet, a few students did suggest some areas where additional clarity or explanation may be beneficial.

4.2.1.3. Responses of guiding prompt 3

The third prompt aimed to understand the language areas that students found the correction codes the most helpful (*P3: In what areas do you find error correction codes most helpful? (Grammar, vocabulary, punctuation, spelling etc.) Why?*).

Prompt 3 provides a deeper explanation of the efficacy of error codes in specific language areas. It is also helpful to detect specific aspects of language correction that participants find most beneficial.

The individual group found different areas of error correction codes helpful. However, grammar and punctuation seem to be the most frequently mentioned areas.

"With these codes I reduced my grammar mistakes."

“I find it really helpful the Grammar, Missing word and Extra word codes are easy to understand and most of the mistakes I make are related to them.”

Several students also found the codes related to prepositions to be helpful, as they made mistakes in this area.

“In my opinion the explanations are useful at the points where I make the most mistakes, for example, preposition and capitalization. Also, because these were easy mistakes, I had a chance to fix them easily. “

“Codes are really good to see punctuation and preposition mistakes. The other error codes are okay.”

Some students found the codes helpful for identifying vocabulary or word order errors.

“ I could find word order or vocabulary codes easier than the others.”

Overall, the individual group found the error correction codes to be most helpful for identifying errors in areas where students commonly make mistakes. For many students, these include grammar, punctuation, prepositions, and vocabulary. By providing specific codes for each type of error, the students can identify and correct their mistakes more easily.

The collaborative group provided similar responses and stated that different error correction codes were most helpful for different individuals. However, just like

the individual group, grammar appeared to be the most frequently mentioned area where the codes were most helpful.

“I think error codes help us the most with grammar and spelling. I think one of the best ways to improve grammar is through error codes. It also made me realize many mistakes in spelling. The fact that these are often corrected by teachers is really very enhancing.”

“All of them were very helpful to me. Especially grammar because I made plenty of grammar mistakes. Also, the article helped me too.”

“For me it is the grammar part. Most of my mistakes are grammar, that is why it is most helpful for me.”

“Grammar because all students are in trouble with grammar.”

Vocabulary and punctuation codes were also mentioned by some students. They stated that these codes were hard to understand in a limited time as the collaborative processing group had 20-25 minutes while the individual processing group only had 10-15 minutes to go over the errors during the feedback sessions.

“Vocabulary and punctuation because we have a time limit when writing and simple mistakes that we normally know can be overlooked.”

Some students mentioned specific types of errors that they found the error correction codes most helpful for.

“Missing word, capitalization. These are the most understandable correction codes for me.”

Overall, it seems that the error correction codes were most helpful for identifying errors in areas where students commonly make mistakes such as grammar,

spelling, and punctuation. By providing specific codes for each type of error, students can identify and correct their mistakes more easily, which can enhance their writing skills over time.

4.2.1.4. Responses of guiding prompt 4

Prompt 4 was about students' perceptions of receiving feedback through error correction codes (*P4: What do you think about receiving feedback through error correction codes? Would you prefer using error correction codes in your next writing classes? Why/ Why not?*). Prompt 4 offers valuable insights into specific aspects of language improvement the students find most beneficial. Moreover, it facilitates the examination of potential correlations between the obtained results and students' perspectives. Both the individual and collaborative groups provided similar responses; most of them found using error correction codes effective.

Students in the individual group found error correction codes useful and effective in improving their writing. They appreciated the opportunity to see their errors and correct them with the help of codes. One reason why students preferred error correction codes was that they encourage self-reflection and self-correction.

"A person who writes this paragraph tries to find her/his mistakes. So, people push themselves. People can see their mistakes by themselves."

“Absolutely, I prefer using. Because we may make the same mistakes again and again. If we get feedback all writing, we will learn better.”

“The given codes help you see and correct your mistakes. That's why I would like these codes to be given in the next writing lesson too.”

Another advantage of error correction codes is that they establish a clear and efficient way of teacher-student communication.

"These symbols are very practical and useful in establishing a non-verbal communication between the teacher and the student."

However, some members of the individual group suggested that it would be more beneficial to discuss their mistakes directly with the teacher. They believe that this approach makes the corrections more effective and memorable.

"Helped me correct certain mistakes, but it would be more beneficial to discuss my mistakes with the teacher directly in the next process."

Overall, the individual group students' responses suggest that error correction codes are an effective and practical tool for improving writing skills. While some students may prefer to discuss their mistakes with the teacher directly, most find error codes useful in identifying and correcting their errors.

The collaborative group agrees on the efficacy of using error correction codes. They generally see the codes as a useful tool for receiving feedback on writing assignments. Most students find that the codes help them to identify their mistakes which leads to an overall improvement. Several students prefer to use error correction codes in their next writing classes, as they believe that this approach is more effective in helping them to learn from their mistakes.

"I want to use the error correction code for my next classes because it was very helpful to understand my mistakes and find my mistakes."

"I think error codes are very useful and make us aware of many of our mistakes in the language learning process. I will always use error codes."

“Yes, I prefer to use them. Because after I found mistakes, it will be more comfortable to correct them.”

"I prefer corrections. It's a better way to see our mistakes."

Some students express a preference for more detailed feedback or for discussing their mistakes with the teacher directly.

"If my mistake needs to be written in detail, using these codes will cause me to understand my mistake."

The responses suggest that error correction codes can be a useful tool for providing feedback on writing assignments. While some students may have preferred more detailed feedback, many found that the codes are an effective way to identify and learn from their mistakes.

4.2.1.5. Responses of guiding prompt 5

Prompt 5 was about whether students find receiving instructor's written comments along with the error correction codes effective or not (*P5: What do you think of the instructor's written comments on your writings? Do you think they were effective in improving your writing skill? Why/ Why not?*). Prompt 5 provides a deeper understanding of students' perceptions of instructors' written comments along with the error correction codes. It provides insights into their opinions regarding the effectiveness of the written comments in enhancing their writing performance. Receiving feedback through written comments is generally perceived as effective in improving writing skills. Both groups appreciated the feedback and saw it as a means of understanding their mistakes and improving themselves as writers.

Some students in the individual group highlighted the significance of having a conversation with the instructor to discuss their mistakes further.

"I learn with my own mistakes. It is a better way to learn."

"It allows us to improve our writing skills. It helps us see our mistakes."

"When codes are used with instructor's comments, they are more efficient. By that way, I am correcting my mistakes easily."

Some students noted that the efficacy of instructors' written comments depends on how the feedback is provided, such as having the opportunity to discuss the feedback with the instructor.

"It is insufficient for me to correct the mistakes of the student on the writing and not to spend time talking to them and understanding their mistakes."

In summary, the individual group perceived the instructor's written comments on their writings as effective in enhancing their writing skills. They appreciated the opportunity to receive feedback and learn from their mistakes.

The collaborative group found the instructor's written comments on their writing beneficial in improving their writing performance. Students appreciated the feedback given by their instructors as it helped them understand their mistakes and learn the ways to improve themselves as writers. Several students highlighted the importance of receiving feedback from the instructor, as it helps them identify areas for improvement. Some students expressed their appreciation for the instructor's suggestions on how to improve their writing, such as offering alternative words or phrases to use instead of repeating the same word multiple times.

"It is beneficial for us to receive feedback from our instructor. It allows us to improve our writing skills. It helps us see our mistakes."

"I think it is also very important for teachers to write their own opinions. We are given a lot of tips about how to improve ourselves. For example, if we repeat a word too much, show alternative words that we can use instead."

"They were very effective for me. It helped me improve my writing skill. I realized my mistakes thanks to the comments."

Some students also noted that the comments clarified their mistakes and correcting them in their next writing assignments.

"I think they were effective because these comments were written to me, and in order to correct these mistakes, I will take them into account in my next article."

The collaborative group also found the instructor's written comments valuable in guiding them through the correction process. However, a couple of students noted that they would like to have more in-depth discussions with their instructor about their mistakes to better understand them.

"It is insufficient for me to correct the mistakes of the student on the writing and not to spend time talking to them and understanding their mistakes."

4.2.1.6. Responses of guiding prompt 6

Prompt 6 aimed to investigate students' ideas on whether they have observed any improvement in their writing skills after the treatment process (*Q6: Have you noticed an improvement in your writing skills because of reviewing coded feedback individually/collaboratively?*). Prompt 6 enables the researcher to better understand students' self-perceived growth and the connection between their perceptions and the

obtained results. Prompt 6 enables the researcher to evaluate students' level of self-awareness regarding any advancements they have experienced in their writing skills and determine whether they attribute these improvements to the process of individually or collaboratively reviewing coded feedback.

Some students in the individual group expressed that they noticed a clear improvement in their writing skills because of reviewing the coded feedback. The responses imply that the students could identify their errors and work on correcting them, leading to improved writing skills.

"In my first texts I always had basic mistakes and after those code activities I started to write better. I think the best development activity for writing is to write too much and we write a lot while working."

"It helped me see the mistakes I made. That's why I paid attention to the mistakes I made in my next writings. This helped me to have a more successful writing skill."

"They are certainly very helpful in correcting the errors, but I cannot say that much improvement has been gained by simply following these codes and correcting the errors. The process mattered for me. Writing lots of paragraphs definitely improved my writing skills."

"Yes, when I make a mistake, and I cannot see I do not know so I always make some mistakes. But after these exercises, I see some mistakes which have been established in my life and I started to correct those."

Some students expressed that they noticed improvements in specific language areas such as grammar and punctuation. These responses suggest that the error

correction codes were particularly helpful in improving specific aspects of the student's writing.

"My writing style definitely evolved over the course of this process and my mistakes were minimized thanks to the codes."

"I'm not making any punctuation mistakes now."

While some students noticed the improvement in their writing skills after individual processing, others did not feel that the impact was as clear. However, many students acknowledged that the feedback helped them identify and correct specific mistakes, leading to improved writing skills in certain areas.

The collaborative group generally found collaboration beneficial in improving their writing performance. Several students noted that working collaboratively with peers helped them to identify and correct mistakes more easily.

"Recognizing our mistakes with our friends and correcting them together makes it easier for us to understand our mistakes. Finding, discussing and drawing conclusions from our mistakes also increases our motivation."

"Certainly, I can write better text now. I am aware that my writing skills are improving. I have better grades than before. I am not afraid to write texts. I can write faster than before."

The responses above imply that working collaboratively with peers to review coded feedback has resulted in significant developments in the student's writing skills and confidence.

Many students mentioned that reviewing coded feedback collaboratively was helpful in identifying and correcting specific mistakes. Responses suggest that

collaborative review of coded feedback has helped the student to identify and correct mistakes that were previously problematic.

"Yes of course. My writing skills definitely improved. In the first track I had too many mistakes. But now, I have much less than before."

"I always have trouble with grammar and punctuations but with feedback I reduced my mistakes."

“It was helpful in improving grammar mistakes, especially when I compare my mistakes before.”

Some students mentioned that reviewing coded feedback collaboratively was a more enjoyable way to identify and correct mistakes.

"My friends' feedback helped me to understand my mistakes in a fun way."

The responses suggest that reviewing coded feedback collaboratively with peers can be a helpful way to improve writing skills. Collaborative review appears to be particularly beneficial in identifying and correcting specific mistakes, increasing motivation, and providing an engaging and enjoyable way to improve writing skills.

4.2.1.7. Responses of guiding prompt 7

The responses of the individual group (*P7: How did you feel about correcting your errors individually? Do you think it was helpful to improve your writing skill?*) provide different perspectives on the experience of correcting errors individually and its effectiveness in improving writing skills. Some students noted the importance of teacher guidance and intervention in correcting basic mistakes.

"A teacher's guidance and teaching the truth may be needed."

“It was helpful in correcting minor mistakes, but as I mentioned before, I think it is more effective to get help from a teacher when correcting some basic mistakes. Because then you have the opportunity to discuss the reason for your mistakes in detail.”

On the other hand, some students found correcting errors individually helpful in developing their writing skills.

“The codes given to us showed what mistake we made. We had to figure out how to fix it ourselves. This made me think about the mistake I made. I tried to find the right one to fix it. In this process, it helped me to further develop my writing skills.”

“Realizing my mistakes in the process and seeing that I improved myself gave me great self-confidence. I started to write better thanks to my self-confidence and experience.”

“When I write correctly, I feel successful. When I check my first and last writing it is obviously understandable my improvement.”

Overall, students in the individual group felt that correcting their errors individually had a positive effect on their writing performance.

The collaborative group was given the prompt in a different way (*P7: How did you feel about correcting your errors collaboratively? Do you think your friends' comments were helpful to improve your writing skill?*). Prompt 7 provides valuable insights into the students' emotions and viewpoints regarding the collaborative error correction process. It enables the researcher to comprehend their personal opinions on the efficacy of this approach in enhancing their writing skills. Several students found

it helpful to work with their friends to identify their mistakes and learn how to fix them.

"Many times I wrote something together with my friends and they helped me several times with mistakes which I didn't realize when I wrote. That's why friends also helped me to improve my writing skills."

"Arguing with our friends allows us to see most things more clearly and simply. Sometimes it's even better to talk to friends about our mistakes than to talk to teachers."

Some students also found that discussing their mistakes with their friends helped them feel supported and motivated.

"I felt supported by my classmates and teacher when they jointly corrected my mistakes. I think my friends' comments were helpful to improve my writing skill."

"It was beneficial to discuss my mistakes with my friends. I felt relaxed and communicated easily with them."

"We checked our answers together and we learned together. It was a great experience. I enjoyed the discussion part with the combination of our teacher's feedback."

Additionally, some students preferred to correct their mistakes individually or with the guidance of their teacher.

"Codes helped me a lot but I prefer correcting my mistakes with my teacher. Her instructions make me feel more confident and it is easier to correct them when the instructor says do this and that."

Overall, students had mixed feelings about correcting their errors collaboratively with their friends, with some finding it beneficial and others preferring to work alone or with their teacher.



CHAPTER 5

DISCUSSION

The fifth chapter presents a concise summary and an overview of the main findings. In this chapter, each research question is analyzed, interpreted, and discussed in relation to the previous studies.

5.1. Summary

This study investigated the effects of individual and collaborative processing of WCF on students' writing performance as well as their attitudes towards error correction and both feedback processing methods. To investigate this further, the total scores of students' paragraphs were examined and compared both within groups and between groups. In addition, the error numbers of students were analyzed to see whether students produce less grammatical, lexical, and mechanical errors. Finally, students' perspectives were gathered through short-response reflection forms to establish a connection between the quantitative results and the qualitative findings.

5.2. Discussion of the Key Findings

Research Question 1 sought to investigate the effects of individual and collaborative processing of WCF on students' writing performance. Initially, the scores were compared between groups to investigate whether one group outperformed the other in their paragraph writing performance after the treatment process. The results depicted that the difference between the mean posttest scores of the individual ($M=83.71$, $SD=3.48$) and collaborative groups ($M= 88.48$, $SD=2.80$) were statistically significant ($t= -4.88$, $p=.000$). The analysis of the rubric category scores showed that the treatment was effective on each rubric category ($p < .001$, *Cohen's d* > 0.80).

Notably, the sentence structure category improved the most compared to other categories (*Cohen's d*=-2.73).

The significant improvement of the collaborative group may be attributed to several reasons. One possible explanation for the observed outcomes is the chance that the collaborative group had to discuss their work with their peers. This may have facilitated a profound comprehension of the writing process. The collaborative processing might have enabled students to reduce the cognitive load of feedback. A study by Mujtaba et al. (2021) conducted a study with 44 EFL learners to investigate the effects of individual and collaborative processing of WCF. Both the current study and Mujtaba et al.'s (2021) had similar methodologies and analyzed the errors of students along with their overall writing performance. Both studies concluded that the collaborative WCF group utilized feedback better than the individual WCF group and improved their overall writing performance. Mujtaba et al. (2021) associated the improvement of the collaborative WCF group to the socially engaging nature of collaborative work. Similarly, this study claims that collaboration might help students to process feedback in a less demanding way. Another factor that Mujtaba et al. (2021) highlighted for the effectiveness of collaboration is the value of receiving feedback from multiple perspectives (teachers and peers), which enables students to gain different insights into writing. Likewise, the collaborative group in this study received feedback both from their teacher and peers, which helped the students in the collaborative group to outperform the individual group. Moreover, the collaboration process might have increased students' engagement and motivation, as they were able to interact with others, share their existing knowledge, and receive social support. In their study, Nassaji and Swain (2000) emphasized the role of social support to enhance student engagement. Similarly, the present study suggests that students'

social interaction contributed to their overall writing performance. These interpretations contribute to the findings of previous research examining the effectiveness of collaborative processing of feedback. For instance, Wigglesworth and Storch (2012) conducted an analysis of multiple studies to explore the effects of collaboration on EFL writing by specifically investigating the effects of pair or group work on the writing process and outcomes. They referred to their previous studies (Wigglesworth & Storch, 2009; Storch & Wigglesworth, 2007) and concluded that the collaboration process (such as pair discussions) improves students' writing skills. The findings of the present study and the study by Wigglesworth and Storch (2012) are similar since both support the role of collaboration and peer assistance in writing classes enhances students' writing skills. Similar to Wigglesworth and Storch (2012), the present study supports the integration of collaboration in L2 writing classes.

To investigate Research Question 1 further, the scores on each rubric category (organization, sentence structure, use of English, word choice) were examined to investigate the rubric category that students improved the most. The results indicated that students improved their sentence structure the most (*Cohen's d* = -2.73) compared to other rubric categories. In line with Bitchener and Knoch (2010), this study suggests that processing WCF either individually or collaboratively increases students' overall writing performance as well as their sentence structure. Similarly, Bitchener and Knoch (2010) revealed that the sentence structure category was one of the categories where students significantly improved, with a large effect size. One reason that Bitchener and Knoch (2010) suggests for students' improvement in the sentence structure category is the explicit information provided through WCF. According to Bitchener and Knoch (2010), WCF provided students with practice opportunities using the target structures which resulted in a significant improvement.

Similarly, the present study provided students with explicit information through error correction codes, which might be the reason for the improvement of the specific category. Additionally, they argued that feedback on sentence structure was easier to identify compared to other areas such as cohesion. Moreover, the contribution of collaboration in the revision process might be another reason for the improvement in sentence structure category. According to Bitchener and Knoch (2010), students improved their sentence structure the most as they were able to discuss and negotiate the corrections, which may have motivated them in understanding the sentence structure errors. The study has consistent interpretations with Bitchener and Knoch's (2010). In particular, one possible reason why students improved their sentence structure might be the increased and consistent writing practice during the experiment. Similarly, O'Loughlin and Wigglesworth (2003) support the idea that students' familiarity with specific areas of language might affect their task engagement and writing performance. In the current study, students subsequently wrote two drafts of four paragraphs for eight weeks which might have increased the task familiarity in different sentence structures. Therefore, this study is in line with O'Loughlin and Wigglesworth (2003) and associates the improvement in the sentence structure category with task familiarity. There were studies which could not find a significant improvement in students' sentence structure as well. The study by Mujtaba et al. (2021) analyzed error-free T-units in students' writings to investigate the effects of individual and collaborative processing of WCF on students' writing performance and accuracy. However, they could not detect any specific effect on WCF between two feedback groups after the treatment. Therefore, the outcomes of this study contribute a fresh perspective to the field of WCF by highlighting the enhancement in students' sentence structure as a significant aspect. Except for the separate rubric categories, the

largest effect size was observed for the total scores (*Cohen's d* = -9.59), which indicated that the treatment had a very large impact on the participants' overall performance. In conclusion, total scores significantly increased at the end of the treatment, which resulted in significant improvements in all rubric categories. Therefore, the present study suggests that educators should consider providing feedback on various error categories to enhance students' writing performance in general and their improvement in specific language areas.

In addition to between group comparisons, the pretest and posttests of both groups were compared within groups to see the effects of individual and collaborative processing of WCF regardless of the feedback processing type. The mean posttest scores of the collaborative group ($M = 88.48$, $SD = 2.80$, $t = -4.88$) and the individual group ($M = 83.71$, $SD = 3.48$, $t = -4.88$) were statistically higher than their pretest scores. The difference between the pretest and posttest of the individual group was statistically significant ($t = -15.38$, $p < .05$). The collaborative group also performed better in the pretest and posttest scores ($t = -14.56$, $p < .001$). Overall, the scores significantly increased from the pretest to posttest for both groups ($p < .001$, $d > 0.80$) which indicated that the treatment was effective for both groups. Findings of the within group comparison indicated that both groups of WCF had positive effects on students' paragraph writing performance. When within group results were analyzed, it can be concluded that both groups improved their writing performance after the treatment. This progress was expected as both groups were exposed to a kind of treatment (individual and collaborative processing of WCF) and regular English instructions on other language skills. In other words, it may be hard to distinguish whether the feedback processing was the only element that contributed to students' improvement. However, the expected progress might have been more organized

because of receiving WCF during the treatment process. The improvement in writing skills of both the individual and collaborative group can be also attributed to the fact that the feedback facilitated self-reflection and self-correction, whether processed individually or collaboratively. In particular, the individual group might have benefitted from the opportunity of self-reflection and revision. On the other hand, the collaborative group utilized the WCF with the help of active engagement through peer interaction, which might have increased their critical thinking skills. These were also observed in a study by Wahyuningsih (2020) where the role of corrective feedback was examined along with students' perceptions on the feedback process. Both the study by Wahyuningsih (2020) and the present study concluded that collaboration increases students' engagement in the feedback process which leads to an increase in their overall writing performance. The findings of the study contribute to the literature on the effectiveness of WCF and indicate that both processing methods can be effective in improving students' writing performance. These findings contribute to the outcomes of prior studies that have identified substantial effects of WCF on revision tasks as well (Ashwell, 2000; Bitchener, 2008; Ferris & Roberts, 2001). In their study, Bonyadi and Jafari (2018) investigated the effects of individual and collaborative processing of WCF on 60 EFL learners' writing accuracy by randomly assigning students to individual and collaborative feedback groups and providing WCF to each piece of writing. Bonyadi and Jafari (2018) concluded that both WCF groups significantly improved their writing performance. The findings are consistent with the present study, concluding that both the individual and collaborative processing of WCF have had a positive impact on students' writing performance. Similar to previous studies, the current study has highlighted the importance of

incorporating individual and collaborative feedback processing as a beneficial practice in L2 classes to improve writing performance.

Research Question 2 explored the error numbers of students under three categories: grammatical, lexical, and mechanical. The aim was to investigate whether the treatment had any impact on the individual and collaborative groups' error numbers. The results of within group comparison indicated a significant difference between the pretest grammatical errors ($p=0.10$) but no significant difference in posttest grammatical errors ($p=.766$). In addition, no significant difference was found between the pretest lexical errors ($p=.210$) and the posttest lexical errors ($p=.711$). There was no significant difference in the posttest ($p=.119$) mechanical errors as well. In conclusion, there was no significant difference in grammatical, lexical, and mechanical errors made by the individual and collaborative processing groups in the posttest. In conclusion, neither group improved significantly in these specific error types. This finding does not support the findings of Kahyalar and Yılmaz's (2016) study, whose aim was to explore whether collaborative work is beneficial on students' errors and overall writing performance. Findings of Kahyalar and Yılmaz's (2016) study indicated that students in the collaborative group were able to revise their grammatical and mechanical errors effectively. However, the present study could not find any significant improvement in the error categories. There are several reasons that may have caused the lack of significant improvement in the error numbers. The participants in the current study might not have enough grammatical, lexical, or mechanical instruction which might have resulted in no significant improvement. The lack of sufficient instruction might have hindered the participants to utilize WCF, including the collaborative group. Therefore, grammatical, lexical, and mechanical errors might be beyond the ZPD of the participants. Vygotsky (1978) considered the

ZPD as an environment for growth and internalization and emphasized that the areas within the ZPD can develop through social interaction. In the present study, the error categories might be beyond the ZPD of the participants, which might have resulted in no improvement even if they were involved in social interaction. In addition, the sample size might not be large enough to detect significant differences in these specific error categories. Another potential reason for the lack of improvement in the error categories can be the misinterpretation and misleading of peer feedback among the collaborative group, or the misinterpretation of the error correction codes among the individual group. In other words, students might have processed the feedback negatively which may be the reason for no significant improvement in the error categories. Similarly, the study by Pourdana et al. (2021) could not find any significant difference between the error numbers of students' pretests and posttests after providing WCF as the treatment. However, their study focused on discourse markers while this study examined the errors on a larger scale in three categories. Another explanation of no significant difference between grammatical, lexical, and mechanical errors might be the complicated nature of the errors and structures. In other words, even if students improved their overall performance through organization, content, or sentence structure, they might not feel competent enough in correcting the specific errors. Furthermore, as stated by Hemchua and Schmitt (2006), the relationship between language proficiency and the frequency of errors is not always straightforward. Therefore, it is also possible that even if students enhance their overall writing performance, they may still struggle to implement feedback effectively on their grammatical, lexical, and mechanical errors. In other words, not being able to correct specific errors should not always be interpreted as a failure. In addition, grammatical, lexical, and mechanical errors might require more time and

effort to improve. In their study, Tan and Manochphinyo (2017) investigated the effects on WCF on students' grammatical errors. They concluded that EFL students require more time for reflection on the errors they make and strategies for rectifying them. Additionally, Tan and Manochphinyo (2017) claim that students would benefit from engaging in additional writing tasks that provide practice in formal writing conditions. Similar to their study, the current study claims that students might need more than eight weeks to show a statistically significant improvement in these categories.

The third research question aimed to explore students' attitudes towards individual and collaborative processing of WCF along with their attitudes towards error correction procedure. To understand the effectiveness of each feedback processing type, written responses of individual and collaborative groups were collected through online short-response reflection forms and analyzed separately. Both groups provided similar responses to general prompts related to the error correction codes. However, they have provided different responses to the prompts related to individual and collaborative processing.

Both the individual and collaborative group found error correction codes in writing classes helpful and supportive. According to both groups, receiving feedback through error correction codes was a shortcut to understanding the errors. Students agreed that they would prefer error correction codes to reading long comments and corrections on their paper. Students also reported a noticeable improvement in their writing skills when compared to their initial level before the treatment. Similarly, Saragih et al. (2021) investigated the perceptions of 387 EFL students on WCF in general and different types of WCF through a survey. According to survey results,

participants in their study claimed that WCF contributed to their overall writing performance, enhanced their writing skills, and motivated them throughout the writing process. Their findings support the present study as many students reported an observable improvement and motivation. In addition, many students in the current study and the study by Saragih et al. (2021) reported that the error correction codes were easily understood with the specific examples provided. Moreover, students valued error correction codes and viewed them as the standardized and universal way of receiving feedback. The study is also consistent with Bitchener and Knoch's (2008) study, who collected students' attitudes towards individual and feedback processing through semi-structured interviews and retrieved similar results. Similarly, students in Bitchener and Knoch's (2008) study reported that using error correction codes was helpful and supportive to improve their overall writing performance. Additionally, students in Ferris and Hedgcock's (1998) study preferred using error correction codes since they were easy to understand.

When students were asked the specific language areas that they felt more competent after the treatment, many reported that they improved their grammar, which was the most popular category. Following grammar, they mentioned that they improved their spelling, punctuation, and vocabulary mistakes. Findings are in line with Ferris's (2002) study, which utilized semi-structured interviews to report students' attitudes towards the feedback process. Same as the present study, Ferris's (2002) study concluded that students observed a noticeable improvement in their grammar and vocabulary after the treatment process. Students in the present study expressed the practicality of error correction codes by stating that they would love to use the error correction codes in their next writing classes. In other words, even if students are given a second feedback option, they would still choose error correction

codes because of their effectiveness and practicality. Ferris' (2006) study also indicated that students found correction codes easy and practical to use compared to reading long comments by their teachers. Some students highlighted the importance of self-correction as they stated that receiving direct corrections would make them less productive as they would not put an extra effort to correct their errors. Along with the error correction codes, written comments of the instructor were appreciated by the students. Similar to the present study, Saragih et al. (2021) also provided WCF to students' papers through error correction codes and comments. Both studies supported the importance of implementing written comments along with the error correction codes as both provide valuable guidance to the participants. One reason Saragih et al. (2021) supported this claim was that not all students may respond positively to the indirect feedback alone. In line with their study, the present study also supports this claim. Similarly, the study by Trabelsi (2019) provided students with error correction codes and comments and gathered their perceptions through focus groups. Trabelsi (2019) concluded that students value the combination of both feedback types and preferred a comprehensive feedback approach. They regarded written comments as a reinforcer of the codes and stated that error correction codes would not be enough by themselves without the instructor's comments. In short, both in the current study and the study by Trabelsi (2019), students valued the combination of these two feedback types rather than receiving just one type of feedback. Regarding their overall writing performance improvement, many students in the studies mentioned above reported that they significantly improved their writing skills. This study supports the findings of the present studies.

While the collaborative group valued the importance of communication and collaboration with their peers, some members of the individual group mentioned that

they felt lost during the feedback process. Without further guidance, students in the individual group struggled to identify their errors or interpret the error correction codes. Students in the collaborative group felt relaxed and comfortable while discussing the errors with peers rather than a teacher. They believed that interaction between student to student was a source of motivation because their mindset is like their friends'. The findings are in line with the study by Dang (2016), who investigated 41 students' perspectives on collaborative feedback through close-ended questionnaires. Dang (2016) concluded that students find correcting errors with friends an enjoyable practice compared to individual correction. The reason Dang (2016) suggested was that learners facilitated a genuine understanding of language usage within authentic context through peer interaction. In Dang's (2016) study, %85 of the participants agreed on this. In addition, %70 of them believed that peer correction promoted engagement along with curiosity. Both in the current study and Dang's (2016), the collaborative groups had the chance to work in a more stimulated and engaging environment, which motivated them throughout the process. Some students in the individual group mentioned that even if they had the codes and comments written, they had trouble interpreting some codes without any support. In short, whereas all members of the collaborative group appreciated the significance of collaboration, the students in the individual group exhibited different attitudes towards the feedback process. The disagreement in the individual group shows that students' feelings on the feedback processing type depends on their personal preferences and learning styles. The findings can be related with the Sociocultural Theory by Vygotsky (1978), which emphasizes social interaction in learning. According to Vygotsky (1978), people develop their knowledge and skills through social interactions with others. Vygotsky (1978) viewed the role of social interaction

as an essential component to develop knowledge and skills. As suggested by the SCT, when learners are able to work together on their errors in a social environment, they have more opportunities to negotiate on each error while enjoying the feedback process. The findings can also be connected to the concept of mediation, which holds significant importance within the SCT framework. According to Lantolf and Thorne (2006), learners can internalize accurate language forms and enhance their language proficiency through the process of mediation. Therefore, the collaborative group might have benefitted from mediation and social interaction in a supportive environment, which might have influenced their attitudes towards the feedback process. In contrast, the lack of social interaction in the individual group might be the reason for their lack of interest. This finding is consistent with the idea that learning is a social process where social interaction plays a crucial role in shaping students' motivation towards learning (Lantolf & Thorne, 2006). Therefore, utilizing collaborative methods may offer chances to enhance social interaction and establish a supportive learning environment that can positively impact students' perceptions towards writing.

Qualitative findings support the results of the quantitative data reporting that despite the overall improvement of all students regardless of the feedback processing type, the posttest comparisons of both groups indicate that the collaborative feedback processing group outperformed the individual feedback processing group. In their short-response reflection form, all members of the collaborative group highlighted the positive effects of collaboration on their observed writing performance. In addition to the statistics, their feelings about the collaboration process depicted the value of peer support in writing classes. Similar to many previous studies which compared overall writing performance of students in individual and collaborative settings, this study

report that students in the collaborative group show great satisfaction with the feedback and peer support they receive as well as their observation of the positive effects on their writing performance (e.g. Bitchener & Knoch, 2008; Storch & Wigglesworth, 2010). Students' perspectives on using error correction codes and reviewing instructor's comments support the fact that WCF improves writing skills regardless of the feedback processing type. Students express the effectiveness of WCF in their reflection forms regardless of the feedback group they were in. In conclusion, utilizing collaborative feedback processing with the integration of WCF can lead to a constructive learning environment. Hence, the implementation of collaborative writing approaches should be more widespread as it is an effective practice of writing instruction (Bitchener & Ferris, 2012; Ferris & Roberts, 2001; Hyland & Hyland, 2006; Sheen, 2011). It is crucial to consider learners' perspectives and expectations as they have an impact on their motivation (Storch, 2010; Storch & Wigglesworth, 2010).

CHAPTER 6

CONCLUSION

This chapter provides the final conclusions drawn from the present study and explores the pedagogical implications. The chapter then presents the limitations encountered during the treatment process and concludes with suggestions for future research in the field.

6.1. Conclusion

The present study investigated the role of individual and collaborative processing of WCF on EFL students' writing performance. Through the intervention, both feedback groups were provided with WCF through error correction codes along with the instructors' written comments. The experimental group processed the errors in collaboration with their peers, whereas the control group followed the same process individually. The findings demonstrated that both individual and collaborative processing of WCF improved students' overall writing performance, with the collaborative group outperforming the individual group. Interestingly, the findings revealed that the treatment of individual and collaborative processing of WCF did not have a significant effect on students' grammatical, lexical, and mechanical errors. Therefore, combining direct and indirect WCF might be helpful in reducing students' errors. The attitudes of both the individual and collaborative group towards using error correction codes were generally positive. Regarding students' perspectives on individual and collaborative processing of WCF, the collaborative group expressed the preference for working collaboratively and receiving feedback from their peers, whereas the individual group had mixed opinions with some positive and negative views of the individual correction process. This study makes a significant contribution

to the implementation of WCF and collaboration in EFL classes, highlighting the positive perceptions and learner outcomes with these approaches.

6.2. Pedagogical Implications

There are several pedagogical implications for the implementation of WCF and collaborative work in EFL classes. Firstly, the findings indicate that both individual and collaborative processing of WCF can positively impact students' writing performance. This suggests that teachers can consider incorporating WCF in their EFL writing classes to enhance students' writing performance. The use of error correction codes, along with instructors' written comments, can be effective in improving students' errors in specific language areas. Secondly, the collaborative processing of WCF was found to be beneficial as the collaborative processing group outperformed the individual processing group. This emphasizes the significance of integrating collaborative tasks and peer feedback within the context of EFL writing instruction. Engaging students in collaborative practices can significantly contribute to improved outcomes in EFL writing. Moreover, including think aloud strategies which encourages learners to express their thinking process out loud and facilitates a more interactive learning environment can help them become better writers and enhance their writing performance. In addition, the positive attitudes of students towards using error correction codes show that students appreciate and value WCF through error correction codes. This encourages teachers to persist in incorporating error correction codes as a part of their feedback practices, as they have the potential to positively impact students' enthusiasm in the writing process. Writing instructors are advised to incorporate WCF alongside collaborative processing, particularly in larger language classes. Moreover, the insights of the present study regarding students' perceptions on individual and collaborative processing of WCF emphasize

the importance of considering students' preferences when designing feedback approaches. Knowing that some students may have mixed opinions towards individual correction and exhibit a preference for collaborative feedback can guide educators in customizing their feedback approaches to better meet students' diverse needs and expectations. To support the educators, policy makers can consider implementing supportive policies that promote the utilization of individual and collaborative processing of WCF in EFL classes. These policies can emphasize the importance of peer involvement and collaboration as effective strategies to enhance students' writing performance. Furthermore, policy makers can promote and support the professional growth of teachers by offering training programs and professional development initiatives. These efforts aim to provide educators with the necessary knowledge and skills to effectively implement these approaches into their writing instructions. Policy makers can play a vital role in fostering a supportive learning environment that promotes effective writing instruction, student engagement, and motivation by recognizing the positive perceptions and learning outcomes associated with the implementation of WCF and collaboration.

In conclusion, the findings support the implementation of WCF through error correction codes as well as collaborative practices in EFL classes. Teachers can utilize these approaches to enhance students' writing skills, foster a supportive and socially engaging learning environment, and amplify students' motivation. By incorporating both individual and collaborative processing of WCF and taking students' preferences into consideration, educators can optimize feedback strategies and facilitate more effective EFL writing instruction.

6.3. Limitations

Although the findings indicated that collaboration is effective in writing classes, it is crucial to acknowledge a few points of caution when interpreting the results. The sample size might be considered as a limitation. After excluding students who did not attend the classes regularly, each feedback processing group consisted of 21 students. It is important to note that the relatively small sample size utilized in this study might restrict the generalizability of the findings to a larger population. Secondly, the context might be another factor that might have affected the results. Students were chosen through convenient sampling, and all students were studying at a private university in Turkey. The results might vary in a different setting such as a state university or a different country. The present study had one experimental group that engaged in collaborative processing of WCF and one control group that processed WCF individually. It is worth noting that there was no control group without any intervention due to educational concerns, which might be perceived as another limitation of the study. Moreover, this study did not take individual differences and learning styles into consideration, which could be seen as another limitation. Finally, due to time constraints and students' class changes, the present study was conducted in eight weeks. The limited time might be considered as another limitation of the study.

6.4. Suggestions for Further Research

Future studies may employ a larger sample size across various contexts to establish more conclusive findings. Future studies could enhance their methodology by implementing random sampling to obtain more conclusive results. Further research could also investigate the impact of different contexts on the outcomes of similar

studies. Specifically, exploring the impact of individual and collaborative processing of WCF in different private and state universities across various countries could provide a deeper understanding of the topic. In addition, including a control group would contribute to obtaining more precise results. Furthermore, future studies could examine the relationship between individual differences among learners to yield more definitive results. Lastly, further research can extend the duration of the research to better evaluate the efficacy of the individual and collaborative processing of WCF.



References

- Aljaafreh, A., & Lantolf, J. P. (1994). Negative feedback as regulation and second language learning in the zone of proximal development. *The modern language journal*, 78(4), 465-483.
- Ashwell, T. (2000). Patterns of teacher response to student writing in a multi-draft composition classroom: is content feedback followed by form feedback the best method? *Journal of Second Language Writing*, 9: 227-57.
- Atmaca, C. (2016). Contrasting perceptions of students and teachers: written corrective feedback, *Journal of Language and Linguistic Studies*, 12(2), 166- 182.
- Biber, D., Conrad, S., & Cortes, V. (2003). If you look at...: Lexical bundles in university teaching and textbooks. *Applied Linguistics*, 24(1), 71-87.
- Bitchener, J. (2008). Evidence in support of written corrective feedback. *Journal of Second Language Writing*, 17(2), 102-118.
- Bitchener, J. (2012). Written corrective feedback for L2 development: Current practices and future directions. In S. Fotos & H. Nassaji (Eds.), *Advances in Written Corrective Feedback*, (pp. 1-21). Routledge.
- Bitchener, J., & Ferris, D. (2012). Written corrective feedback in second language acquisition and writing. *Studies in Second Language Acquisition*, 34(2), 181-210.
- Bitchener, J., & Knoch, U. (2008). The value of written corrective feedback for migrant and international students. *Language Teaching Research*, 12(3), 409-431.
- Bitchener, J., & Knoch, U. (2009). The relative effectiveness of different types of direct written corrective feedback. *System*, 37(2), 322-329.
- Bitchener, J., & Knoch, U. (2010). Raising the linguistic accuracy level of advanced L2 writers with written corrective feedback. *Journal of Second Language Writing*, 19(4), 207-217.

- Bitchener, J., & Storch, N. (2016). *Written corrective feedback for L2 development* (Vol. 96). Multilingual Matters.
- Bitchener, J., Young, S., & Cameron, D. (2005). The effect of different types of corrective feedback on ESL student writing. *Journal of second language writing*, 14(3), 191-205.
- Blackmore-Squires, S. (2010). An investigation into the use of a blog as a tool to improve writing in the second language classroom. *Unpublished MA dissertation. University of Manchester, UK.*
- Bonyadi, A., & Jafari, L. (2018). On the Differential Effects of Individual and Collaborative Written Corrective Feedback on the Accuracy of Iranian Female EFL Learners' Writing.
- Bourdieu, P. (1977). Cultural reproduction and social reproduction. In J. Karabel & A. H. Halsey (Eds.), *Power and ideology in education* (pp. 487-511). Oxford University Press.
- Braun, V., & Clarke, V. (2014). What can “thematic analysis” offer health and wellbeing researchers?. *International journal of qualitative studies on health and well-being*, 9(1), 26152.
- Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative research in sport, exercise and health*, 11(4), 589-597.
- Bruton, A. (2009). Improving accuracy is not the only reason for writing, and even if it were.... *System*, 37(4), 600-613.
- Bygate, M. (2001). Effects of task repetition on the structure and control of language. In M. Bygate, P. Skehan, & M. Swain (Eds.), *Researching pedagogic tasks: Second language learning, teaching and testing* (pp. 23-48). Harlow, UK: Pearson Education Limited.

- Canale, M., & Swain, M. (1980). Theoretical bases of communicative approaches to second language teaching and testing. *Applied Linguistics*, 1(1), 1-47.
- Carroll, S., & Swain, M. (1993). Explicit and implicit negative feedback. *Studies in 2nd Language Acquisition*, 15(3), 357-386.
- Celce- Murcia, M. (1991). Grammar pedagogy in second and foreign language teaching. *TESOL quarterly*, 25(3), 459-480.
- Chandler, J. (2003). 'The efficacy of various kinds of error feedback for improvement in the accuracy and fluency of L2 student writing'. *Journal of Second Language Writing* 12: 267–96.
- Chastain, K. (1988). *Developing second language skills: Theory and practice*. New York: Harcourt Brace Jovanovich.
- Cho, K. S., & Schunn, C. D. (2007). Scaffolded writing and rewriting in the discipline: A web-based reciprocal peer review system. *Computers & Education*, 48(3), 409-426.
- Coffin, C. (2006). Learning the language of school history: The role of linguistics in mapping the writing demands of the secondary school curriculum. *Journal of curriculum studies*, 38(4), 413-429.
- Cook, V. (1991). *Second Language Learning and Second Language Teaching*. London: Edward Arnold.
- Creswell, J. W., & Clark, V. L. P. (2017). *Designing and conducting mixed methods research*. Sage publications.
- Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.
- Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and conducting mixed methods research*. Sage publications.

- Crossley, S. A., Bradfield, F., & Bustamante, A. (2019). Using human judgments to examine the validity of automated grammar, syntax, and mechanical errors in writing. *Journal of Writing Research*, 11(2), 251-270.
- Dang, T. T. D. (2016). Vietnamese EFL Students' Perceptions of Noticing-Based Collaborative Feedback on Their Writing Performance. *English Language Teaching*, 9(5), 141-153.
- Dobao, A. F. (2012). Collaborative writing tasks in the L2 classroom: Comparing group, pair, and individual work. *Journal of second language writing*, 21(1), 40-58.
- Doughty, C., & Varela, E. (1998). Communicative focus on form. *Focus on form in classroom second language acquisition*, 1, 114-138.
- Durkheim, E. (1956). *Education and sociology*. The Free Press.
- Ellis, R. (2009a). Corrective feedback and teacher development. *L2 Journal*, 1(1).
- Ellis, R. (2009b). A typology of written corrective feedback types. *ELT journal*, 63(2), 97-107.
- Ellis, R. (2012). *Language teaching research and language pedagogy*. Hoboken, NJ: Wiley-Blackwell.
- Ellis, R., Sheen, Y., Murakami, M. & Takashima, H. (2008) The effects of focused and unfocused written corrective feedback in an English as a foreign language context. *System* 36: 353–71.
- Ellis, R., & Shintani, N. (2014). *Exploring language pedagogy through second language acquisition research*. Routledge.
- Fathman, A. (1990). Teacher response to student writing: Focus on form versus content. *Second language writing: Research insights for the classroom*, 178-190.

- Fazio, L. L. (2001). The effect of corrections and commentaries on the journal writing accuracy of minority-and majority-language students. *Journal of second language writing*, 10(4), 235-249.
- Ferris, D. (1995). Teaching students to self-edit. *TESOL journal*, 4(4), 18-22.
- Ferris, D. (1997). The influence of teacher commentary on student revision. *TESOL Quarterly* 31: 315–39.
- Ferris, D. (1999). The case for grammar correction in L2 writing classes: A response to Truscott (1996). *Journal of second language writing*, 8(1), 1-11.
- Ferris, D. R. (2002). *Treatment of error in second language student writing*. Ann Arbor: University of Michigan Press.
- Ferris, D. R. (2003). *Response to student writing: Implications for second language students*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Ferris, D. (2003). Responding to writing. *Exploring the dynamics of second language writing*, 119.
- Ferris, D. (2006). Does error feedback help student writers? New evidence on the short- and long-term effects of written error correction. *Feedback in second language writing: Contexts and issues*, 81104.
- Ferris, D., & Hedgcock, J. S. (1998). Teaching ESL Composition: Purpose. *Process, and practice*.
- Ferris, D. & Roberts, B. (2001) Error feedback in L2 writing classes: how explicit does it need to be? *Journal of Second Language Writing* 10: 161–184.
- Ferris, D. R. (2010). Second language writing research and written corrective feedback in SLA: Intersections and practical applications. *Studies in Second Language Acquisition*, 32(2), 181-201.

- Ferris, D. (2012). *Feedback in second language writing: Contexts and issues*. New York, NY: Routledge.
- Field, A. P. (2013). *Discovering statistics using IBM SPSS statistics*. Sage.
- Flower, L., & Hayes, J. R. (1981). A cognitive process theory of writing. *College composition and communication*, 32(4), 365-387.
- Frear, D. & Chiu, Y. (2015) The effect of focused and unfocused indirect written corrective feedback on EFL learners' accuracy in new pieces of writing. *System* 53: 24–34.
- Friginal, E., & Weigle, S. (2014). Exploring multiple profiles of L2 writing using multi-dimensional analysis. *Journal of Second Language Writing*, 26, 80-95.
- Gabrielatos, C. (2002). *EFL Writing: Product and Process*, 5.
- Gall, M. D., & Borg, W. R. (1989). *Educational research. A guide for preparing a thesis or dissertation proposal in education*. Longman, Inc., Order Dept., 95 Church Street, White Plains, NY 10601 Stock No. 78164-6.
- Gascoigne, C. (2004). Examining the effect of feedback in beginning L2 composition. *Foreign Language Annals* 37: 71–6.
- Gass, S. (1997). *Input, interaction, and the second language learner*. Mahwah, NJ: Erlbaum.
- Gass, S. M., & Selinker, L. (2008). *Second Language Acquisition: An Introductory Course*. New York: Routledge.
- Gass, S. M., & Mackey, A. (2015). Input, interaction, and output in second language acquisition. In B. VanPatten & J. Williams (Eds.), *Theories in second language acquisition: An introduction* (pp. 174-196). New York: Routledge.

- Gholaminia, I., Gholaminia, A., & Marzban, A. (2014). An investigation of meta-linguistic corrective feedback in writing performance. *Procedia-Social and Behavioral Sciences*, 116, 316-320.
- Golkova, D., & Hubackova, S. (2014). Productive skills in second language learning. *Procedia-Social and Behavioral Sciences*, 143, 477-481.
- Grabe, W., & Kaplan, R. B. (2016). *Theory and Practice of Writing: An Applied Linguistic Perspective*. Routledge.
- Grimes, D. A., & Schulz, K. F. (2002). An overview of clinical research: the lay of the land. *The Lancet*, 359(9300), 57-61.
- Gupta, D., & Woldemariam, G. S. (2011). The influence of motivation and attitude on writing strategy use of undergraduate EFL students: Quantitative and qualitative perspectives. *Asian EFL Journal*, 13(2), 34-89.
- Hairston, M. (1982). The winds of change: Thomas Kuhn and the revolution in the teaching of writing. *College composition and communication*, 33(1), 76-88.
- Havranek, G. (2002). When is corrective feedback most likely to succeed?. *International Journal of Educational Research*, 37(3-4), 255-270.
- Hashemian, M., & Farhang-Ju, M. (2018). Effects of metalinguistic feedback on grammatical accuracy of Iranian field (in) dependent L2 learners' writing ability. *Journal of Research in Applied Linguistics*, 9(2), 141-161.
- Hedge, T. (2000). *Teaching and Learning in the Language Classroom*. New York: Oxford University Press.
- Hemchua, S., & Schmitt, N. (2006). An analysis of lexical errors in the English compositions of Thai learners. *PROSPECT-ADELAIDE*-, 21(3), 3.
- Howell, D. C. (2012). *Statistical methods for psychology (8th ed.)*. Wadsworth. Chapter 10.

- Hyland, F. (1998). The impact of teacher written feedback on individual writers. *Journal of Second Language Writing*, 7(3), 255-286.
- Hyland, K. (2019). *Second language writing*. Cambridge university press.
- Hyland, K., & Anan, E. (2006). Teachers' perceptions of error: The effects of first language and experience. *System*, 34(4), 509-519.
- Hyland, K., & Hyland, F. (2006). Feedback on second language students' writing. *Language teaching*, 39(2), 83-101.
- Hyland, F., & Hyland, K. (2019). *Feedback in academic writing: Key perspectives*. Routledge.
- Hyland, K. (2009). *Teaching and Researching Writing*. Harlow, England: Pearson.
- James, C. (2013). *Errors in language learning and use: Exploring error analysis*. Routledge.
- Kahyalar, E., & Yılmaz, F. (2016). Teachers' corrective feedback in writing classes: The impact of collaborating with a peer during the editing process on students' uptake and retention. *The Reading Matrix: An International Online Journal*, 16(1), 148-160.
- Kang, E. Y.; Han, Z. (2015). *The Efficacy of Written Corrective Feedback in Improving L2 Written Accuracy: A Meta-Analysis*. *The Modern Language Journal*, 99(1), 1–18.
- Karim, K. & Nassaji, H. (2018) The revision and transfer effects of direct and indirect comprehensive corrective feedback on English-as-a-second-language (ESL) students' writing. *Language Teaching Research*.
- Keh, C. (1990). Feedback in the writing process: a model and methods for implementation. *ELT Journal*, 44, 94-304.

- Kepner, C. G. (1991). An experiment in the relationship of types of written feedback to the development of second-language writing skills. *The modern language journal*, 75(3), 305-313.
- Kim, H. R., & Bowles, M. (2019). How deeply do second language learners process written corrective feedback? Insights gained from think- alouds. *Tesol Quarterly*, 53(4), 913-938.
- Kim, Y., Choi, B., Kang, S., Kim, B., & Yun, H. (2020). Comparing the effects of direct and indirect synchronous written corrective feedback: Learning outcomes and students' perceptions. *Foreign Language Annals*, 53(1), 176-199.
- Kim, Y., & Emeliyanova, L. (2021). The effects of written corrective feedback on the accuracy of L2 writing: Comparing collaborative and individual revision behavior. *Language Teaching Research*, 25(2), 234-255.
- Kintsch, W. (1998). *Comprehension: A paradigm for cognition*. Cambridge University Press.
- Krashen, S. (1992). The input hypothesis: An update. *Linguistics and language pedagogy: The state of the art*, 409-431.
- Krashen, S. (1985) *The Input Hypothesis: Issues and Implications*. Harlow: Longman.
- Kroll, B. (1990). *Second language writing* (Vol. 10). Cambridge: Cambridge University Press.
- Lalande, J. F. (1982). Reducing composition errors: An experiment. *Modern Language Journal*, 66, 140-149.
- Lantolf, J. P., & Thorne, S. L. (2006). *Sociocultural theory and the genesis of second language development*. Oxford University Press.
- Lareau, A., & Weininger, E. B. (2003). Cultural capital in educational research: A critical assessment. *Theory and society*, 32, 567-606.

- Larsen-Freeman, D. (2003). *Teaching language: From grammar to grammaring*. Boston, MA: Thomson/Heinle.
- Larsen-Freeman, D., & Cameron, L. (2008). *Complex systems and applied linguistics*. Oxford: Oxford University Press.
- Lapp, D., Wolsey, T. D., Fisher, D., & Frey, N. (2012). Graphic novels: What elementary teachers think about their instructional value. *Journal of Education*, 192(1), 23-35.
- Lee, I. (2004). Error correction in L2 secondary writing classrooms: The case of Hong Kong. *Journal of Second Language Writing*, 13, 285–312.
- Lee, I. (2011). Research on feedback in the writing classroom: Where do we stand and where are we going? *Journal of Second Language Writing*, 20(2), 82-94.
- Lee, I. (2013). Teacher perspectives on responding to ESL students' writing: Issues, challenges, and opportunities. *Journal of Response to Writing*, 1(1), 32-53.
- Lee, I. (2017a). Research on written corrective feedback in SLA. In S. Loewen & M. Sato (Eds.), *The Routledge handbook of instructed second language acquisition* (pp. 367-383). Routledge.
- Lee, I. (2017b). Teacher feedback in second language writing: An overview of issues and research in the context of English as a foreign language. *Journal of Second Language Writing*, 36, 1-12.
- Lee, I. (2019). Teacher written corrective feedback: Less is more. *Language Teaching*, 52(4), 524-536.
- Leki, I. (1990). Coaching from the margins: Issues in written response. *Second language writing: Research insights for the classroom*, 57-68.
- Leki, I. (1990). Potential problems with peer responding in ESL writing classes. *CATESOL journal*, 3(1), 5-19.

- Leki, I. (2001). "A narrow thinking system": Nonnative-English-speaking students in group projects across the curriculum. *TESOL Quarterly*, 35(1), 39-67.
- Lightbown, P. M. (1985). Great expectations: Second-language acquisition research and classroom teaching. *Applied linguistics*, 6(2), 173-189.
- Lightbown, P.M., & Spada, N. (1999). *How languages are learned: Revised edition*. Oxford: Oxford University Press.
- Liu, Y. (2008). The effects of error feedback in second language writing. *Arizona Working Papers in SLA and Teaching* 15: 65–79.
- Liu, Q., & Brown, D. (2015). Methodological synthesis of research on the effectiveness of corrective feedback in L2 writing. *Journal of Second Language Writing*, 30, 66-81.
- Loewen, S. (2013). The role of feedback. In *The Routledge handbook of second language acquisition* (pp. 24-40). Routledge.
- Long, M. H. (1983). Does second language instruction make a difference? A review of research. *TESOL quarterly*, 17(3), 359-382.
- Long, M. (1996). The role of the linguistic environment in second language acquisition. *Handbook of second language acquisition*.
- López, M.B., Van Steendam, E., Speelman, D., & Buyse, K. (2018). The differential effects of comprehensive feedback forms in the second language writing class. *Language Learning*, 68(3), 813-850.
- Lyster, R. (1998). Negotiation of form, recasts, and explicit correction in relation to error types and learner repair in immersion classrooms. *Language learning*, 48(2), 183-218.
- Mackey, A., Gass, S., and McDonough, K. (2000). How do learners perceive interactional feedback?. *Studies in second language acquisition*, 22(4), 471-497.

- Mann, H. B., & Whitney, D. R. (1947). On a test of whether one of two random variables is stochastically larger than the other. *The annals of mathematical statistics*, 50-60.
- Merriam, S. B. (2009). *Qualitative research: A guide to design and implementation*. Jossey-Bass.
- Mertler, C. A. (2018). *Introduction to Educational Research (3rd ed.)*. SAGE Publications.
- Mujtaba, S. M., Reynolds, B. L., Parkash, R., & Singh, M. K. M. (2021). Individual and collaborative processing of written corrective feedback affects second language writing accuracy and revision. *Assessing Writing*, 50, 100566.
- Mullany, L., & Stockwell, P. (2010). *Introducing English language: A Resource book for students*. Routledge. 84-85.
- Mundry, R., & Fischer, J. (2018). Use and misuse of the linear mixed model: a review of the basic principles. *Frontiers in psychology*, 9, 1739.
- Nassaji, H. (2015). *The interactional feedback dimension in instructed second language learning: Linking theory, research, and practice*. Bloomsbury Publishing.
- Nassaji, H. (2016). Anniversary article: interactional feedback in second language teaching and learning: a synthesis and analysis of current research. *Language Teaching Research* 20: 535–62.
- Nassaji, H., & Kartchava, E. (2017). The role of corrective feedback: Theoretical and pedagogical perspectives. *Corrective Feedback in Second Language Teaching and Learning: Research, Theory, Applications, Implications*. Oxon, UK: Routledge, 2017a, p. ix-xv.
- Nassaji, H., & Swain, M. (2000). A Vygotskian perspective on corrective feedback in L2: The effect of random versus negotiated help on the learning of English articles. *Language awareness*, 9(1), 34-51.

- Nunan, D. (1999). *Second language teaching and learning*. Boston: Heinle.
- Ohta, A. S. (2001). *Second language acquisition processes in the classroom: Learning Japanese*. Routledge.
- Oliver, R., & Mackey, A. (2003). Interactional context and feedback in child ESL classrooms. *The Modern Language Journal*, 87(4), 519-533.
- O'Loughlin, K., & Wigglesworth, G. (2003). Task. design in IELTS Academic Writing Task 1: The effect of quantity and manner of presentation of information on candidate writing. In *International English Language Testing System (IELTS) Research Reports 2003: Volume 4* (pp. 89-130). Canberra: IDP: IELTS Australia.
- Pardo-Ballester, C., & Cabello, A. C. (2016). L2 Collaborative E-writing. *Procedia-Social and Behavioral Sciences*, 228, 601-607.
- Polio, C. (2012). The relevance of second language acquisition theory to the written error correction debate. *Journal of second language writing*, 21(4), 375-389.
- Pourdana, N., Nour, P., & Yousefi, F. (2021). Investigating metalinguistic written corrective feedback focused on EFL learners' discourse markers accuracy in mobile-mediated context. *Asian-Pacific Journal of Second and Foreign Language Education*, 6, 1-18.
- Richards, J. C., & Schmidt, R. W. (2013). *Longman dictionary of language teaching and applied linguistics*. Routledge.
- Robb, T., Ross, S., & Shortreed, I. (1986). Salience of feedback on error and its effect on EFL writing quality. *TESOL quarterly*, 20(1), 83-96.
- Russell, J., & Spada, N. (2006). The effectiveness of corrective feedback for the acquisition of L2 grammar. *Synthesizing research on language learning and teaching*, 13, 133-164.

- Salkind, N. J., & Frey, B. B. (2021). *Statistics for people who (think they) hate statistics: Using Microsoft Excel*. Sage publications.
- Saragih, N. A., Madya, S., Siregar, R. A., & Saragih, W. (2021). Written Corrective Feedback: Students' Perception and Preferences. *International Online Journal of Education and Teaching*, 8(2), 676-690.
- Schmidt, R. (1990). The role of consciousness in second language learning. *Applied Linguistics*, 11, 129-158.
- Selvaraj, M., & Aziz, A. A. (2019). Systematic review: Approaches in teaching writing skill in ESL classrooms. *International Journal of Academic Research in Progressive Education and Development*, 8(4), 450-473.
- Semke, H. (1984). The effects of the red pen. *Foreign Language Annals*, 17, 195- 202.
- Sheen, Y. (2007). The effect of focused written corrective feedback and language aptitude on ESL learners. *TESOL Quarterly*, 41(2), 255-283.
- Sheen, Y. (2010). Differential effects of oral and written corrective feedback in the ESL classroom. *Studies in second language acquisition*, 32(2), 203-234.
- Sheen, Y., & Ellis, R. (2011). Corrective feedback in language teaching. In *Handbook of research in second language teaching and learning* (pp. 593-610). Routledge.
- Shintani, N., & Ellis, R. (2013). The comparative effect of direct written corrective feedback and metalinguistic explanation on learners' explicit and implicit knowledge of the English indefinite article. *Journal of Second Language Writing*, 22, 286-306.
- Shintani, N., Ellis, R. & Suzuki, W. (2014) Effects of written feedback and revision on learners' accuracy in using two English grammatical structures. *Language Learning* 64: 103–31.

- Shapiro, S. S., & Wilk, M. B. (1965). An analysis of variance test for normality (complete samples). *Biometrika*, 52(3/4), 591-611.
- Sheppard, K. (1992). Two feedback types: do they make a difference? *RELC Journal* 23: 103-10.
- Silva, T. (1990). Second language composition instruction: Developments, issues, and directions in ESL. *Second language writing: Research insights for the classroom*, 11, 23.
- Silva, T., Brice, C., Kapper, J., Matsuda, P. K., & Reichelt, M. (2001). Twenty-five years of scholarship on second language composing processes: 1976-2000. *International Journal of English Studies*, 1(2), 211-240.
- Smith, J. A. (2015). Qualitative psychology: A practical guide to research methods. *Qualitative psychology*, 1-312.
- Sokolik, M. (2003). Writing. In D. Nunan (Ed.), *Practical English Language Teaching* (pp. 87-108). New York: McGraw Hill.
- Soleimani, H. (2014). The impact of writing peer correction feedback on pre-intermediate Iranian EFL learners' writing performance. *International Journal of Language Learning and Applied Linguistics World*, 5(4), 1-10.
- Storch, N. (2005). Collaborative writing: Product, process, and students' reflections. *Journal of second language writing*, 14(3), 153-173.
- Storch, N., & Wigglesworth, G. (2007). Writing tasks: The effects of collaboration. *Investigating tasks in formal language learning*, 157-177.
- Storch, N., & Wigglesworth, G. (2010). Learners' Processing, Uptake, and Retention of Corrective Feedback on Writing: Case Studies. *Studies in second language acquisition*, 32(2), 303-334.

- Suzuki, M. (2008). Japanese learners, self-revisions and peer revisions of their written
- Swain, M., & Lapkin, S. (2000). Task-based second language learning: The uses of the first language. *Language Teaching Research*, 4(3), 251-274.
- Suzuki, W., Nassaji, H. & Sato, K. (2019) The effects of feedback explicitness and type of target structure on accuracy in revision and new pieces of writing. *System* 81: 135–45.
- Swain, M. (1995). Three functions of output in second language learning. *Principles and practice in applied linguistics: Studies in honor of HG Widdowson*, 125-144.
- Tan, B. H. (2011). Innovative writing centers and online writing labs outside North America. *Asian EFL Journal*, 13 (2), 391-418.
- Tan, K. E., & Manochphinyo, A. (2017). Improving grammatical accuracy in Thai learners' writing: Comparing direct and indirect written corrective feedback. *Journal of Asia TEFL*, 14(3), 430.
- Tangpermpoon, T. (2008). Integrated approaches to improve students' writing skills for English major students. *ABAC journal*, 28(2).
- Trabelsi, S. (2019). The perceptions and preferences of the general foundation program students regarding written corrective feedback in an Omani EFL context. *Advances in Language and Literary Studies*, 10(1), 91-101.
- Truscott, J. (1996). The case against grammar correction in L2 writing classes. *Language Learning* 46, 327–369.
- Truscott, J. (2007). The effect of error correction on learners' ability to write accurately. *Journal of Second Language Writing* 16, 255–272.
- Truscott, J. & Hsu, A. Y. (2008). Error correction, revision, and learning. *Journal of Second Language Writing* 17: 292–305.

- Van Lier, L. (1995). *Introducing language awareness*. Harmondsworth, UK: Penguin English.
- VanPatten, B. (1986). The ACTFL Proficiency Guidelines: implications for grammatical accuracy in the classroom?. *Studies in Second Language Acquisition*, 8(1), 56-67.
- Vygotsky, L. S. (1978). *Mind in Society: The Development of Higher Psychological Processes*. M. Cole, V. John-Steiner, S. Scribner, & E. Souberman (Eds.). Cambridge, MA: Harvard University Press.
- Wahyuningsih, S. (2020). The Role of Corrective Feedback on Academic Writing Performance: EFL Students' Perceptions. *Edulingua: Jurnal Linguistiks Terapan dan Pendidikan Bahasa Inggris*, 7(1).
- Wigglesworth, G., & Storch, N. (2009). Pair versus individual writing: Effects of fluency complexity and accuracy. *Language Testing*, 26, 45–466.
- Wigglesworth, G., & Storch, N. (2012). What role for collaboration in writing and writing feedback. *Journal of second language writing*, 21(4), 364-374.
- Wigfield, A. (1994). The role of children's achievement values in the self-regulation of their learning outcomes. *Self-regulation of learning and performance: Issues and educational applications*, 101-124.
- Wilcoxon, F. (1945). Individual comparisons by ranking methods. *Biometrics Bulletin*, 1(6), 80-83.
- Williams, J. (2005). Form-focused instruction. In *Handbook of research in second language teaching and learning* (pp. 671-691). Routledge.
- Zamel, V. (1985). Responding to students' writing. *TESOL Quarterly* 19, 79 -101.
- Zheng, Y., & Yu, S. (2018). Student engagement with teacher written corrective feedback in EFL writing: A case study of Chinese lower-proficiency students. *Assessing Writing*, 37, 13-24.

Zhu, W., & Mitchell, R. (2012). The nature of L2 writing and L2 writing instruction. In K. Hyland & L. Wong (Eds.), *Feedback in second language writing: Contexts and issues* (pp. 21-39). Cambridge University Press.



Appendices

Appendix A: Student Demographic Information Form

As this study is intended for research purposes only, participation is completely voluntary, and your personal information is considered confidential and will not be disclosed to third parties without your permission.

1. Name-Surname _____
2. Age _____
3. Gender Male ☐ Female ☐
4. Are you a Turkish citizen? Yes ☐ No ☐
- If no, where are you from? _____
5. Is Turkish your first language? Yes ☐ No ☐
- If no, what's your first language? _____
6. How long have you been learning English? _____ years
7. Is English spoken at your house? Yes ☐ No ☐
8. Is there anyone in your home who speaks English? Yes ☐ No ☐
9. I started to learn English at:
Kindergarten ☐ Primary ☐ Secondary ☐ High School ☐ University ☐
10. Have you taken English writing course before? Yes ☐ No ☐

Appendix B: Writing Prompts

Task 1

1. Write about your daily routine. What do you do on a typical day, in the morning, afternoon, and evening? When do you do them? What is the best time of the day for you? Why?

2. Write about a memorable moment for you. What were you doing? Who were you with? Why is this moment special for you?

Task 2

1. Write about your dream travel destination. Where would you like to go? Why is it a dream destination for you? What would you do there? Who would you go with?

2. Should mobile phones be allowed in classrooms? Why/ why not? Please support your idea by giving examples.

Task 3

1. “When choosing a job, salary is the most important thing to consider.” Do you agree or disagree with this statement? Why?

2. “People who read for pleasure in their free time have a better imagination than those who prefer to watch TV.” Do you agree or disagree with this statement? Why?

Task 4

1. What is the most memorable movie you have ever seen? Why is it memorable for you? Who were the actors/actresses? Briefly explain the film and the most important parts of it.

2. Write about a person you know and admire. What special qualities does this person have? What does this person do? Why do you admire this person?

Appendix C: Error Correction Code Sheet

SYMBOL	ERROR	EXAMPLE	CORRECT SENTENCE
Gr	Grammar	You're <u>gooder</u> than me at maths. She talked to <u>he</u> in the pub.	You're better than me at maths. She talked to him in the pub
T	Verb Tense	Last week I've <u>been</u> to Madrid.	Last week I went to Madrid.
MW	Missing Word	After she kissed <u>him</u> , <u>took</u> a shower and left for work	After she kissed him, she took a shower and left for work
WW	Wrong Word	It is a <u>difficult</u> kind of animal.	It is a different kind of animal.
EW	Extra Word (Not necessary)	We live in <u>the another</u> city.	We live in another city.
WF	Word Formation	He is an <u>ambition</u> person.	He is an ambitious person.
S	Spelling	It is a <u>chaep</u> restaurant.	It is a cheap restaurant
P	Punctuation	I bought a car, <u>because</u> I do not want to walk to work.	I bought a car because I do not want to walk to work
N	Countable- Uncountable (Number)	We need some <u>informations</u> .	We need some information .
A	Article	She is <u>English</u> teacher at İstanbul <u>Medinol</u> University.	She is an English teacher at İstanbul <u>Medinol</u> University.
C	Capitalization	<u>london</u>	London
Pr	Preposition	Do not laugh <u>to</u> me.	Do not laugh at me.

Appendix D: Error Correction Code Sheet with the Error Categories

SYMBOL	ERROR	EXAMPLE	CORRECT SENTENCE
GRAMMATICAL Gr T N A	Grammar	You're <u>gooder</u> than me at maths. She talked to <u>he</u> in the pub.	You're better than me at maths. She talked to him in the pub
	Verb Tense	Last week I've <u>been</u> to Madrid.	Last week I went to Madrid.
	Countable- Uncountable (Number)	We need some <u>informations</u> .	We need some information .
	Article	She is <u>English</u> teacher at İstanbul Medipol University.	She is an English teacher at İstanbul Medipol University.
LEXICAL PR MW WW EW WF	Preposition	Do not laugh <u>to</u> me.	Do not laugh at me.
	Missing Word	After she kissed <u>him</u> , <u>took</u> a shower and left for work	After she kissed him, she took a shower and left for work
	Wrong Word	It is a <u>difficult</u> kind of animal.	It is a different kind of animal.
	Extra Word (Not necessary)	We live in <u>the another</u> city.	We live in another city.
	Word Formation	He is an <u>ambition</u> person.	He is an ambitious person.
MECHANICAL S P C	Spelling	It is a <u>chaen</u> restaurant.	It is a cheap restaurant
	Punctuation	I bought a <u>car</u> , <u>because</u> I do not want to walk to work.	I bought a car because I do not want to walk to work
	Capitalization	<u>london</u>	London

Appendix E: Paragraph Scoring Rubric

	17-25 pts	11-16 pts	6-10 pts	0-5 pts
Organization	*Clearly addresses all parts of the writing task. *Demonstrates a clear understanding of purpose and audience. *Maintains a consistent point of view, focus, and organizational structure, including the effective use of transitions. *Includes a clearly presented central idea with relevant facts, details, and/or explanations.	*Addresses all parts of the writing task. *Demonstrates a general understanding of purpose and audience. *Maintains a mostly consistent point of view, focus, and organizational structure, including the effective use of transitions. *Includes a central idea with mostly relevant facts, details, and/or explanations.	*Addresses only parts of the writing task. *Demonstrates little understanding of purpose and audience. *Maintains an inconsistent point of view, focus, and organizational structure, which may include ineffective or awkward transitions that do not unify important ideas. *Suggests a central idea with limited facts, details, and/or explanations.	*Addresses only one part of the writing task. *Demonstrates no understanding of purpose and audience. *Lacks a point of view, focus, organizational structure, and transitions that unify important ideas. *Lacks a central idea, but may contain marginally related facts, details, and/or explanations.
Sentence Structure	*Sentences reflect variety in length and kind: (compound and complex sentences) *Few if any tense/subject verb agreement errors:	*Sentences reflect some variety in length and kind: (more compound than complex sentences) *Occasional if any tense/subject verb agreement errors.	*Sentences reflect little variety in length and kind: (mostly simple sentences) *Contains tense/subject verb agreement errors.	*Sentences are simple and fragmented. *Errors obstruct meaning.
Use of English	*Contains few, if any, errors in the conventions of the English language (grammar, punctuation, capitalization, and spelling). These errors do not interfere with the reader's understanding of the writing.	*Contains some errors in the conventions of the English language (grammar, punctuation, capitalization, and spelling). These errors do not interfere with the reader's understanding of the writing.	*Contains several errors in the conventions of the English language (grammar, punctuation, capitalization, and spelling). These errors may interfere with the reader's understanding of the writing.	*Contains serious errors in the conventions of the English language (grammar, punctuation, capitalization, and spelling). These errors interfere with the reader's understanding of the writing.
Word Choice	*Word choice is rich and varied. * Wide range of topic-related vocabulary used. * Sophisticated control of lexical features.	*Word choice is clear and reasonably precise. * A range of topic-related vocabulary used. * Good control of lexical features.	*Word choice is basic. * Range of topic-related vocabulary limited. *Limited control of lexical features.	*Word choice is vague. * Very narrow range of vocabulary used. *Even very simple lexical features not used correctly.

Appendix F: Reflection Form Guiding Prompts for Individual Group

1. What do you think of using error correction codes in writing classes?
Please write your answer in detail.
2. Please check the error correction code sheet below. Is there any error correction code that you find **hard to understand**? Why? Please write your answer in detail.
3. In what areas do you find error correction codes most helpful? (grammar, vocabulary, punctuation, spelling etc.) Why? Please write your answer in detail.
4. What do you think about receiving feedback through error correction codes? Would you prefer using error correction codes in your next writing classes? Why/ Why not? Please write your answer in detail.
5. What do you think of the instructor's written comments on your writings? Do you think they were effective to improve your writing skill? Why/ Why not? Please write your answer in detail.
6. Have you noticed an improvement in your writing skills as a result of reviewing coded feedback **individually (on your own)**? Please write your answer in detail.
7. How did you feel about correcting your errors **individually (on your own)**? Do you think it was helpful to improve your writing skill? Please write your answer in detail.

Appendix G: Reflection Form Guiding Prompts for Collaborative Group

1. What do you think of using error correction codes in writing classes?
Please write your answer in detail.
2. Please check the error correction code sheet below. Is there any error correction code that you find **hard to understand**? Why? Please write your answer in detail.
3. In what areas do you find error correction codes most helpful? (grammar, vocabulary, punctuation, spelling etc.) Why? Please write your answer in detail.
4. What do you think about receiving feedback through error correction codes? Would you prefer using error correction codes in your next writing classes? Why/ Why not? Please write your answer in detail.
5. What do you think of the instructor's written comments on your writings? Do you think they were effective to improve your writing skill? Why/ Why not? Please write your answer in detail.
6. Have you noticed an improvement in your writing skills as a result of reviewing coded feedback **collaboratively (in pairs)**? Please write your answer in detail.
7. How did you feel about correcting your errors **collaboratively (in pairs)**? Do you think it was helpful to improve your writing skill? Please write your answer in detail.

Appendix I: Consent Form TR

Açık Onam Formu

Sevgili Öğrenciler,

Bu çalışma Hazırlık Okulu Öğretim Görevlisi Ecem Akgül tarafından yürütülen bir yüksek lisans tez çalışmasıdır. Araştırmanın amacı, İngilizce Hazırlık Okulunda İngilizce öğrenen öğrencilerin öğretmen tarafından verilen yazılı düzeltici geribildirim işleme şekilleri (bireysel/işbirlikçi) ile yazı performansları arasındaki ilişkiyi incelemektir.

Çalışmanın verileri sınıf içerisinde yapılan yazı çalışmaları ve süreç sonunda öğrencilerin yazacağı değerlendirme yazılarından oluşacaktır. Bu çalışmaya katılım gönüllülük temelinde olmalıdır. Çalışmalarınız ve isimleriniz tamamıyla gizli tutulacak ve sadece araştırmacı tarafından değerlendirilecektir. Bu çalışmaya katıldığınız için şimdiden teşekkür ederiz.

Çalışma hakkında daha fazla bilgi almak için İngilizce Hazırlık Okulu Öğretim Görevlisi Ecem Akgül ile iletişim kurabilirsiniz.

Bu çalışmaya tamamen gönüllü olarak katılıyorum ve istediğim zaman katılımdan vazgeçebileceğimi biliyorum. Verdiğim bilgilerin bilimsel amaçlı yayımlarda kullanılmasını kabul ediyorum. (Formu doldurup imzaladıktan sonra uygulayıcıya geri veriniz).

Tarih:

Katılımcı Ad – Soyad:

İmza:

Appendix J: Consent Form ENG**Consent Form**

Dear Students,

This study is a master's thesis conducted by English Preparatory School Instructor Ecem Akgül. The aim of the study is to examine the relationship between the processing of written corrective feedback (individual/collaborative) and the writing performance of the students learning English at the English Preparatory School.

The data of the study are the writing exercises done in the classroom and the evaluation papers that the students will write at the end of the process. Participation in this study should be on a voluntary basis. Your work and names will be kept completely confidential and evaluated only by the researcher.

Thank you for participating in this study. For more information about the study, you can contact English Preparatory School Instructor Ecem Akgül.

I participate in this study on a voluntary basis, and I know that I can quit any time. I accept that the information I give will be given in publications for scientific purposes (Please fill and sign the form and return it later).

Date:

Participant's Name-Surname:

Signature: