

Comparison Study: The Impact of Lecturer's Feedback on EFL Students' Essays

Mashaël Alnefaie¹

¹ Department of Applied Linguistics, College of Languages, Princess Nourah bint Abdulrahman University (PNU), Riyadh, Saudi Arabia

Correspondence: Mashaël Alnefaie, Princess Nourah bint Abdulrahman University (PNU), Riyadh 11564, Saudi Arabia. E-mail: maaalnefaie@pnu.edu.sa

Received: July 22, 2022

Accepted: November 22, 2022

Online Published: March 28, 2023

doi:10.5539/ies.v16n2p193

URL: <https://doi.org/10.5539/ies.v16n2p193>

Abstract

This study explored students' grammatical, mechanical, and lexical errors in EFL writing. Also, it aimed to investigate the effect of instructor feedback throughout the semester on students' types and frequency of errors in two types of essays, including a process essay and an argumentative essay. This study was conducted on 24 EFL students studying in their first year of college in the applied linguistics department. To achieve the purpose of the study, the researcher used a descriptive qualitative study that dealt with document analysis. The author analyzed ten documents to understand how teacher feedback could develop students' levels in the target language and increase their abilities to properly use the grammatical, mechanical, and lexical rules in academic writing. Thus, the researcher used five written samples of students' process essays and five written samples of their argumentative essays to compare and find out about students' academic writing progress. The findings of this study revealed that the instructor's feedback positively impacted students' writing development and gradually helped them overcome the committed errors. There were significant differences in students' writing samples before and after the instructor's feedback. Therefore, EFL students' writing of the argumentative essays showed noticeable progress in students' language use and a reduction in the number of errors that students committed in their process essays.

Keywords: grammatical errors, mechanical errors, lexical errors, common errors, formal writing, informal writing

1. Introduction

Writing skills are essential literacy students need to develop to learn the target language. One of the significant components of improving writing skills is learning how to apply the grammatical rules properly and deliver the intended messages (Atashian & Al-Bahri, 2018). However, grammar is one of the most challenging aspects of language learning that EFL students need to work on to achieve the purpose of their writing successfully. Grammar, punctuation marks, and spellings are essential for strengthening students' writing skills (Alharthi, 2021). EFL students might commit different types of language errors in writing that influence their spoken or written communication. Speaking and writing are productive skills that allow instructors or assessors to discover students' strengths and weaknesses in their target language production (Faisal, Mulya, & Syamsul, 2017). Therefore, EFL students should receive adequate feedback from their language instructors to improve their target language use. By increasing EFL students' awareness of their grammatical errors and providing them with constructive feedback, they would develop their low level of the target language and help them to produce grammatically correct sentences (Huseynova, 2019).

Most previous studies were conducted using only quantitative or qualitative methods that dealt with individual interviews as a data collection method. Also, many studies focused on error analysis in only one type of essay, and there is a need to compare the types of errors in two essays. According to Setyaningsih and Larassati (2021), "further research is needed to explore more types of an essay such as comparison and contrast text which may result in different findings..." (p. 21). Other studies explored the effectiveness of the teacher, peer, and self-feedback on students' writing ability by analyzing certain writing aspects, such as content, organization, vocabulary, or academic style. These studies included (Ruegg, 2015; Vasu, Ling, & Nimehchisalem, 2016; Tan & Manochphinyo, 2017; Srirakarn, 2018; Boggs, 2019; & Sudarmaji & Lifanie, 2020; Elfiyanto & Fukazawa, 2021). Furthermore, some studies investigated specific types of errors that only focused on one feature of writing, such as grammar, lexicon, or mechanics, by analyzing only one type of essay, such as an argumentative essay.

These studies included (Unggul & Gulö, 2017; Aisyah & Rahmawati, 2019; Nindya & Widiati, 2020; Liunokas, 2020; Nugroho & Benecia, 2022). Therefore, this descriptive qualitative study addressed the gap by investigating the impact of teachers' feedback on improving EFL students' writing of two types of essays through observing students' first and final drafts. Current research explored first-year EFL students' issues in writing, including grammatical, mechanical, and lexical errors, using their written essays. This research would contribute to previous findings by examining whether exposing students to different types of essays would affect the types and the frequency of errors and if the teacher's sustained feedback would help students improve their writing in the targeted genre. Consequently, the author used students' sampled data and analyzed them to discover their writing issues regarding the language's form, meaning, and use. A study conducted by Alsalamy (2022) indicated that "more research should be done to explore and evaluate the most prevalent problems and barriers that first-year students encounter using written samples and paperwork" (p. 534). His study mainly focused on the first-year students' challenges in writing short sentences, so he recommended more studies conducted on different challenges or problems in writing. Therefore, the present study aims at exploring the following questions:

- 1) What are the most frequent and least frequent errors that EFL students commit in their academic writing?
- 2) To what extent does EFL instructor feedback impact students' writing development?

2. Literature Review

2.1 Instructors' Feedback on Student's Writing

Correcting students' errors and providing them with immediate feedback could contribute to students' writing development. EFL teachers should realize the importance of error analysis in discovering students' weaknesses in writing (Setiyorini, Dewi, & Masykuri, 2020). Through teachers' direct or indirect feedback, EFL students would improve their use of the target language and reduce their grammatical errors (Sermsook, Liamnimitr, & Pochakorn, 2017). Thus, helping students to recognize their errors was an effective way to improve their writing ability (Sari, 2019). This was consistent with what had been stated by Huseynova (2019), who concluded that grammar feedback and revisions would develop EFL students' grammatical performance. Hence, it was recommended to provide students with immediate feedback on their written genres to improve their writing performance (Khatter, 2019). Increasing students' awareness of their common mistakes in writing would make them recognize how to correct their errors and develop their writing quality (Nguyen, Nguyen, & Phan, 2021). Therefore, analyzing students' common errors would also help them to be involved in error correction and strengthen their writing skills.

2.2 Peer Feedback

One of the effective teaching strategies that some of the writing teachers implemented was peer feedback, which is known as "... bringing two learners into the writing classroom to correct each other's writing tasks and propose recommendations or suggestions on them" (Tan & Pham, 2021, p. 254). Several studies proved that using peer feedback in teaching academic writing gave students an excellent opportunity to analyze their errors and avoid them in upcoming writing tasks. Latifi, Noroozi, and Talaei (2021) indicated that peer feedback helped students to recognize what they needed to include in their essays and how to become good writers. Further, EFL teachers could notice students' progress using the target language by applying the error correction method. Also, they could test the effectiveness of the selected teaching method by applying it in the classroom and observing how it minimizes students' errors (Faisal, Mulya, and Syamsul, 2017). This was in parallel with what had been explained by Kusumaningrum, Cahyono, & Prayogo (2019), who showed that students developed their writing assignments and achieved better results after receiving peer feedback.

In addition, implementing the strategy of peer feedback would benefit both students and instructors in terms of decreasing teachers' workload and making the writing-learning process more meaningful to the students (Cui, Schunn, & Gai, 2021). Thus, students' error correction would improve their writing performance because it became a part of their learning process (Zhong, Yan, & Zou, 2019). Teachers could facilitate the process of teaching writing by involving students in their assessments to correct their linguistic errors. Consequently, peer feedback was essential in improving students writing skills and grammar use (Kuyyogsuy, 2019). Providing students with direct or indirect feedback on their written production would develop students' grammatical use of the target language (Sermsook, Liamnimitr, & Pochakorn, 2017).

2.3 Types of Errors in Writing

Students' major errors in English writing were related to their use of grammar, punctuation marks, and lexical knowledge. The most frequent errors that EFL students committed in their writing tasks were in lexicon and mechanism, and the least frequent errors were in maintaining the formality of their writing, such as the use of contractions (Chaleila & Alloush, 2019). Moreover, EFL students made more errors in using their grammatical

knowledge and knowing the proper use of the target language. Therefore, students' essays revealed that they mostly committed errors in word choice, grammar use, and punctuation marks, negatively affecting their academic writing (Ahmed, 2019).

2.3.1 Grammatical Errors

Grammatical errors involve different language aspects, such as indicating the number of nouns, articles, tenses, propositions, and subject-verb agreement (Owu-Ewie & Williams, 2017).

2.3.2 First/Second Person Pronouns

That means "a word that takes the place of a noun, noun phrase, or noun clause" (Hasibuan & Simatupang, 2018, p. 26). Students used the first-person pronoun when they wanted to express their thoughts and feelings without recognizing that some structures might increase the voice of informality. To submit formal writing, students should avoid using first-person pronouns and colloquial language (Babanoğlu, 2017). Third-person pronouns should be used in academic essays rather than the first-person or second-person (Pablo & Lasaten, 2018). Therefore, students encountered difficulties distinguishing between formal and informal use of English in terms of personal pronouns (Ali & Fathi, 2008).

2.3.3 Missing Subject-Fragments

To create a complete sentence, students should write sentences containing a subject and verb. This type of error is called sentence fragments that express an unfinished idea caused by missing verbs or subjects (Setianingsih, Prastikawati, & Wiyaka, 2020). EFL students might omit a sentence's subject or verb because they misunderstood how to create a complete thought. A study conducted by Solano et al. (2014) found that one of the Spanish students' high-frequency errors was in the omission of personal pronouns. In contrast, one of the least frequent errors that the Spanish students committed was the omission of nouns at the beginning of a sentence, which negatively affected the sentence structure. One of the reasons behind subject omission was being in the first place of an English sentence (Freudenthal, Pine, & Gobet, 2002). Hence, providing students with basic grammatical knowledge and essential writing elements would help reduce the number of sentence fragment errors (Tan, 2007).

2.3.4 Mechanical Errors

Mechanics are important in writing to facilitate the flow of information and make authors' ideas understandable to readers. A *mechanism* is defined as the "... ways the writer handles basic conventions of writing, such as punctuation, spelling, and capitalization" (Solikhah & Surakarta, 2017, p. 36). Some studies explored that EFL students had difficulty understanding the proper use of mechanics in their writing (Mohammad, Al-Mofti, & Hussein, 2020). In other words, EFL students struggled to learn when and how to use punctuation marks. This agreed with the findings of a study conducted by Shweba and Mujiyanto (2017), who determined that students were incapable of understanding the proper use of the punctuation marks, such as commas, colons, and hyphens.

2.3.4.1 Commas

One of the major errors that students committed when using mechanics in writing was using commas and capitalization (Fasikh & Murtadho, 2019). This supported a result of a study conducted on errors analysis of students writing, which indicated that one of the most mistakes found in students' writing was misplacing the comma or neglecting to put the comma in the right place (Prasetianto & Maharddhika, 2020). Some students did not use a comma before conjunctions when trying to create compound sentences (Fauzan, Aulya, & Noor, 2020). Generally, EFL students encountered difficulties identifying when to use a comma when confronting subordinate clauses or transition words, which caused them to misuse or omit commas. (Sermsook, Liamnimitr, & Pochakorn, 2017). Thus, students had a problem understanding the appropriate use of commas, precisely when it came to connecting sentences (Khatter, 2019).

2.3.4.2 Contractions

It has been identified as the reduced form of a word (Saadoon & Mahdi, 2018). Using the contracted forms of a verb was one of the common errors that EFL students committed. Babanoğlu (2017) indicated that "... contractions (mainly negative/not- contractions) are significantly overused in non-native English students' essays when compared to native English students' essays and academic texts" (p. 61). Therefore, EFL students encountered difficulties noticing the differences between oral and written discourses. Contractions could be noticed in oral production and informal writing (Pablo & Lasaten, 2018). In American English, people usually shorten the verb 'to be' and the other helping verbs when speaking in informal contexts (Saadoon & Mahdi, 2017). Although students were knowledgeable about the rule of the contracted forms of verbs, many still used contractions in their official documents (Ojeka, Songden, & Ololade, 2018).

2.3.4.3 Capitalization

It is explained as starting to write the first word in a sentence with a capital letter and writing the rest letters of a word in lower-case letters (Amara, 2018). One of the most frequent errors that students committed in their writing was identifying the appropriate use of upper-case and lower-case letters (Shweba & Mujiyanto, 2017). Another study agreed with this conclusion when it stated that students' highest percentage of errors was when starting the first word in a sentence with a lower-case letter (Fauzan, Aulya, & Noor, 2020). Consequently, students needed help understanding the proper use of capitalization when it comes to the first letter of a noun (Sermsook, Liamnimitr, & Pochakorn, 2017).

2.3.5 Lexical Errors

One of the types of lexical errors that may exist in students' English writing is the wrong word selection. That means selecting inappropriate words from various second-language equivalents (Andera & YöldÖrÖma, 2010).

2.3.5.1 Word Choice

One of the main errors in students writing was incorrect word selection (Faisal, Mulya, & Syamsul, 2017). Similarly, the results of Nuruzzaman, Islam, and Shuchi (2018) explored that pragmatics, lexis, mechanics, and grammar were the four main errors that could be noticed in students' writing. Furthermore, several studies discussed the sources or the reasons for committing errors in word selection in writing. As Fauzan, Aulya, and Noor (2020) stated that "wrong word error could happen because of the lack of students' precision, or they lack vocabularies and rules of choosing words that fit the structure rules" (p. 528). Thus, a lack of vocabulary could be one of the language aspects that cause students' errors in selecting the appropriate word (Khatter, 2019).

3. Methodology

3.1 Research Model

This study used the descriptive qualitative method to receive an in-depth understanding of the students' common errors in the form, meaning, and use of the target language and find out how receiving sustained feedback affects their writing skills development.

3.2 Study Group

The study involved 24 Saudi students who participated in exploring the impact of the instructor's feedback on their writing quality. In the current study, all students were selected from the applied linguistics department studied at one of the Saudi universities. They took an English academic writing class in their first year of college. Those students were divided into five groups, each group was consisting of three to four. The participants were required to write four types of essays: a process essay, a cause and effect essay, a compare and contrast essay, and an argumentative essay. Students frequently received teacher and peer feedback to help them analyze their errors and develop their writing skills. Moreover, the instructor of this class explained all the common errors that had been noticed in students' essays. Also, the instructor provided whole-class feedback by displaying each group's essay and asking the other groups to analyze the observed errors.

3.3 Data Collection

The data used and analyzed in this study were related to the first essays that students wrote, which was the process essay, and it was compared to the last essays that the students wrote. The last essay was about writing an argumentative essay. The purpose of using the first and last essays was to determine how teachers' sustained feedback affected students' academic writing performance and reduced their common errors. Thus, document analysis was used as a data collection method to receive in-depth details of students' writing improvement and achieve the purpose of the study.

3.4 Data Analysis

The data were analyzed based on investigating students' errors in grammar, mechanics, and lexicon. Hence, students' written samples were analyzed by implementing two phases. The first phase identified students' errors that negatively influenced their writing quality, including grammatical, mechanical, and lexical errors. The study's researcher started the analysis process by reading students' essays several times along with the given comments. After that, the author identified the common types of errors that students committed in their essays and categorized them into three categories, grammatical, mechanical, and lexical. For instance, errors in using second-person pronouns were classified under grammatical errors. Then, the number of errors committed in each type was counted to determine how the students' use of language improved in the final essay from the first. The second phase compared the first and last writing essays to investigate the effect of teachers' feedback on students' academic writing improvement. Creating two tables of students' most frequent errors committed in the first essay,

the process essay, and the final essay, which was the argumentative essay, helped notice students' frequent errors. Furthermore, those tables reflected students' writing development.

3.5 Ethical Considerations

For ethical considerations, the researcher asked the participants to sign the consent form to ensure their acknowledgment of the purpose of the study and their agreement to participate in the research results. The institution's name and participants' names were anonymous to maintain anonymity. To ensure the accuracy of the results of the collected data, the researcher read the sampled data three times and then constructed three major categories. Then, the researcher evaluated the elicited categories by rereading the data and creating tables to ensure the data's consistency with the constructed categories.

4. Results

This study showed that students committed eight types of errors in writing their first and final essays with different frequencies. Table 1 below revealed the most frequent errors in the first essay.

4.1 Participants Writing Samples of the Process Essay

Students' results showed the differences between students' use of language in writing the first essay, which was the process essay, and the second essay, which was the argumentative essay, in terms, of grammatical, mechanical, and lexical errors. Table 1 describes students' errors in the process essay.

Table 1. Most frequent errors in the first essay

Types of Errors	Number of Errors of Group One	Number of Errors of Group Two	Number of Errors of Group Three	Number of Errors of Group Four	Number of Errors of Group Five
Second person pronoun	17	39	15	12	14
Missing subject	8	14	-	16	13
Starting a sentence with coordinating conjunctions	3	1	-	-	1
Contractions	8	8	2	2	12
Length of Sentences	4	-	3	2	-
Capital	6	2	4	5	4
Overuse, Misuse, or Absence of comma	12	11	9	6	4
Word choice	2	3	1	2	-

Through analyzing students' essays, as shown in Table 1, it was found that there were some common errors that students committed in their writing. It indicated that there is a need to increase students' awareness to recognize how to avoid those errors and improve the level of their academic writing. These errors included the following:

4.2 Grammatical Errors

4.2.1 Second Person Pronouns

This study showed that students committed more errors using the second-person than third-person pronouns. It can be seen from the above Table 1 that the first and the second groups used the second person pronouns more frequently than the other groups. The number of second-person pronouns students used in their writing indicated that they did not recognize that when they write a formal essay, they need to only focus on using the third-person pronouns.

Table 2. Examples of students' use of the second-person pronouns

Examples	
Group 1	If you're afraid you'll embarrass yourself or you think that you're going to mess up, try it anyway.
Group 2	This will give you more insight on how bad your addiction got and in turn will motivate you to recover.
Group 3	You can form relationships with other people, but don't lose sight of your relationship with Allah.
Group 4	Last of all, what you put on your pancake makes a huge difference you could make healthy pancakes without regret.
Group 5	Just make sure you layer your hair properly so you don't end up with a messier look.

4.2.2 Missing Subjects

Students' essays revealed that they committed several errors in writing complete sentences. They created their statements without writing a subject and started immediately by writing a verb. For example, one of the students' sentences stated, "secondly, take care of your body; thirdly, practice positive self-talk." It was found that many sentences in students' writing started with main verbs without using subjects to show who was committing the action. As shown in Table 1 above, three groups of participants committed more errors related to sentence fragments. Most participants did not use nouns or personal pronouns as a subject.

Table 3. Examples of students' errors in making sentence fragments

Examples	
Group 1	Try to remind yourself that you can lastly Face Your Fears Practice facing some of your fears that stem from a lack of self-confidence.
Group 2	Understanding your dependence on something unhealthy will make recovery more possible because you can create healthier habits in place of the bad ones.
Group 3	-
Group 4	Shrove Tuesday, also known as Pancake Day, was a day of feasting and celebration preceding the start of Lent, and they were originally devoured in great amounts.
Group 5	Just make sure to keep the length above the collarbones and with a large barreled-curling iron, add in loose curls throughout the mid lengths and end of your hair.

4.2.3 Starting a Sentence with Coordinating Conjunctions

Three groups started their sentences with the coordinating conjunction 'and,' which affected the degree of formality of their writing. Using coordinating conjunction at the beginning of a sentence is acceptable, but it decreases the tone of formality. The results revealed that the first word written by the students at the beginning of their sentences several times was 'and.' Thus, providing students with instructions on distinguishing between formal and informal writing is necessary.

Table 4. Examples of students' use of coordinating conjunction

Examples	
Group 1	And lastly, you have to remember that this is not a battle you're fighting alone but everyone else around you.
Group 2	And they are.
Group 5	And it's quite easy to style, even if you left a bit of length at the top of it.

4.2.4 Contractions

Three groups of students used contractions several times in their essays. They used the short forms of auxiliary verbs or negative contractions. Students' essays showed that they mostly used a contraction with the negative verb to be. Analyzing students' essays explored that they sometimes used contracted forms of the verb to be in writing some sentences, and in some other paragraphs, they used the complete form of a word. The sentences below in Table 5 exemplified the students' use of the contracted forms of the verb to be and negative forms.

Table 5. Examples of students' use of contractions

Examples	
Group 1	If you're afraid, you'll embarrass yourself or you think that you're going to mess up, try it anyway.
Group 2	You'll also feel proud of yourself self.
Group 3	You can form relationships with other people, but don't lose sight of your relationship with Allah.
Group 4	Mix until it's completely smooth.
Group 5	Don't cut straight bangs, it makes your face smaller.

4.3 Mechanical Errors

4.3.1 Capitalization

Students committed extensive errors in the use of capitalization. Most of the errors students made regarding using the upper-case letters were about capitalizing the first letter of a word that occurred in the middle of the sentence. For instance, the first group said, "the most important part about confidence is how you carry yourself, *We* present ourselves and pick up on other people's personalities." The number of errors that students committed in capitalization revealed their need to receive instructions on applying the capitalization rules to their academic writing effectively.

4.3.2 Overuse, Misuse, or Absence of Comma

Some participants showed their misunderstanding of the proper use of commas, especially in using them before the coordinating conjunctions, such as 'and,' 'but,' and 'so.' For example, one of the groups stated that "there are three steps to overcome the addiction you gained, and help you become better mentally and physically." Moreover, some of the students' writing analyses indicated that they overused commas and increased the length of their sentences. For instance, group three said that

Sometimes we genuinely think that life is not joyful and that nothing will change while everything we thinking is wrong and life will be beautiful and happy when we comprehend it, for example, We cannot really enjoy our life unless we are healthy, and then one of the causes of happiness in the first place is to pray, and without it, life will not be good.

On the other hand, group five committed a few errors regarding the use of a comma, and they did not write long sentences since they did not follow the paragraph structure. Group five was writing a process essay as a form of steps about *how to give yourself a haircut*. Thus, their written sentences were of an appropriate and adequate length.

Table 6. Examples of students' misuse or overuse of commas

Examples	
Group 1	Finally, we end the topic of self-confidence, the focus of our discussion is, If you pay attention, you might notice that these self-confident people usually are successful in every area of their lives.
Group 2	To begin with, addiction poses significant health risks. Intake of anything is bad for our bodies, and no matter what type of addiction it is, it will always have an impact on a person's mental and physical health.
Group 3	Sometimes we genuinely think that life is not joyful and that nothing will change while everything we thinking is wrong and life will be beautiful and happy when we comprehend it, for example, We cannot really enjoy our life unless we are healthy, and then one of the causes of happiness in the first place is to pray, and without it, life will not be good.
Group 4	Third, there are a lot of People who Think that The Pancake is unhealthy and that is misbelief because you can do it healthily once you replace some ingredients with healthy Alternative, For example, put oats instead of flour Also, replace white sugar with stevia sugar, and follow these steps to make healthy pancakes, Mix a cup of ground oats with 1/2 cup of milk and one egg with 1/4 teaspoon vanilla, As desired you can add one stevia sugar After you mix it and make it smooth, put it in the pancake machine on a medium temperature.
Group 5	Its length reaches the level of the chin, and to reduce the prominence of the palate, put a little dry shampoo on your hair, then smooth the ends

4.4 Lexical Errors

4.4.1 Word Choice

Most groups committed one to three errors in selecting the appropriate words when writing their sentences. For example, the first group wrote the word "so low" as in this sentence "positive thinking plays a huge role in building

confidence, having negative outlooks on everything would only bring you so low.” Those words might be correct in meaning, but they were inappropriate in use within this written context.

Table 7. Examples of students’ errors in word selection

Examples	
Group 1	Firstly, The most important part about confidence is how you <u>carry yourself</u> . We present ourselves and <u>pick up</u> on other people’s personalities based on how they present themselves through body language
Group 2	There are many people who need help but they are either <u>too</u> ashamed or <u>too</u> scared of their own inadequacy to just ask.
Group 3	there are many <u>little</u> steps that you can do
Group 4	eggs are <u>responsible</u> for the fluffy texture of pancakes

4.5 Participants Writing Samples of the Argumentative Essay

Students’ final essays, which were about writing an argumentative essay, were analyzed and interpreted in below Table 8. This table describes students’ grammatical, mechanical, and lexical errors in argumentative essays. Table 8 compares students’ writing improvement from the first essay by identifying the frequency of errors.

Table 8. Most frequent errors in the last essay

Types of Errors	Number of Errors of Group One	Number of Errors of Group Two	Number of Errors of Group Three	Number of Errors of Group Four	Number of Errors of Group Five
First/Second Person pronoun	-	-	6	3	3
Missing subject	-	-	3	1	-
Starting a sentence with coordinating conjunctions	-	-	2	-	-
Contractions	8	4	3	2	2
Long sentences	-	1	-	1	1
Absence/Misuse/overuse of Comma	7	3	3	-	-
Capital	2	-	4	-	1
Word Choice	7	3	3	-	-

In the last submitted essays, most groups continued to commit the same errors they made in the first essay. However, the number of grammatical errors and mechanical errors decreased. However, the number of wrong word selections had increased only in the first group’s writing since their word selection errors had increased from two to seven. Some of the errors that students sustained in making them included the use of a comma, contracted forms of the verb to be, capitalization, and personal pronouns.

4.5.1 Absence or Misuse of the Punctuation Marks

The data analysis explored that the participants committed errors in the use of the punctuation marks, such as errors in the use of commas and colons. Regarding the use of the comma, some groups made errors in putting the comma in the right place, whereas the other groups did not place the comma where it should be. Three groups of students misused the punctuation marks, such as using commas and colons. The sentence below showed the first group’s misuse of the comma when they stated that “... some believe that social media is harmful because it distracts people from their work by refreshing feeds too often, curbing productivity.”

4.5.2 Incorrect Use of the Upper-Case Letters

Three groups made a few errors using the upper-case letters by placing a capital letter in the middle of the sentence. For example, group five made an error in using the capital letter when they capitalized the letter ‘T’ in the word ‘Testing’ as in this sentence “animal Testing is a hotly debated topic in our society.” On the other hand, one of the groups made errors not only in the use of upper-case letters but also in the use of lower-case letters. For instance, the students started the sentence with the lower-case letter as in this sentence “people can limit their use of it and not making it as a prime in the daily...” This indicated students’ misunderstanding of the capitalization rules when they used the lower-case and the upper-case letters incorrectly.

4.5.3 Using First/Second Person Pronouns

Three groups used first or second-person pronouns instead of third-person pronouns, which affected the degree of formality of their writing. For example, one group stated, "I enjoy sports in general and exercise on a daily basis." Students sometimes used the first-person pronoun to express their emotions and thoughts. Moreover, the following sentence is a sample of students' use of second-person pronouns. "Ask your cosmetics company if they use any animal testing before you buy their products." Although students continued using the first/second person pronoun in their writing, the results of the students' final essays showed that they reduced their usage of the second person pronouns in the first essay.

4.5.4 Length of Sentences

Most of the groups wrote at least one long sentence and connected many ideas in one sentence, which made them throw ideas without providing much-supporting details or explanations. For instance, one of the groups stated that

I think this is a good decision especially for teenagers because if all the students wear the same uniforms every day to school it is going to make them feel like they all are the same and they will respect each other even if they are poor or rich and what they think about their bodies like if they're too skinny or too fat.

Students' final essays revealed that they reduced the length of their sentences in their writing to the first essay.

4.5.5 Contracted Forms

All the groups sustained using the short forms of the auxiliary verbs 'to be' and the short forms of the negative sentences that consist of 'not,' which made their writing less formal. For instance, one of the groups used 'they're' instead of 'they are' as in this statement, "what they think about their bodies like if they're too skinny or too fat." Students' results showed that most of the contracted forms of the verb 'to be' was used by the first group; however, the other groups used few contracted forms of the auxiliary verbs.

4.5.6 Begin the Sentence with the Coordinating Conjunction 'and'

From the data analysis, it was found that only group three continued using the coordinating conjunction 'and' at the beginning of the sentence, which was not appropriate to be used in formal writing. For example, students mentioned, "And it is known exercising can help lose weight." Group three used the coordinating conjunction 'and' twice in their final essay. In contrast, the other groups considered their teacher's feedback on the first essay and avoided starting their sentences with the word conjunction 'and.'

4.5.7 Word Choice

Most of the groups committed few errors in word choice, while others used words that affected the degree of formality of their papers. For instance, one of the wrong selected words was 'acquire' as in this sentence "some households are unable to acquire fancy clothing." Additionally, one of the errors related to the lack of formality in writing was using the word 'feel like' as in this sentence "it is going to make them feel like they all are the same." Another example of using the word 'like' is, "I do not agree with that because there are a lot of sports injuries like strains, sprains, knee injuries." Thus, using those words in academic writing decreased the degree of formality of the submitted documents.

5. Discussion

This research was intended to investigate the effect of regular instructor's feedback on students' writing improvement by analyzing students' most frequent and least frequent errors in the first and last written essays. The study's results showed that students' level of the target language use in the final essay writing had been improved to the first essay. Even though students' results of the final essay explored that they continued committing the same errors that had been conducted in the first essay, the number of these errors decreased. Thus, students' results revealed that the instructor's feedback positively affected students' writing performance. For example, in the first essay, students extensively used second-person pronouns instead of third-person pronouns, which was inappropriate when submitting academic writing. Also, in the first essay, they committed different errors in the sentence fragments, such as missing subjects when trying to create a complete sentence. However, in the final essay, students developed those two grammatical aspects. Students' issues in applying the subject-verb agreement rule might be related to insufficient practice in writing in the target language (Chaudhary & Zahrani, 2020). Because of a lack of writing instructions and practices, EFL students encountered problems writing accurate paragraphs in English (Alharbi, 2019). Thus, teachers' instructions and feedback would develop students' writing accuracy and fluency (Rastgou, Storch, & Knoch, 2020).

Furthermore, it could be noticed from students' results that they continued committing some errors in the use of the

punctuation marks, such as the overuse, misuse, or absence of a comma. It had been noticed that students connected many ideas using commas rather than using subordinating conjunctions or transition words to link their thoughts and achieve coherence. As stated by Alsalami (2022), “Considering students’ confusion about the sentence structure, instructors believed that the students were not able to write good conjunctions and punctuation marks” (p. 542). Students’ extensive use of a comma in linking ideas made them exceed the appropriate length of a sentence. On the other hand, some other students did not place a comma where it should be to show the connection between their ideas. As pointed out by Nasser (2019), “punctuation marks provide words with meaning, and they can change the meaning of words if they are not used correctly” (p. 181). This indicated that EFL students misunderstood the importance and the purpose of punctuation marks in achieving cohesion and coherence in their writing. Language learners committed errors in using punctuation marks due to their exclusive concentration on the message they desired to deliver more than the form (Alfaruqy, Setyawan, & Rohman, 2022).

In addition, the results of this research revealed that students sustained in using the short forms of the auxiliary verb ‘to be,’ which decreased the level of formality of their writing. For example, verb contractions frequently exist in German students’ writing (Babanoğlu, 2017). Thus, students did not distinguish between formal and informal writing and did not recognize that short forms of verbs ‘to be’ or negations could be acceptable in speaking. However, it would not be professional in writing. Language learners’ formal writing performance was apparently influenced by their informal spoken style, which reflected their use of text messaging or social media (Setyaningsih & Larassati, 2021).

Moreover, the data analysis indicated that the instructor’s feedback positively impacted students’ improvement in following the rules of capitalization. It was evident from analyzing students’ essays that they lacked knowledge of when to use the upper-case letters because they wrote the first letter of a word in the middle of the sentence capital. EFL students had difficulties following the rule of capitalization of using the proper noun (Suntara, 2021). However, after the teacher’s instructions and feedback, they decreased their errors in capitalization. It could be concluded that students need to receive instructions and feedback on the basic rules of writing an academic essay. According to Ariyanti and Fitriana (2017), EFL learners had difficulties applying the basic knowledge of creating well-structured sentences in the target language and using the learned grammatical rules.

The analysis of students’ final essays exposed that only one of the groups committed more errors in selecting the appropriate words than the first essay, and they chose words that did not reflect the message they desired to deliver. Thus, it could be clear from students’ writing that they chose words that were not appropriate in the given context. EFL students’ word selection errors usually occurred when they encountered two similar words that could be substituted (Faisal, Mulya, & Syamsul, 2017). Moreover, previous studies explored the reasons behind the wrong selection of words in EFL students’ writing, such as having an insufficient number of vocabulary words and receiving inadequate practice (Saud, 2018; Toba, Noor, Sanu, 2019). Those studies were related to the study of Marue and Pantas (2019), who pointed out that students had problems expressing their ideas and creating a more meaningful message in the target language due to their limited vocabulary. Thus, some of the previous studies recommended instructor’s feedback as a helpful learning tool that led to students’ writing development and writing accuracy achievement (Nguyen, 2018; Nusrat, Ashraf, & Narcy-Combes, 2019; Rastgou, Storch, & Knoch, 2020). This was aligned with the conclusion of Sudarmaji & Lifanie (2020), who explored that teachers’ feedback had a significant contribution rather than the other types of feedback on students decreased in committing language errors. Therefore, the findings of this study exposed that continued feedback on students’ writing would gradually improve their writing quality and help them overcome the challenges encountered.

6. Conclusion and Recommendations

This study explored the impact of teachers’ feedback on EFL students’ writing development by comparing their first essays and final essays that they wrote in their academic writing class. This research contributed to the other studies by focusing on how EFL students improve their academic writing skills after receiving sustained feedback. The results of this research indicated that despite all the support that students received, including their teacher’s feedback and explanations of the common errors, students still need time and effort to fully process the provided instructions. This was agreed with a study that explored one writing course would not provide EFL learners with all the writing elements they needed to learn and make them successful writers of the target language (Alharbi, 2019). Therefore, the author of this study recommended that EFL teachers provide students with sufficient instructions, continued feedback, and regular explanations of common errors to gradually improve their academic writing skills. EFL teachers need to wait on students’ progress and not increase their anxiety by making them feel that writing is extremely challenging and needs a miracle to master. Moreover, EFL teachers should train students to provide effective feedback and help them read and understand the given comments effectively. Further research needs to explore the impact of critical reading on students’ writing essay development. Also, researchers can

compare the impact of continued instructors' feedback on ESL and EFL writing essay improvement.

7. Study Limitation

There is a limitation has been acknowledged in the current study. The participants had low-level English proficiency, which showed their limited knowledge of various writing aspects, including mechanics, grammar, and vocabulary. Therefore, further studies need to be conducted on intermediate or high-level EFL students by analyzing their language errors in the process and argumentative essays.

Acknowledgments

I would like to thank Princess Nourah bint Abdulrahman University for encouraging this research by allowing their students to participate.

References

- Ahmed, P. H. (2019). Major writing challenges experienced by EFL learners in Soran University. *Journal of University of Human Development*, 5(3), 120-126. <https://doi.org/10.21928/juhd.v5n3y2019.pp120-126>
- Aisyah, R. N., & Rahmawati, F. (2019). An analysis on the students' error in writing argumentative essay of the fourth semester students in STKIP PGRI Pasuruan. *A Journal of English Language Teaching, Linguistics, and Literature*, 2(2), 1-7.
- Alfaruqy, D., Setyawan, H., & Rohman, T. N. (2022). Exploring first-year EFL students' problems in essay writing. *ELE reviews. English Language Education Reviews*, 2(1), 1-12. <https://doi.org/10.22515/elereviews.v2i1.4453>
- Alharbi, M. A. (2019). EFL university students' voice on challenges and solution in learning academic writing. *Indonesian Journal of Applied Linguistics*, 8(3), 577-588. <https://doi.org/10.17509/ijal.v8i3.15276>
- Alharthi, S. (2021). From instructed writing to free-writing: A study of EFL learners. *SAGE Open*, 1-15. <https://doi.org/10.1177/21582440211007112>
- Ali, N. A., & Fathi, Y. H. (2008). Areas in the use of personal pronouns in standard English. *Adab AL-Rafidayn*, 38(50), 41-56.
- Alsalamy, A. I. (2022). Challenges of short sentence writing encountered by first-year Saudi EFL undergraduate students. *Arab World English Journal (AWEJ)*, 13(1), 534-549. <https://doi.org/10.24093/awej/vol13no1.35>
- Amara, N. (2018). Correcting students' errors: Theory and practice. *Current Educational Research*, 1(5), 45-57.
- Andera, S., & YöldÖrÖma, Ö. (2010). Lexical errors in elementary level EFL learners' compositions. *Procedia Social and Behavioral Sciences*, 2, 5299-5303. <https://doi.org/10.1016/j.sbspro.2010.03.864>
- Ariyanti, A., & Fitriana, R. (2017). EFL students' difficulties and needs in essay writing. *Advances in Social Science, Education and Humanities Research*, 158, 111-121. <https://doi.org/10.2991/ictte-17.2017.4>
- Atashian, S., & Al-Bahri, K. (2018). Towards Arab students' grammatical errors in academic writing & their perceptions. *Arab World English Journal (AWEJ)*, 140-145. <https://doi.org/10.2991/ictte-17.2017.4>
- Babanoğlu, M. P. (2017). A corpus-based study on the use of contractions by EFL learners in argumentative essays. *International Journal of Applied Linguistics & English Literature*, 6(2), 56-62. <https://doi.org/10.7575/10.7575/aiac.ijalel.v.6n.2p.56>
- Boggs, J. A. (2019). Effects of teacher-scaffolded and self-scaffolded corrective feedback compared to direct corrective feedback on grammatical accuracy in English L2 writing. *Journal of Second Language Writing*, 46(4), 1-34. <https://doi.org/10.1016/j.jslw.2019.100671>
- Chaleila, W., & Garra-Alloush, I. (2019). The most frequent errors in academic writing: A case of EFL undergraduate Arab students in Israel. *Canadian Center of Science and Education*, 12(7), 120-138. <https://doi.org/10.5539/elt.v12n7p120>
- Chaudhary, A., & Al Zahrani, S. (2020). Error Analysis in the Written Compositions of EFL Students: A Classroom Study. *International Journal of English Linguistics*, 10(2), 357-366. <https://doi.org/10.5539/ijel.v10n2p357>
- Cui, Y., Schunn, C. D., & Gai, X. (2021). Peer feedback and teacher feedback: A comparative study of revision effectiveness in writing instruction for EFL learners. *Routledge*, 1-17. <https://doi.org/10.1080/07294360.2021.1969541>
- Elfiyanto, S., & Fukazawa, S. (2021). Three written corrective feedback sources in improving Indonesian and

- Japanese students' writing achievement. *International Journal of Instruction*, 14(3), 433-450. <https://doi.org/10.29333/iji.2021.14325a>
- Faisal, M., Mulya, K., & Syamsul, B. (2017). Errors in EFL writing by junior high students in Indonesia. *International Journal of Research Studies in Language Learning*, 6(1), 38-52.
- Fasikh, M., & Murtadho, A.M. (2019). Error analysis on English writing skill for the seventh grade students of junior high school. *Journal of English Language and literature*, 4(1), 85-94. <https://doi.org/10.37110/jell.v4i01.72>
- Fauzan, U., Aulya, S. F., & Noor, W. N. (2020). Writing error analysis in exposition text of the EFL junior high school students. *Indonesian Journal of EFL and Linguistics*, 5(2), 517-533. <https://doi.org/10.21462/ijefl.v5i2.330>
- Freudenthal, D., Pine, J., & Gobet, F. (2002). Subject omission in children's language: The case for performance limitations in learning. *Proceedings of the Annual Meeting of the Cognitive Science Society*, 24(24), 1-6.
- Hasibuan, A., & Simatupang, T. M. (2018). Students' Errors in Using Lexicogrammatical Features in Writing Recount Text (A Study at the X Grade Students of SMA Negeri 4 Padangsidempuan 2016/2017 Academic Year). *English and Literature Journal*, 5(1), 22-34. <https://doi.org/10.24252/elite.v5i1a3>
- Huseynova, S. S. (2019). Assessing English grammar assessment and feedback: A case study of King Khalid University (KKU) students. *Arab World English Journal (AWEJ)*, 44-55. <https://doi.org/10.24093/awej/efl1.4>
- Khatter, S. (2019). An analysis of the most common essay writing errors among EFL Saudi female learners (Majmaah University). *Arab World English Journal*, 10(3), 364-381. <https://doi.org/10.24093/awej/vol10no3.26>
- Kusumaningrum, S. R., Cahyono, B. Y., & Prayogo, J. A. (2019). The effect of different types of peer feedback provision on EFL students' writing performance. *International Journal of Instruction*, 12(1), 213-224. <https://doi.org/10.29333/iji.2019.12114a>
- Kuyyogsuy, S. (2019). Promoting peer feedback in developing students' English writing ability in L2 writing class. *International Education Studies*, 12(9), 76-90. <https://doi.org/10.5539/ies.v12n9p76>
- Latifi, S., Noroozi, O., & Talaei, E. (2021). peer feedback or peer feedforward? Enhancing students' argumentative peer learning processes and outcomes. *British Journal of Educational Technology*, 52(2), 768-784. <https://doi.org/10.1111/bjet.13054>
- Liunokas, Y. (2020). Assessing students' ability in writing argumentative essay at an Indonesian senior high school. *Journal of Language Teaching and Learning, Linguistics and Literature*, 8(1), 284-296. <https://doi.org/10.24256/ideas.v8i1.1344>
- Marue, M. G., & Pantas, M. B. (2019). Challenges in descriptive essay writing: A case of Indonesian EFL learners. *International Journal of Innovation, Creativity and Change*, 8(12), 88-103.
- Mohammad, A. R., Al-Mofti, K. W. H., & Hussein, J. Q. (2020). Difficulties of writing in English encountered by Iraqi EFL learners at university level. *Journal of University of Garmian*, 7(3), 318-330. <https://doi.org/10.24271/garmian.2070322>
- Nasser, S. M. (2019). Iraqi EFL students' difficulties in writing composition: An experimental study (University of Baghdad). *International Journal of English Linguistics*, 9(1), 178-184. <https://doi.org/10.5539/ijel.v9n1p178>
- Nguyen, D. K., Nguyen, T. H. U., & Phan, T. T. V. (2021). Common errors in writing of EFL sophomores in a context of the Mekong Delta. *Eurasian Journal of Applied Linguistics*, 7(2), 46-57.
- Nguyen, T. T. L. (2018). The effect of combined peer-teacher feedback on Thai students' writing accuracy. *Iranian Journal of Language Teaching Research*, 6(2), 117-132. Retrieved from <http://ijltr.urmia.ac.ir>
- Nindya, M. A., & Widiati, U. (2020). Cohesive devices in argumentative essays by Indonesian EFL learners. *Journal on English as a Foreign Language*, 10(2), 337-358. <https://doi.org/10.23971/jefl.v10i2.1949>
- Nugroho, A., & Benecia, C. (2022). Investigating the use of automated writing corrective feedback to improve undergraduate EFL students' writing performance. *Unika Atma Jaya*, 16-23. <https://doi.org/10.25170/kolita.20.3773>
- Nuruzzaman, M., Islam, A., & Shuchi, I. J. (2018). An analysis of errors committed by Saudi non-English major

- students in the English paragraph writing: A study of comparisons. *Advances in language and literary studies*, 9(1), 31-39. <https://doi.org/10.7575/aiac.all.v9n.1p.31>
- Nusrat, A., Ashraf, F., & Nancy-Combes, M. F. (2019). Effect of direct and indirect teacher feedback on accuracy of English writing: A quasi-experimental study among Pakistani undergraduate students. *The Southeast Asian Journal of English Language Studies*, 25(4), 84-98. <https://doi.org/10.17576/3L-2019-2504-06>
- Ojeka, E. J., Songden, A. V. R., & Ololade, A. (2018). A study on the use of contractions in speech and writing by selected students of the University of Jos. *International Journal of Language, Literature and Gender Studies*, 7(1), 82-93. <https://doi.org/10.4314/laligens.v7i1.9>
- Owu-Ewie, C., & Williams, M. R. (2017). Grammatical and lexical errors in students' English composition writing: The case of three senior high schools (SHS) in the central region of Ghana. *Sino-US English Teaching*, 14(8), 463-482. <https://doi.org/10.17265/1539-8072/2017.08.001>
- Pablo, J. C. I., & Lasaten, R. C. S. (2018). Writing difficulties and quality of academic essays of senior high school Students. *Asia Pacific Journal of Multidisciplinary Research*, 6(4), 46-57.
- Prasetianto, M., & Maharddhika, R. (2020). Online writing exchange with overseas students: EFL learners' errors and perceptions. *Elite Journal*, 7(1), 74-86. <https://doi.org/10.24252/elite.v7i1a7>
- Rastgou, A., Storch, N., & Knoch, U. (2020). The effect of sustained teacher feedback on CAF, content and organization in EFL writing. *Iranian Journal of Language Teaching Research*, 8(2), 41-61. Retrieved from <http://ijltr.urmia.ac.ir>
- Ruegg, R. (2015). The relative effects of peer and teacher feedback on improvement in EFL students' writing ability. *Linguistics and Education*, 29, 73-82. <https://doi.org/10.1016/j.linged.2014.12.001>
- Saadoon, M. M., & Mahdi, H. H. (2018). Some informal contractions in American English. *Journal of Education College for Women*, (21), 35-48.
- Sari, D. M. M. (2019). The effectiveness of corrective feedback to the students' grammatical construction on paragraph writing class. *Journal of English Educational Study*, 2(2), 122-131. <https://doi.org/10.31932/jees.v2i2.520>
- Saud, W. I. (2018). Lexical errors of third year undergraduate students. *English Language Teaching*, 11(11), 161-168. <https://doi.org/10.5539/elt.v11n11p161>
- Sermsook, K., Liamnimitr, J., & Pochakorn, R. (2017b). The impact of teacher corrective feedback on EFL student writers' grammatical improvement. *English Language Teaching*, 10(10), 43-49. <https://doi.org/10.5539/elt.v10n10p43>
- Sermsook, K., Liamnimitr, J., & Pochakorn, R. (2017a). An analysis of errors in written English sentences: A case study of Thai EFL students. *English Language Teaching*, 10(3), 101-110. <https://doi.org/10.5539/elt.v10n3p101>
- Setianingsih, B. A., Prastikawati, E. F., & Wiyaka, W. (2020). Sentence fragments in sea teacher blog writing in st. Paul university surigao, Philippines. *Wiralodra English Journal*, 4(2), 15-27. <https://doi.org/10.31943/wej.v4i2.94>
- Setyaningsih, N., & Larassati, A. (2021) "Umm you know..." speaking or writing?: Examining EFL students' writing style in argumentative essays. *Journal of English Language Studies*, 3(1), 17-22. <https://doi.org/10.31849/elsya.v3i1.5818>
- Shweba, A. A., & Mujiyanto, Y. (2017). Errors of spelling, capitalization, and punctuation marks in writing encountered by first year college students in Al-Merghib University Libya. *English Education Journal*, 7(2), 92-102.
- Solano, P. A. C., Torres, P. F. G., Cueva, C. A. O., Beltran, A. L. Q., Cuesta, L. M. C., Jaramillo, L. M. S., ... Cordova, M. O. A. (2014). Spanish interference in EFL writing skills: A case of ecuadorian senior high schools. *English Language Teaching*, 7(7), 40-48. <https://doi.org/10.5539/elt.v7n7p40>
- Solikhah, I., & Surakarta, I. (2017). Linguistic problems in English essay by EFL students. *IJOLTL*, 2(1), 31-44. <https://doi.org/10.30957/ijoltl.v2i1.231>
- Sritrakarn, N. (2018). A comparison of teacher's and senior students' feedback: student attitudes and their writing improvement. *The Journal of Asia TEFL*, 15(2), 329-348. <https://doi.org/10.18823/asiatefl.2018.15.2.5.329>
- Sudarmaji, I., & Lifanie, M. B. (2020). A comparison study: Teacher, peer and self-feedback on students essay

- writing. *Journal of Indonesian Student Assessment and Evaluation*, 6(2), 168-180. <https://doi.org/10.21009/jisae.v6i2.16743>
- Suntara, W. (2021). Thai EFL Senior High School Students' Errors in Paragraph Writing. *Korean Journal of English Language and Linguistics*, 21, 1145-1161.
- Tan, K. E., & Manochphinyo, A. (2017). Improving grammatical accuracy in Thai learners' writing: comparing direct and indirect written corrective feedback. *The Journal of Asia TEFL*, 14(3), 430-442. <https://doi.org/10.18823/asiatefl.2017.14.3.4.430>
- Tan, L. N., & Pham, V. P. (2021). Indications of paired- vs. grouped-peer feedback on students' writing activities. *Advances in Social Science, Education and Humanities Research*, 533, 253-261. <https://doi.org/10.2991/assehr.k.210226.032>
- Toba, R., Noor, W. N., & Sanu, L. O. (2019). The current issues of Indonesian EFL students' writing skills: ability problem, and reason in writing comparison and contrast essay. *Dinamika Ilmu*, 19(1), 57-73. <https://doi.org/10.21093/di.v19i1.1506>
- Unggul, G. M., & Gulö, I. (2017). An analysis of gerund and to infinitive in argumentative essays. *Teknosastik*, 15(1), 1-6. <https://doi.org/10.33365/ts.v15i1.14>
- Vasu, K., Ling, C. H., & Nimehchisalem, V. (2016). Malaysian tertiary level ESL students' perceptions toward teacher feedback, peer feedback and self-assessment in their writing. *International Journal of Applied Linguistics & English Literature*, 5(5), 158-170. <https://doi.org/10.7575/aiac.ijalel.v.5n.5p.158>
- Zhong, Q., Yan, M., & Zou, F. (2019). The effect of teacher feedback on the simple past tense acquisition in senior high school students' English writing. *World Journal of Education*, 9(3), 30-37. <https://doi.org/10.5430/wje.v9n3p30>

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).