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Submitted and Defended by:

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Title

Exploring the Effect of Using Automated Written Corrective Feedback on English Foreign Language Learners' Spelling Accuracy: Perceptions and Challenges

The Case Study of EFL Master Students at Mohamed Kheider University of Biskra, Algeria

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Dissertation Submitted to the Department of Foreign Languages as Partial Fulfillment of the Requirements for the Degree of Master in Sciences of Language

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Declaration

I, Djamal Abdenacer ZEKRI, do hereby declare that this dissertation is my own original work and my own effort that has been compiled in my own words and has not been submitted for any academic institution or University for any degree before.

This study was conducted and completed at Mohamed Kheider University of Biskra, Algeria.

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Dedication

To my father and mother, my permanent support, who -after the Almighty- were the reason I reached here. To my brothers Dhia Bouguettaya and Lamine Derradji, who I cannot thank enough for always being there, during all the years that we have been together, through thick and thin. To my brother and teacher, DR. Ahmed Zellouma, you are the best.To everyone who helped in any way. I love you all.

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Abstract

The Automated Written Corrective Feedback is a software feature that is considered one of the tools to correct writers' spelling mistakes including students who rely on it in writing different types of assignments. This current study seeks to explore the effectiveness of using the Automated Written Corrective Feedback on EFL students' spelling accuracy. It also aims at investigating EFL learners' perceptions and challenges towards the use of the software. To achieve this goal, an exploratory qualitative research design was used in an attempt to answer the research questions. In this respect, the researcher used a semi-structured questionnaire for students. The questionnaire was administered through Google Form to 41 EFL learners at the Department of English and Literature at Biskra University. The findings revealed positive perceptions of AWCF tools' effectiveness in improving spelling accuracy despite the challenges that the students had encountered such as poor internet connectivity, and lack of proficiency, and facing incorrect suggestions. Moreover, The obtained results revealed that EFL master students agreed that the AWCF tools were useful and accurate in enhancing their spelling accuracy and identifying their spelling mistakes. Therefore, institutions are advised to consider integrating AWCF tools into curricula.

Keywords: Automated written corrective feedback, spelling accuracy, perceptions, challenges.

List of Abbreviations and Acronyms

AI: Artificial Intelligence

AWE: Automated Written Evaluation

AWCF: Automated Written Corrective Feedback

CALL: Computer-Assisted Language Learning

ICT: Information and Communications Technology

NLP: Natural Language Processing

SPSS: : Statistical Package for Social Sciences

WCF: Written Corrective Feedback

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Introduction

Recently, the world has witnessed a great revolution in all fields, especially, the educational field, which could benefit from this revolution with different tools that provide assistance in writing. English as a Foreign Language (henceforth, EFL) learners usually find difficulties in writing assignments and homework that they receive from teachers, or in writing, generally, due to the lack of knowledge, apparently. Consequently, learners' writings may contain numerous errors at different levels, including spelling errors. Spelling errors can mislead readers and make the structure ambiguous and challenging to understand. In order to avoid this problem, learners tend to use Automated Written Corrective Feedback (AWCF) tool to help them correct their spelling errors.

This study aimed to explore the perceived effectiveness of using Automated Written Corrective Feedback tools on EFL master learners' spelling accuracy at the university of Biskra, Algeria. The study, generally, did not specify any program since all programs share the same function, which is to provide corrective feedback about written errors. However, it gave more importance to the extent the use of the tools, after having been used over the entire period of use by EFL master learners, would enhance their spelling accuracy and explore the challenges they may face.

1. Statement of the problem

Among higher education EFL students, many still struggle significantly with writing tasks such as dissertations, homework, and various assignments (Boubekka, 2022). These challenges often include issues with grammar, syntax, and vocabulary, which are particularly evident in their essay writing and other compositions. Spelling accuracy stands out as a crucial

component of effective writing for EFL learners, as errors in spelling can lead to ambiguity and miscommunication.

Traditional methods of instruction, namely teacher feedback and peer review, have been employed to upgrade and enhance spelling accuracy, but recently, the implementation of AWCF tools provides a promising alternative. The access to solid sources of corrective feedback has become easier to reach by the learners via using AWCF tools; nevertheless, the extent to which these tools may influence EFL master learners' spelling accuracy over the entire period of use and the challenges that may arise while using the tools is still not well defined. This exploratory study will aim to explore the effectiveness of using Automated Written Corrective Feedback tools on EFL Learners' spelling accuracy and the challenges at Biskra University.

The study aimed to explore the occurrence more thoroughly. It shed light on the advantages of utilizing these instruments, and the constraints of AWCF tools in strengthening spelling precision with EFL master learners. In addition, the findings may aid the creation of efficient teaching techniques that integrate AWCF tools to enhance the instruction of spelling and boost writing skills among EFL master learners.

2. Research Aims

The general aim of this study was to explore the effectiveness of using Automated Written Corrective Feedback tools on EFL Learners' spelling accuracy at Biskra University. More specifically, this paper aims at:

1. Identifying students' perceptions of using AWCF tools.

2. Identifying the perceptions of students about the accuracy of AWCF in identifying their spelling mistakes
3. Determining students' challenges in using AWCF tools.
4. Raising awareness of the importance of using AWCF to improve students' spelling accuracy.

3. Research Questions

This research seeks to answer the following questions:

RQ1: How can the use of AWCF affect learners' spelling accuracy?

RQ2: How accurate are AWCF tools in identifying spelling mistakes?

RQ3: Is there a relationship between using AWCF tools and spelling accuracy?

4. Research Methodology

4.1. Research Design

This study adopted a qualitative research approach and an exploratory research design. To collect data, a questionnaire was submitted to EFL master learners at Mohamed Kheider University with regard to their experiences in using AWCF tools and how these tools, over the entire period of use, have affected their current level of spelling accuracy. A questionnaire was used because of its characteristic being able to seek participants' perceptions and challenges in using AWCF to improve their spelling accuracy.

4.2. Population and Sampling Techniques

In the sake of collecting data about how EFL master learners' perceive the use of Automated Written Corrective Feedback and their spelling accuracy, a sample of (41) EFL master learners at Mohamed Kheider University had been randomly selected.

4.3. Data Collection Tools

To collect data that answered the research's questions, a semi-structured questionnaire was adopted. The questionnaire was administered to (41) EFL master learners from both specialties; sciences of the language and civilization and literature in order to explore the perception of the students on the use of the AWCF and the challenges they encountered with it in the way of correcting their spelling.

4.4. Data Analysis Procedures

In order to analyze the data collected from the students' questionnaire, the SPSS software was used to process descriptive statistics.

5. Significance of the study

This study can help in determining whether or not AWCF tools are valuable for improving spelling accuracy of EFL master students and more specifically EFL students of Biskra university. This study sought to demonstrate whether employing these tools can be beneficial. Accordingly, this research may encourage the incorporation of AWCF tools into EFL writing syllabus to enhance spelling accuracy, particularly, and writing proficiency in general.

6. Structure of the Dissertation

This study includes two main parts; the first part is the theoretical background and the second part is the fieldwork, which includes analysis, interpretation, and findings of this investigation.

Firstly, the theoretical part is divided into two chapters; the first chapter covers the first variable; namely, Automated Written Corrective Feedback; it discusses definitions, history of research on Automated Written Corrective Feedback, and many other items related to it. In addition, the first chapter investigates a few studies that were conducted to examine the AWCF on students and their experiences with it and the findings emphasize the importance of the tools in EFL teaching/learning. Additionally, chapter one concludes with a synthesis of findings of previous studies that investigated the adoption of the AWCF in classrooms.

Secondly, the second chapter covers spelling accuracy, which is the second variable. This chapter contains definitions, explains the requirements for learning spelling and its importance, and discusses problems of spelling. Further, chapter two highlights spelling strategies.

Lastly, the third chapter outlines and details the rationale for the selection of the data collection tools and the data analysis procedures along with describing, summarizing, analyzing, and interpreting the results obtained in order to answer the questions of the research.

Chapter One

Automated Written Corrective Feedback

Chapter One: Automated Written Corrective Feedback

Introduction

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Introduction

In this chapter, many aspects and areas around the Automated Written Corrective Feedback (AWCF) will be explored. This chapter will start with an overview on Automated Written Corrective Feedback, in which various definitions of different researchers will be illustrated. Next, it will discover the historical development of AWCF that the system has passed through until nowadays. Further, the types of written corrective feedback; direct, indirect, and metalinguistic types. Effectiveness of AWCF in error correction will be the next to explore, through many studies, how effective the system is in aiding learners and instructors of L2 in language learning and teaching. As for the next aspect, few limitations of AWCF will be highlighted. Then, factors influencing second language (L2) students' use of AWCF are going to be listed before delving into the reason why the adoption of AWE system in classrooms is necessary. Before the conclusion, it will list a few implications and recommendations regarding the use of AWE systems for the academic users.

1.1. Automated Written Corrective Feedback definition

In recent decades, the use of automated writing evaluation (AWE) programs in classrooms and in the educational field for second language (L2) writing is increasing due to the advantages that these tools provide to users in writing in general and in spelling, precisely (Koltovskaia, 2020). These tools also have become popular in the EFL society for being able to provide users with written corrective feedback (WCF) on their writings, which then gave birth to the new term: automated written corrective feedback (AWCF) (Ranalli, 2018). These tools that are being used by the EFL community have been a hot topic for many researchers and scholars

and each one of them has defined them in a slightly different way. In this part, a few definitions will be illustrated.

Automated Written Corrective Feedback tools are a software program on computers and smartphones that help writers avoid grammatical lapses in written compositions by suggesting more appropriate words or correcting spelling errors for any misspelled words (Barrot 2021). Lately, these tools are increasingly used by L2 learners in classrooms as they provide them with written corrective feedback (WCF). The feature is considered to lessen the burden off the teachers as these tools help in correcting errors at the level of writing, for instance, teachers will not worry much about the errors that occur at the level of sentence of their students, but rather, they will be free to focus more on higher-level concerns and meanwhile try to motivate their students to revise and proofread their written products (Lavolette et al., 2015).

Bitchener and Ferris (2012) defined Automated Written Corrective Feedback tools to represent one category in educational technology which intended to aid learners of a language to enhance their writing proficiency by providing automated evaluations to their written work. They also added that the tools provide responses to learners' written errors including corrections, indications, or even comments on their grammatical or lexical problems in written discourse.

Additionally, Shintani (2015) stated that AWCF tools are smart tools used to improve learning more effectively by giving instant feedback including corrections in the text so that learners will be faced with correct texts which would let them avoid committing the same errors. Moreover, Automated Written Corrective Feedback is derived from Automated Writing Evaluation which refers to the software tools that are used to provide formative feedback in different contexts by scoring text and analyzing structure, grammar, and others to produce detailed evaluation and feedback based on the text (Cao & Wang, 2023).

To conclude, through the definitions of AWCF tools which were stated by Bitchener and Ferris (2012), Shintani (2015), and Cao and Wang (2023), it is clear that they all define the nature of these technological tools in supporting and improving the writing efficacy of learners in almost the same way. By offering immediate feedback on grammar and vocabulary, the tools assist in overall writing quality and coherence.

1.2. Historical development of Automated Written Corrective Feedback

The Automated Written Corrective Feedback systems has passed through stages through history with different characteristics:

1.2.1. Early Years (1950s-1970s)

- In the early years of AWCF, computer-assisted language learning (CALL) was in its infancy, with rudimentary computer programs offering basic language drills and tutorials (Warschauer & Healey, 1998).
- Limited computational capabilities constrained the sophistication of early AWCF systems, which primarily focused on grammar and vocabulary exercises (Brumfit et al., 1985)

1.2.2. Advancements in Natural Language Processing (1980s-1990s)

- The development of NLP technologies in the 1980s and 1990s spurred advancements in AWCF (Chapelle, 2001).
- Researchers explored rule-based and statistical methods for identifying and correcting errors in written text, laying the groundwork for more sophisticated AWCF systems (Leacock & Chodorow, 2003).

1.2.3. Integration of Artificial Intelligence and Machine Learning (2000s-Present)

- With the rise of AI and machine learning in the 21st century, AWCF underwent a paradigm shift towards more advanced and adaptive systems.
- Machine learning algorithms, including neural networks and deep learning models, revolutionized AWCF by enabling systems to handle complex linguistic structures and provide nuanced feedback.

1.2.4. Emergence of Commercial AWCF Platforms

- Commercial AWCF platforms have become increasingly prevalent, offering AI-driven solutions tailored to specific languages and writing tasks (Leacock & Chodorow, 2003).
- Companies like Turnitin and Grammarly have developed sophisticated AWCF systems that provide instant feedback, error analysis, and personalized recommendations to users.

1.3. Types of AWCF

In the field of language learning, Written Corrective Feedback (WCF) serves an important role in enhancing language learners in general and second language learners in particular. The Automated Written corrective feedback tools, in parallel, are no less important in correcting learners' mistakes and errors with automated feedback for assisting second language (L2) learners in correcting grammatical errors existing in their written compositions (Bitchener & Knoch, 2010; Loewen, 2012). This corrective intervention can be categorized into three primary types, as delineated by Bitchener and Knoch (2010) and further elaborated upon by

Loewen (2012): direct corrective feedback, indirect corrective feedback, and metalinguistic corrective feedback.

1.3.1. Direct corrective feedback

Direct corrective feedback involves the explicit identification of written errors and corrections within learners' written text. This feedback type directly points out grammatical inaccuracy deviations and immediately provides corresponding corrections or alternatives to cover the error and enhance accuracy with the correct and grammatical forms. For instance, the automated system may underline or highlight errors that are identified in the text, offering the appropriate forms or rules to guide learners' revisions (Bitchener & Knoch, 2010).

1.3.2. Indirect corrective feedback

In contrast, indirect corrective feedback adopts a more suggestive stance by providing subtle hints or cues about the errors without directly correcting them, that is to say, instead of furnishing the correct form outright, indirect feedback notifies learners to reassess their writing and independently self-correct the errors in the text. This feedback mechanism's major aims are to cultivate learners' active participation and metacognitive awareness regarding their language usage (Loewen, 2012).

1.3.3. Metalinguistic corrective feedback

Bitchener and Knoch (2010) characterized the third type called metalinguistic corrective feedback as it depends on providing explanations or comments concerning the errors with the grammatical rules and principles of language rules in general underpinning the errors. Further, rather than only focusing on error correction, in this feedback type, differently, it has opted to

enrich learners' comprehension of the language system and fundamentals, which will empower them to apply the acquired rules in their writings by themselves. In a few words, metalinguistic feedback motivates learners to be aware of the reason behind the errors they committed, fostering a deeper grasp of linguistic structures (Bitchener & Knoch, 2010).

In conclusion, Bitchener, Knoch, and Loewen have explained the different types of Automated Written Corrective Feedback which have slight differences that each of the three types focuses on a certain angle and has a specific goal. Direct, indirect, and metalinguistic types offer multiple approaches to addressing grammatical matters within L2 learners' written compositions. All in all, the principal aim of all the types is to provide learners with corrections, whether directly, or indirectly.

1.4. Students' perceptions of using Automated Written Corrective Feedback

The absolute aim behind the software is to aid learners in language learning, offering effective tools for error correction and improving writing. In recent years, numerous studies have investigated the role and the effectiveness of the tools in enhancing writing quality along with emphasizing how effective they may be. These tools have proved their efficacy in language education for their ability to help L2 learners in minimizing errors and enhancing the quality of writing and even learning how to evaluate themselves (Zhang & Hyland, 2018; Guo et al., 2021). Multiple studies have been conducted on the AWCF tools and shed light on their effective role in improving spelling accuracy and overall writing quality. This function is able to assist learners to reduce errors in their writings and enhance the quality of writing in general (Lee et al., 2013). Examples of the function's effectiveness can be noticed in many studies.

Ranalli et al. (2017) reported that learners in their study had corrected 55–65% of the total errors they made based on Criterion feedback. Kang and Han, (2015b), in another study, found that Computer Assisted Language Learning with 3 learners received two types of feedback; teacher feedback, and Automated Written Corrective Feedback, the study found that the 3 learners had outperformed other learners who only received the feedback of the teacher. The aforementioned findings illustrate the effectiveness of the AWCF tools in enhancing learners' writing quality and support the validity of adopting this function into writing instruction for its ability to aid teachers in the task of giving feedback (Guo et al., 2021).

Guo et al. (2021) argued that AWCF use may ease academic writing development especially for beginner writers of English as a foreign language . In their study they emphasized on Grammarly, a program of automated writing evaluation tools. Correspondingly, they evaluated how effectively EFL learners can use feedback that were provided by Grammarly for error correction in research writing and what factors were related to user responses (i.e., revision operations) and response accuracy. After the results, it had been shown that the error rates reduced significantly after revision, and the participants had identified 85% of the Grammarly-flagged usages successfully. They found that the error-correction success was significant because the terminology of research nature was precise that could affect feedback accuracy as well as the users' interaction with it, both related to response accuracy (Guo et al., 2021). In fact, feedback accuracy contributed to response accuracy both directly and indirectly (via user responses). The findings have implications for source-based academic writing instruction and AWE tool development.

There were many other studies conducted for the purpose of testing the effectiveness of the tools, but through the studies and experiments mentioned above, it is worth mentioning that

these tools have been proven to enhance spelling accuracy and support learners in processes of error correction beside teachers' feedback. The findings support the validity of adopting AWCF tools into writing instruction and highlight how they can be of benefit to enhance the feedback process for learners and teachers alike. However, as any other software or system, AWCF tools still have limitations.

1.5. Students' challenges in using Automated Written Corrective Feedback

The effectiveness of AWCF in enhancing writing skills is still a contentious issue for many scholars and educators. Some studies have found positive effects on performance associated with AWCF (Ranalli, 2018; Kang & Han, 2015; Barrot, 2021), whereas others have revealed limited or inconsistent influence on spelling accuracy and writing quality generally (Bitchener & Ferris, 2012).

1.5.1. Level of accuracy

One of the limitations of AWCF occurs at the level of accuracy. In detecting and correcting errors, the system, from time to time, fails to identify nuanced errors or contextual nuances accurately in learners' writings, leaving users confused (Bitchener & Ferris, 2012). The gap may mislead the learners with inaccurate feedback that might not address their needs and the intended ideas which would not facilitate their learning process. For instance, AWCF might incorrectly flag a grammatically correct but contextually inappropriate phrase as an error or overlook errors that require human understanding of the text's meaning.

1.5.2. Error level

AWCF tools may tend to prioritize surface-level errors over higher-order writing concerns, leading to a narrow focus on grammatical correctness at the expense of a cohesive writing quality (Hyland, 2019). Consequently, learners may receive feedback that addresses only surface aspects of their writing and ignore structural or organizational issues that affect the overall clarity and effectiveness of their communication.

1.5.3. The overreliance on the tools

It should be noted that the overreliance on this software may result in the reduction of students' autonomy as well as critical thinking abilities since learners become dependent on the automatic correction instead of engaging in reflective writing activities (Chandrasegaran et al., 2014). In brief, depending excessively on these tools could prevent learners from identifying their own mistakes and reduce their ability to develop a self-learning capability while hindering their development as writers due to lack of critical thinking skills.

1.5.4. No account for individual differences

While automated Written Corrective Feedback tools are proven to provide effective feedback on errors, they still often lack the ability to account for individual differences among second language (L2) learners, unlike humans' feedback. Teachers' feedback can personalize feedback based on learners' abilities, differences, and preferences (Ranalli et al., 2017). Automated Written Corrective Feedback tools tend to apply standard feedback to all users regardless of their differences which would sometimes fail to address individual differences.

It is one of the challenges of AWCF tools that they are limited in the ability to adapt feedback to the different needs and abilities of L2 learners. The tools often rely on pre registered error types and correction rules, which may not cover the level of learners' writing proficiency, linguistic backgrounds, and learning styles, as a result, the feedback may not always be tailored to meet the specific needs of individual learners, leading to mismatches between the feedback provided and the learners' actual learning needs (Ranalli et al., 2017).

1.6. Factors influencing second language (L2) students' use of Automated Written Corrective Feedback

Studies have revealed many factors that influence the use of Automated Written Corrective Feedback.

1.6.1. Proficiency Level

The use of L2 students of AWCF can be affected by their proficiency level in the target language. Bitchener and Ferris (2012) declared that there are many studies that show that learners who are more fluent generally understand and use feedback provided by the AWCF better than those whose level is lower. Advanced students may have a better grasp of the language and be good at problem solving, which allows them to easily interpret feedback and implement suggested revisions accurately (Hubbard, 2009). On the other hand, lower levels of proficiency may limit learners comprehension of complex feedback so that they may not be able to revise correctly creating frustration among them, which consequently may lead them to be uninterested and also affect how learners learn to write (Zhang, 2021). Therefore, learners should consider and be aware of this factor and their proficiency levels when dealing with AWCF.

1.6.2. Feedback Appropriateness

Learners learn and engage better when they receive appropriate feedback from AWCF on their writing tasks, especially when feedback is effective and relevant to their objectives (Hyland, 2013). Many research found that feedback focused on exact writing problems on specific writing issues helps learners more and keep them engaged (Ranalli, 2018). In addition, feedback should be given in a positive and helpful way to build a good learning environment and motivate students to use the feedback (Warschauer et al., (2006). In order to ensure learners are receiving appropriate feedback, instructors need to make sure that AWCF systems offer suitable and useful feedback to their learners.

1.6.3. Explicitness

Ranalli (2018) states that explicitness is one of the features that distinguishes the WCF provided by teachers from AWCF one and it is commonly researched in the WCF literature, including the extent to which feedback is direct or indirect. Bitchener and Ferris (2012) define direct feedback as feedback that signals out errors and suggests correction to the deviation, indirect feedback, on the other side highlights errors in the text for learners to locate them with or without a note reminder or an error code, with asking learners to make the corrections themselves. In choosing which feedback would be suitable for learners, proficiency level should be taken into account as higher level learners would be able to absorb more feedback than those of average or low level (Bitchener & Ferris, 2012).

Ranalli (2018) demonstrated the difference between direct and indirect feedback concerning explicitness, he argued that the difference does not suit the AWCF since its main base of feedback that it relies on is not pedagogical, but rather, it is technological. Technological

feedback differs from the pedagogical one as in the latter, teachers are able to give feedback to learners without referring directly to the error, teachers can indicate that there exists an error but does not highlight it or even provide its type at all (Ranalli, 2018).

Ranalli et al. (2017, as cited in Ranalli, 2018) proposed an alternative manner to characterize the explicitness of AWCF which is the distinction between generic and specific feedback. Generic feedback provides the same message every time an error of a certain type of errors is detected, whereas specific feedback is more specific as it includes in the feedback some structure of the error accompanied by correction.

1.7. Adoption of AWE in classrooms

bearing in mind that feedback is commonly considered to be important for L2 writing development (Bitchener & Ferris, 2012). Teachers, with a large number of learners, might not always have the ability to give feedback to their learners immediately when they need and frequently provide them with corrective feedback (Woodworth & Barkaoui, 2020).

Automated writing evaluation systems, in turn, would share teachers the burden and can assist in responding to by providing L2 learners with written corrective feedback at any time learners may need feedback, whether inside classrooms, or even outside of them, anywhere and whenever learners may need. Supporters of the systems also believe that the use of these systems in or out classrooms can facilitate the process of writing activities and increase learner motivation and accuracy, and enhance learners autonomy (Woodworth & Barkaoui, 2020).

Additionally, Automated Written Feedback can help in providing consistent feedback. Attali and Burstein (2006) highlight the importance of consistency in feedback provided by AWE systems, especially in classrooms, which can help in maintaining fairness. The systems ensure

consistent evaluation criteria and feedback for all learners in the classroom that every learner will be provided with feedback equally as all the rest learners, contributing to fair and equitable assessment practices.

As mentioned in previous sections, there are some researchers that criticize AWE for the inability to give users individualized feedback and can reduce the role of the teacher. As a compromise, Woodworth and Barkaoui (2020) argue that it is recommended to use feedback from AWE systems not to replace or diminish the role of teachers, but rather, the systems are meant to complement and assist teachers' WCF as they find difficulty to provide all learners with feedback due to a lack of time and resources (Lee, 2014).

As writing practice and feedback are important for EFL writing development, the use of AWE systems has been increasing in order to provide L2 learners with WCF on their writing (Stevenson & Phakiti, 2014). Also, research suggests that AWE systems might lessen the workload of teachers (Tang & Rich, 2017, as cited in Woodworth & Barkaoui, 2020), facilitate the process of writing and development by supporting learners' reflective use of feedback (Yannakoudakis et al., 2018, p. 252), and improve learner autonomy (El Ebyary & Windeatt, 2010). Using AWE systems in writing in and out classrooms is helpful, however, this does not mean that they can replace the role of teachers.

Conclusion

Many researchers and academics across different generations had argued and studied the role of written corrective feedback in improving writing accuracy from both sides; learners and instructors. The topic had and has still been the subject of researchers, like Zhang, Ranalli, Tang, Bitchener, and many others. The system has passed through many stages across the time and has

been tested in the field of education and it turned out to be of benefit to learners and teachers alike. The AWCF has been found to be effective in error correction, drawing on numerous studies to evaluate its impact on language learning and teaching second/foreign languages. Despite its effectiveness, AWCF had limitations that could not be of benefit to the teaching-learning community. and identified factors that influence L2 students' use of AWCF. However, using this system wisely will reduce a lot of burden on the process of teaching and learning as well as save time especially in correcting fundamental errors for beginners.

Chapter Two

Spelling Accuracy

Chapter Two Spelling Accuracy

Introduction

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2.5.2. Orthographic problems

2.5.2.1. Reasons for orthographic problems

Introduction

Writing and reading are essential skills for EFL learners and have an effective role in learning spelling. In fact, spelling is important in writing as it is the basis of academic writing which allows writers to be accurate and appropriate in writing and deliver information successfully. Spelling is a crucial component of writing proficiency as even one misspelled word may affect the meaning of a whole text. This chapter will introduce many different factors in regard to spelling; first, it will start with thorough definitions of spelling according to different scholars, academics, and dictionaries. Additionally, in this chapter, the aspects of knowledge that are required to obtain spelling accuracy will be discussed. Moreover, it will shed light on the importance of teaching spelling in different scholars' points of view and according to studies. Later in this chapter, problems with spelling and spelling strategies will be illustrated**.**

2.1 Spelling definition

According to Merriam-Webster, (2024), spelling is defined as ˈspe-liŋ; noun; “the forming of words from letters according to accepted usage: Orthography. A sequence of letters composing a word; the way in which a word is spelled. Spelling has also been defined by many scholars and researchers in the field of pedagogy, a few examples of them will be listed.

Berninger and Fayol (2008.p,1) stated that “Spelling is a code that uses letter sequences to represent specific words that have an associated pronunciation and meaning within the mental dictionary.” This means that written and spoken languages are linked by spelling which they saw as an act of encoding sequences of letters to represent words, each has its own pronunciation and meaning stored in the mental lexicon. Berninger and Fayol (2008) put spelling as a means that turn speech words into representations on papers to facilitate both understanding and

communication through the accurate reproduction of letter sequences to convey the intended meaning.

Al-zuoud and Kabilen (2013.p,165), in addition, explained that “Spelling is the learner’s ability to write a word correctly. Writing accurate spelling adds to the quality of overall writing texts. The study of learners’ spelling errors provides an opportunity to understand and facilitate in the learners’ spelling difficulties.” In other words, spelling is the skill that allows one to properly write a word, this means that writing words correctly contributes toward the general quality of written texts. Finally, they indicate why it is significant to study learners’ errors in this regard since they provide insights into some difficulties experienced by spellers. When teachers understand such weaknesses in spelling and work on them, their learners will get specific assistance towards developing their proficiency in terms of spelling; hence improving quality of their writings. Essentially, good spelling is not only a mechanical exercise but it has quite an impact on how effectively one can read or write.

2.2 Requirements for learning Spelling

Spelling is an important part of English writing and also reading. Learning spelling is a challenging process that requires learners to be knowledgeable on a range of aspects about the English language. Ankucic (2019) stated the aspects including phonological, orthographical, morphemic, and etymological knowledge.

2.2.1. Phonological Knowledge

Phonemes, the smallest units of sound, are the focus of phonology. It is the comprehension of read and heard, spoken and written sound. Developing the ability to recognise

sounds through segmentation and syllabification and express them using letters (graphemes) is the main goal of teaching phonology in spelling classes.

2.2.2. Orthographic Knowledge

The typical letter patterns and sequences that are permitted in the English spelling system are the subject of orthography. Students who possess a strong understanding of orthography are better able to formulate and apply norms and generalizations, as well as being visually sensitive to appropriate letter patterns.

2.2.3. Morphological Knowledge

The smallest units of meaning found in words, known as morphemes, are the subject of morphology. Learning about morphemes, including prefixes and suffixes, as well as how to work with and comprehend morphemes in words, are the main goals of instruction. A rich morphological knowledge is vital to allow writers to use known words in different parts of speech, person and tense.

2.2.4. Etymological Knowledge

Etymology is concerned with the origin and history of words – where they came from, their pronunciation, and their meaning. Instruction aims to provide knowledge of these origins and how they inform spelling and meaning. A rich etymological knowledge is vital in storing words in a meaningful system and improves vocabulary.

2.3. Importance of spelling accuracy

Having the ability to spell words accurately is important despite the fact that spelling may not be the focus of language teaching subject in the curriculum. As spelling is a crucial component of writing, spelling errors detract from the effectiveness of any written work and may mislead readers to deviations of meanings (Khuwaileh & Shoumali, 2000, as cited in Alsaawi, 2015). Allaith and Joshi (2011) declared that to be literate does not require being able to read and write alone, but also to acquire the ability to spell words correctly.

Moats (2005) insisted on the importance of spelling not only in writing, but also in reading, as being a good speller actually supports reading. A good speller is by nature a good reader because correct spelling is a result of more advanced linguistic knowledge. Having accurate spelling requires the integration of phonological, orthographic, and morphological knowledge (Ehri, 2000, as cited in Reed, 2012). For instance, an excellent speller would not be expected to have any problems with reading words, and by nature, those who struggle with spelling, cannot be good readers (Fayol et al., 2009).

As for learners and educators in the educational field, good spellers are regarded as a sign of good education whereas poor spellers are not (Fageberg, 2006). That is to say, spelling proficiency is associated with attention to details and language mastery. However, Berninger et al. (2002) cautioned that students who have poor spelling abilities are not necessarily poor readers: good readers are able to decode more words than they can spell or encode.

2.4. Teaching spelling accuracy

Across the history of languages, spelling has been a crucial component of a language, and English is no exception. Learners of any language need to gain the ability to spell correctly, to

represent words using written symbols in order to communicate effectively via reading or writing as a good speller is a good reader (Moats, 2005). One of the main objectives of teaching spelling is to support learners to upgrade their knowledge as required as well as suitable and effective strategies that they can utilize when learning to spell new words (Gentry, 1982 as cited in Pedro & Fransheska, 2021).

Pedro and Fransheska (2021) declared that spelling needs to be taught deeply as learners do not develop it naturally like reading and writing. Through the assessment of learners' writing and reading, teachers can have a clear profile of the knowledge and strategies that the learners use in modeled, shared, interactive and guided writing contexts. Hence, teachers can demonstrate ways to figure out how to spell words, how to use various resources to help with spelling, and how to proofread or check spelling.

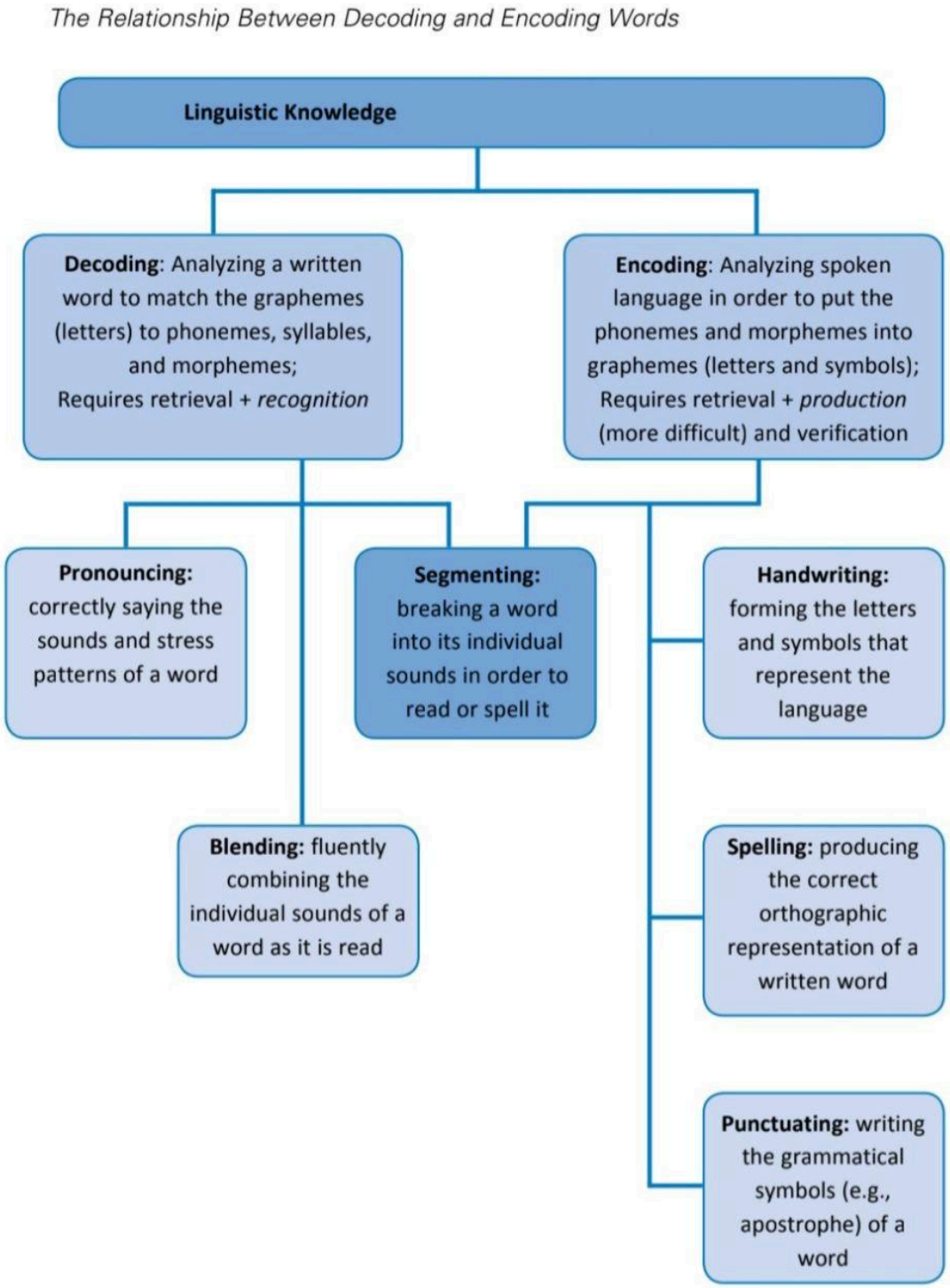
As the English writing system is complicated, it would be challenging for learners (Reed, 2012). The 26 English alphabet letters can produce around 44 phonemes that can be represented in 250 different spellings (Ball & Blachman, 1991 as cited in Reed, 2012). Learners are required to be intensively exposed to the grapho-phonemic patterns of the language in order to develop automaticity, which is, in decoding, the ability to fluently identify written words without sounding them out letter by letter, whereas in spelling, it is the writer's ability to fluently encode (write or type) spoken words without sounding them out letter by letter (Reed, 2012; Robbins et al., 2010).

Reed (2012) suggested teaching reading and spelling in parallel, rather than separately, in order to provide more opportunities to practice applying common patterns. Figure 2.1. below provides more information on the relationship between decoding and encoding. Additionally, after spelling words, there is a final stage of verification in which the speller reads again the

written word in order to make sure it appears and sounds correct. “Teaching reading and spelling together gives students more opportunities to practice applying common patterns”, stated Reed (2012).

Figure 2.1.

The relationship between decoding and encoding words. From Why teach spelling?, p7.



2.5. Spelling problems

Al-Jarf (2010) stated that spelling problems are of two categories; phonological and orthographic problems.

2.5.1. Phonological problems

Phonological problems, on one hand, refers to the errors that change the structure of a word, ending up with a word that does not look like the target one, since a consonant, a vowel, a syllable, a prefix, a suffix, a grapheme, a grapheme cluster or even the whole word is not heard at all, is misheard, is added or reversed with another. Consequently, the written form does not match the spoken sound, syllable or word (Al-Jarf, 2010).

2.5.1.1. Reasons for phonological problems

Al-Jarf (2010) illustrated a few reasons for phonological problems:

- The inability to hear or discriminate some or all of the phonemes in the word.
- Failing to hear the correct word sequence, failing to hear the word start and end.
- Failing to distinguish between minimal pairs.
- Failing to differentiate single vowel or consonant phonemes.
- Failing to hear the final syllable or suffix.
- Failing to hear the correct sequence of consonant-vowel phonemes in a word, vowel phonemes, consonant phonemes or syllables.
- Failing to recognize flaps and elision.

2.5.1.2. Examples of phonological problems

Al-Jarf (2010) illustrated a few examples of phonological problems (Table 2.1.):

Table 2.1.

Examples of phonological problems. From Spelling error corpora in EFL, p10, by Al-Jarf (2010).

Phonological problems	Target word	Errors
Discriminating most phonemes in a word	Worry	Know
Hearing all phonemes in a word	Ferry	No word
Discriminating V	Especially	espicially
Hearing suffix	Staying	stay
Hearing V	Another	anther
Confusing minimal pairs	Hill	hell
Discriminate voiced/voiceless C	Cable	caple
Remembering word sequence	Down	up
Hearing C	Tourist	toress
Discriminating suffix	Attraction	attractive
Hearing final syllable	country	cont
Discriminating C phonemes	Ferry	thery
Hearing middle syllable	transportation	transportion

Notes: C=consonant; V=vowel.

The table shows examples of different phonological problems and errors that students commit due to each phonological problem. An instance of it is when a learner had a problem with hearing the final syllable of the word " country", the result error was "count".

2.5.2. Orthographic problems

On the other hand, Al-Jarf (2010) defines orthographic problems as to those types of errors in which the word that was misspelled looks like the written target word in a way, or at least close to it, however, the structure of the word that is misspelled or grapheme of it does not accurately represent the target word, in other words, the misspelled word and the targeted word or grapheme do not match in spelling but look similar.

2.5.2.1. Reasons for orthographic problems

Al-Jarf (2010) illustrated a few reasons for orthographic problems (Table 2.2.).

- Confusing vowel graphemes that share the same sound.
- Confusing consonant graphemes that have the same sound.
- Confusing vowel and consonant digraphs.
- Omitting silent vowels and consonants.
- Doubling of consonants or vowels.
- Reducing double consonants or double vowels.
- Omitting a vowel in vowel digraphs.
- Adding or omitting final silent vowels.
- Reversing consonant-vowel and vowel-vowel sequences.
- Representing consonants with hidden sounds phonetically.
- Substituting a word by another homophone.

2.5.2.2. Examples of orthographic problems

Al-Jarf (2010) illustrated a few examples of orthographic problems (Table 2.2.):

Table 2.2.

Examples of orthographic problems. From Spelling error corpora in EFL, p10, by Al-Jarf (2010).

Orthographic problems	Target word	Errors
V digraph	Cheapest	Cheepest
Silent V	Relatives	Relativs
Double C	Middle	Midle
Confusing homophones	Hall	Whole
Silent C	Excellent	Exlelant
Remembering VV sequence	Break	Braek
C digraph	Brought	Brout
CV sequence	Use	Ues
C forms	Economical	Echonomical
Phonogram	Connects	Conex
Hidden C	Question	Equesion
Silent digraph	neat	Neaght

Notes: C=consonant; V=vowel.

The table shows examples of different orthographic problems and errors that students commit due to each orthographic problem. An instance of it is when a learner had a problem with the letter “C” forms of the word “ Economical”, the result error was “Echonomical”.

2.6. Spelling strategies

Spelling strategies are referred to as the conscious and unconscious methods that learners use to acquire and use a second language, it is the process by which learners try to decipher word meanings and applications, as well as grammar and spelling rules (Al-Jarf, 2010). Generally, spelling strategies can be categorized into mnemonic, phonological, orthographic, and morphological strategies (Varnhagen et al., 1999).

2.6.1 Mnemonic strategies

This strategy is considered the most advanced strategy involving retrieving information about the spelling from memory of the stored orthographic representations for words (Sénéchal et al., 2006). In other words, mnemonic strategies involve memory aids or techniques to help learners retrieve the correct spelling of words from the long-term memory. Mnemonic strategies include creating acronyms, visual imagery, or mnemonic devices to associate sounds or letters with the spelling of words. Spelling mnemonics is a tool that takes the information from the learner's background knowledge and connects them to the target word so that the learner remembers more effectively (*Spelling Mnemonics: How to Remember High Frequency Words*, 2022).

2.6.2. Phonological strategies

Phonological strategies, in spelling, is about analyzing a word into phonemes and then choosing the suitable graphemes to represent each sound (Varnhagen et al., 1999, as cited in (Sénéchal et al., 2006). These strategies rely mainly on the sounds of a language in which learners use their knowledge of phonetics and phonology to spell words based on how they sound. In order to achieve correct spelling via this strategy, learners need to understand sound-symbol correspondences and apply phonemic awareness skills to decode and encode words.

Weinrich and Fay (2007) believed that phonological awareness enables novice learners to learn phoneme–grapheme correspondence of words, which helps create accurate spellings. Novice spellers use phonological awareness skills to divide words into phonemes as they spell the words. Additionally, Phonological awareness aids in the recall of word patterns for spelling,

which is useful for subsequent reading processes. “Children who have unstable phonological foundations find it extremely difficult to comprehend and transfer printed language to existing language knowledge” (Weinrich & Fay, 2007).

2.6.3. Orthographic strategies

Orthographic strategies are referred to as a mapping cognitive process that combines the sound, spelling and meaning of words and links them together and permanently stores them in the memory (*What Is Orthographic Mapping and Why Is It Important?,* 2023). Once readers meet new words, they activate the process of decoding (the process was defined above), which is used as a strategy for reading.Words that a reader has read in various occasions become instantly recognisable and have their pronunciation and meaning activated. Orthographic strategies focus on recognizing and applying spelling patterns, rules, and conventions; eventually, orthographic knowledge is considered as one of the major contributors to word identification (Zarić et al., 2020). Learners, using this strategy, analyze word structures and patterns, letter combinations and spelling rules, for instance, to determine the correct spelling of a certain word with the aid of mapping progress and decoding.

2.6.4. Morphological strategies

Morphological strategies depend on morphological awareness, to use these strategies a learner needs to be aware of morphology. Wolter et al. (2009) defined morphological awareness as a conscious awareness of the morphological composition of words and being able to reflect on and change that structure accordingly. In other words, morphological strategies depend on the ability to recognize and understand the meanings of root words and affixes. These strategies include analyzing word structure and meaning to spell words accurately, by which learners break

words down into meaningful units, such as prefixes, suffixes, and root words, to understand how they are formed and spelled (Sedita, 2018).

Conclusion

In conclusion, this chapter included a few aspects related to spelling. Spelling accuracy has been debated to be an important and necessary skill for learners to develop their language writing and reading proficiency. Learners who are good at spelling are able to achieve better in academic classes as good spellers are by nature good readers because correct spelling is a result of more advanced linguistic knowledge. However, as spelling is a crucial component of writing, spelling errors can reduce the effectiveness of written works and may mislead readers to unintended meanings. Learning spelling is a challenging process that requires learners to be knowledgeable on a range of aspects about the English language. This chapter focused mainly on spelling in general, definition, knowledge to achieve accurate spelling, spelling problems, and then spelling strategies.

Chapter Three

Data Analysis and Interpretation

Chapter Three: Data Analysis and Interpretation

Introduction

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Introduction

The present chapter is the practical part of this study, it discusses the main findings of the study and the conclusions that can be drawn from them. It aims to explore the effectiveness using Automated Written Corrective Feedback tools on the students' perceived usefulness in spelling accuracy. Additionally, for the research tools used in this study, a questionnaire has been submitted to master students in order to collect data about their opinions and attitude towards this issue and will be analyzed in this chapter. These questions were posed to conduct our investigation and collect data. This research's main aim is describing the attitudes and perceptions of EFL master learners in terms of convenience and usefulness of AWCF tools as well as the relationship between their spelling accuracy and the use of AWCF tools, according to their experience. Finally, it will attempt to provide recommendations and suggestions for further research.

3.1. Review of Research Methodology

3.1.1 Research method

This study is conducted based on the qualitative method approach which is selected based on the type and nature of research, which is exploring the perceptions of students about the effectiveness of using AWCF on English as a foreign language learners spelling accuracy . This approach helps us to get more detailed and credible responses; also, it gives the chance to know learners' attitudes towards using the AWCF to develop learners' performance in spelling accuracy.

3.1.2. Sample and Population

The population of the current investigation consists of English master learners at Mohamed Khider University of Biskra, Algeria. This population is specifically chosen for the main reason that they are supposed to have used the AWCF more than the learners of previous levels.

3.1.2.1 Sample

A sample of forty-one (41) master one and master two students from both specialties; namely, Sciences of the Language and Literature and Civilization, at Biskra University for the academic year 2023-2024 were randomly selected and responded to the students' questionnaire in order to conduct this research, because those students have experienced learning English, and have accomplished at least eight full semesters by experiencing the AWCF.

3.1.3. Data gathering tool

For the purpose of answering the research questions, a set of closed-ended and open-ended questions in a semi-structured questionnaire is used in this study. The questionnaire has been sent to a sample of master students of English in the division of English at Biskra University. The aim behind using this tool was to collect qualitative data and sample's opinions and attitudes about the research topic to attempt to end up with precise results.

3.2. Students' questionnaire

3.2.1 Aims of the questionnaire

The students' questionnaire was the main and only data gathering tool designed to find out the attitudes and opinions of the students towards the effectiveness of the use of the AWCF and

their spelling accuracy. Additionally, the questionnaire was prepared and submitted to the students in order to gather the data needed to answer the research questions.

3.2.2. Piloting and Validating the Students' Questionnaire

The questionnaire was piloted by a few participants from the sample and validated by the supervisor, who mentioned some remarks and edited some questions to make them clearer and more specific.

3.2.3. Description of the questionnaire

This questionnaire was addressed to a representative sample of master students of English at Biskra University. It consists of eighteen (18) questions. They involved two types of questions: Closed-ended and open-ended questions. Close-ended questions required answers with dichotomies (yes/no questions), or picking up the most appropriate answer from a series of options (general information and level). Also, open-ended questions aim to select different answers for one instruction and allow the participant to add answers.

3.2.4. Administration of the questionnaire

The questionnaire was created online on Google Forms survey software and was administered online on the Facebook group of the sample for master students and also was posted on their Facebook messenger groups. The questionnaire received 41 responses in four (04) days.

3.2.5. Analysis and interpretations of the questionnaire

In order to answer the research questions, the data gathered from the students' questionnaire were analyzed via descriptive statistics through the services available in the

Statistical Package for the Social Sciences. SPSS is a statistical software that helps edit, describe, and analyze data from any source: scientific research, a database, Google Analytics, or even the server log files of a website. In addition, SPSS is able to open all file formats that are commonly used for structured data: spreadsheets from MS Excel or OpenOffice, plain text files (.txt or .csv), relational (SQL) databases, or Stata and SAS. Using this software enabled the researcher to summarize and organize the data sets easily; therefore, the obtained results were accurate.

Section One: Background Information.

Item 01: What is your current level at university?

By asking question (01), we sought to distinguish how many of the participants were master one students and how many were master one students

Table 3.1.

Number of Master One Students and of Master Two Students

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Master1	14	34.1	34.1	34.1
	Master2	27	65.9	65.9	100.0
	Total	41	100.0	100.0	

Table 3.1. demonstrates that the majority of the participants are master two students who represent 27 out of 41 (65.9%) while master one students represent 14 out of 41 (34.1%).

Item 02: How many years have you been studying English?

The answers to this question are displayed in the form of frequencies in the table below:

Table 3.2.

Period of Studying English Language

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	11 Years	10	24.4	24.4	24.4
	More than 11 years	31	75.6	75.6	100.0
	Total	41	100.0	100.0	

Table 3.2. demonstrates that the majority of the participants have been studying English for more than 11 years (75.6%) while the other (24.4%) have been studying English for 11 years.

Item 03: Which devices do you use?

The answers to this question are displayed in the form of frequencies in the table below:

Table 3.3.

Devices Used by Students

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Smartphone	15	36.6	36.6	36.6
	Computer	1	2.4	2.4	39.0

	All above	25	61.0	61.0	100.0
	Tablet	0	0	0	0
	Total	41	100.0	100.0	

Table 3.3. demonstrates the devices that the participants use, the most frequent ones are smartphones and computers together with 25 participants (61%), then smartphone alone users with 15 participants (36.6%), then computer alone users with 01 user (2.4%), finally, 00 users for tablets (00%).

Section Two: The Use of Automated Written Corrective Feedback Tools

Item 04: How is your ICT literacy?

This item will show the level of ICT literacy of the students in the form of frequencies displayed in the table below:

Table 3.4.

Students' Levels of ICT Literacy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Beginner	4	9.8	9.8	9.8
	intermediate	29	70.7	70.7	80.5
	Advanced	8	19.5	19.5	100.0
	Total	41	100.0	100.0	

Table 3.4. shows that the most participants' level of literacy in ICT is intermediate with 29 students (70.7%), then advanced level with 08 students (19.5%), then beginner level with 4 students (9.8%).

Item 05: Are you familiar with the use of AWCF?

The table below shows whether or not students are familiar with using the AWCF:

Table 3.5.

Students' Familiarity with Using AWCF

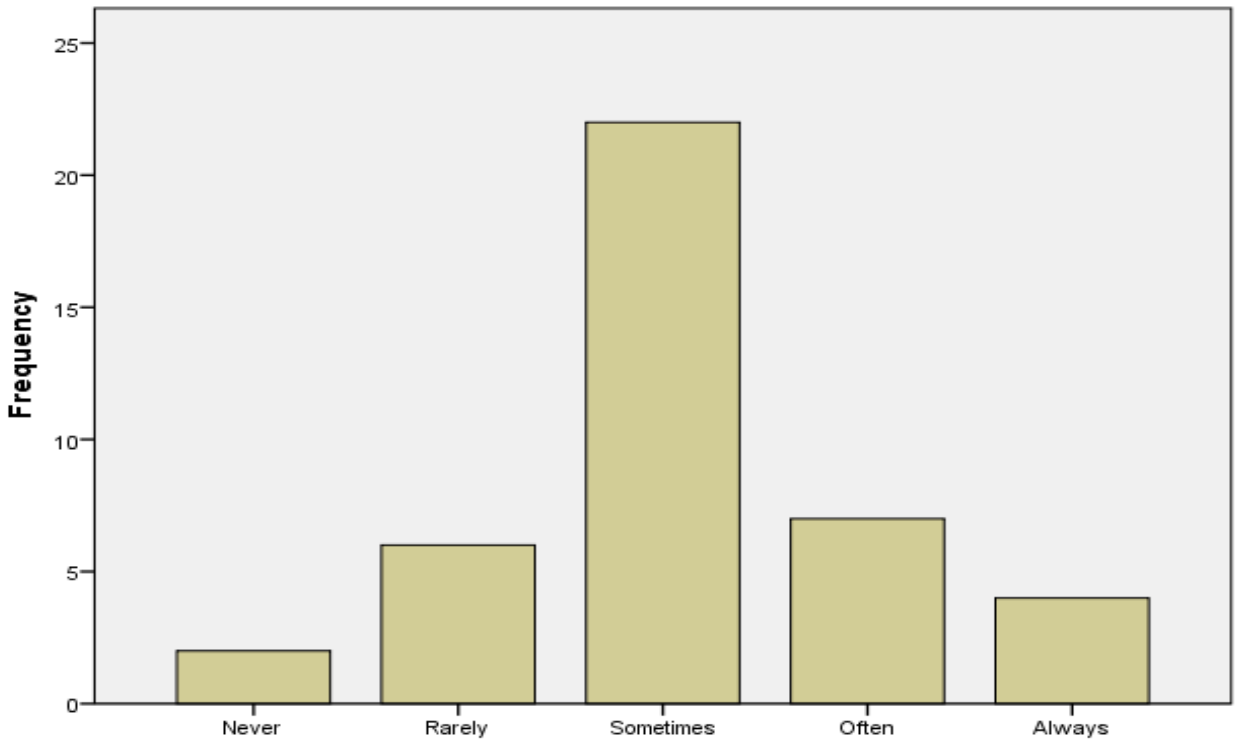
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	31	75.6	75.6	75.6
	No	10	24.4	24.4	100.0
	Total	41	100.0	100.0	

Table 3.5. demonstrated the participants who are familiar with the use of AWCF and those who are not. Thirty-one (31) participants (75.6%) answered that they are familiar with using it, however, 10 participants (24.4%) said that they are not.

Item 06: How frequently do you use Automated Written Corrective Feedback?

Figure 3.1.

Students' AWCF Usage Frequency



For the purpose of displaying data in a clear understandable manner, data of this question were, exceptionally, displayed through bar charts, and not through a frequency table. As indicated in Figure 3.1., (02) participants among a sample of (41) students affirmed that they never use the AWCF, and (6) participants rarely use it. The majority of participants (22); however, informed that they use the program sometimes, while (7) confirmed that they often use it. Finally, only (04) participants affirmed that they always use the AWCF.

Item 07: To what extent do you find Automated Written Corrective Feedback easy to use?

The bar charts below will answer the question, but unexpectedly, the SPSS does not represent zero (0) frequencies on bar charts, hence, the table will help in clarification and showing the missing frequencies.

Table 3.6.

Easiness' Extent of AWCF Use

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very difficult	0	0	0	0
	Difficult	0	0	0	0
	Moderate	13	31.7	31.7	31.7
	Easy	21	51.2	51.2	82.9
	Very easy	7	17.1	17.1	100.0
	Total	41	100.0	100.0	

Figure 3.2.

Easiness' Extent of AWCF Use

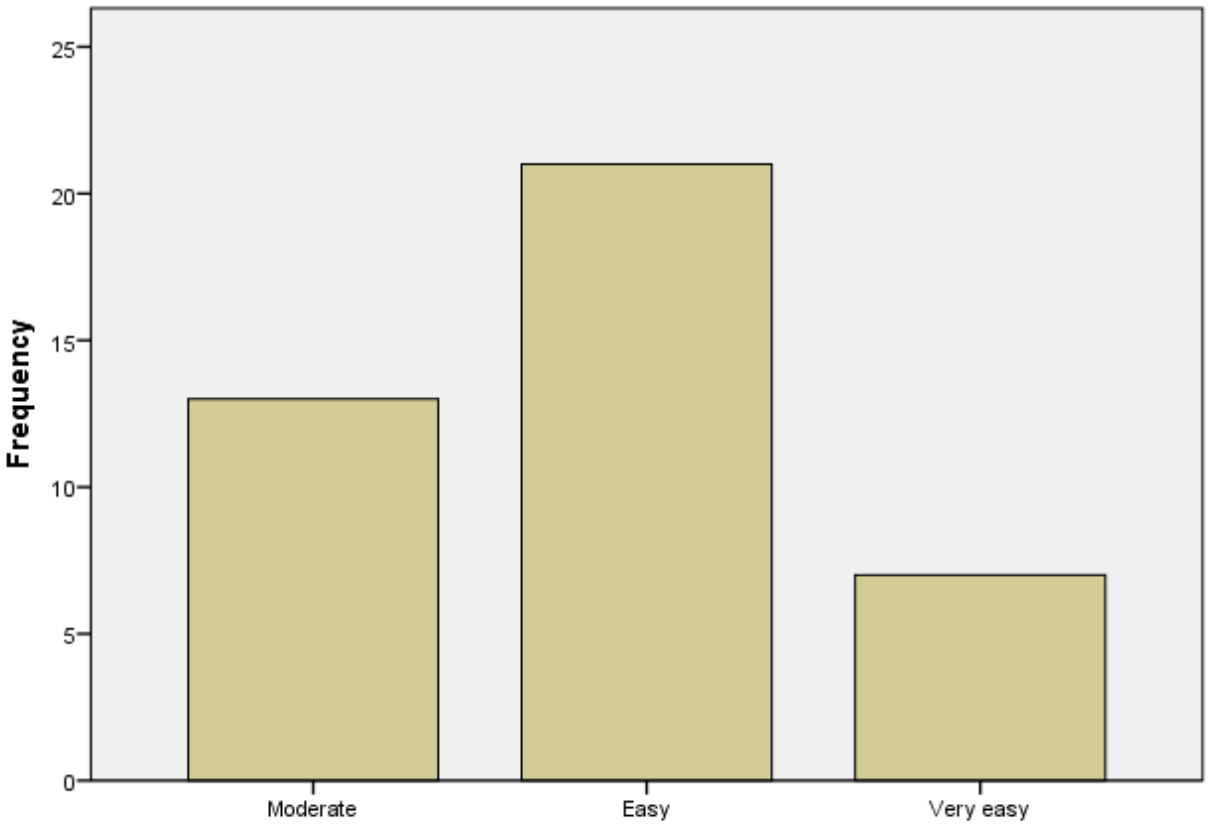


Figure 3.2. and table 3.6. both show how easy the use of the AWCF is. As mentioned above, no participant (00) found that it was very difficult or difficult to use. As Shown on the bar charts, (13) participants affirmed it was moderate to use, while the majority (21 participants) found it easy. Finally, seven (07) participants affirmed that the use of the AWCF is very easy.

Item 08: What kind of assignments do you use AWCF for? (you can tick more than one option).

The answers to this question are displayed in the form of frequencies in the table below:

Table 3.7.

The Different Kinds of Assignments the Participants Use the AWCF For

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Dissertations	18	21.2	21.2	21.2
	Research papers	26	30.6	30.6	51.8
	Take home activities	9	10.6	10.6	62.4
	Web research	13	15.3	15.3	77.6
	Chatting	13	15.3	15.3	92.9
	All above	6	7.1	7.1	100.0
	Total	85	100.0	100.0	

Before demonstrating the content of table 3.7., It should be remarked that the frequency represents how many participants have selected each kind of assignment; some participants may have selected multiple kinds of assignment, therefore, the total does not represent the number of participants exactly, but the number of how many times each assignment the AWCF have been used for.

The table shows that eigh-teen (18) participants used the AWCF for writing dissertations, and (26) participants use it for writing research papers. Nine (09) participants use it for take home activities, and (13) participants web research and chatting. However, six (06) participants use the program for all the assignments mentioned.

Item 09: Which AWCF programs are you most familiar with? (you can tick more than one option).

The answers to this question are displayed in the form of frequencies in the table below:

Table 3.8.

AWCF Programs That Participants Are Familiar With

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Smartphone's default keyboard	33	55.9	55.9	55.9
	Grammarly	22	37.3	37.3	93.2
	Ginger	1	1.7	1.7	94.9
	Other	3	5.1	5.1	100.0
	Total	59	100.0	100.0	

Table 3.8. demonstrates programs that participants are familiar with, first, smartphone's default keyboard with (33) participants (55.9%). The second program is Grammarly with (22) participants (37.3%). Next, three (03) participants are familiar with other AWCF programs (05.1%), namely; Quilbot, Microsoft Word, and Perplexity. Finally, only one (1) (01.7%) participant is familiar with Ginger.

Item 10: To what extent do you agree that adopting AWCF in classrooms is a good idea?

The answers to this question are displayed in the form of frequencies in the table below:

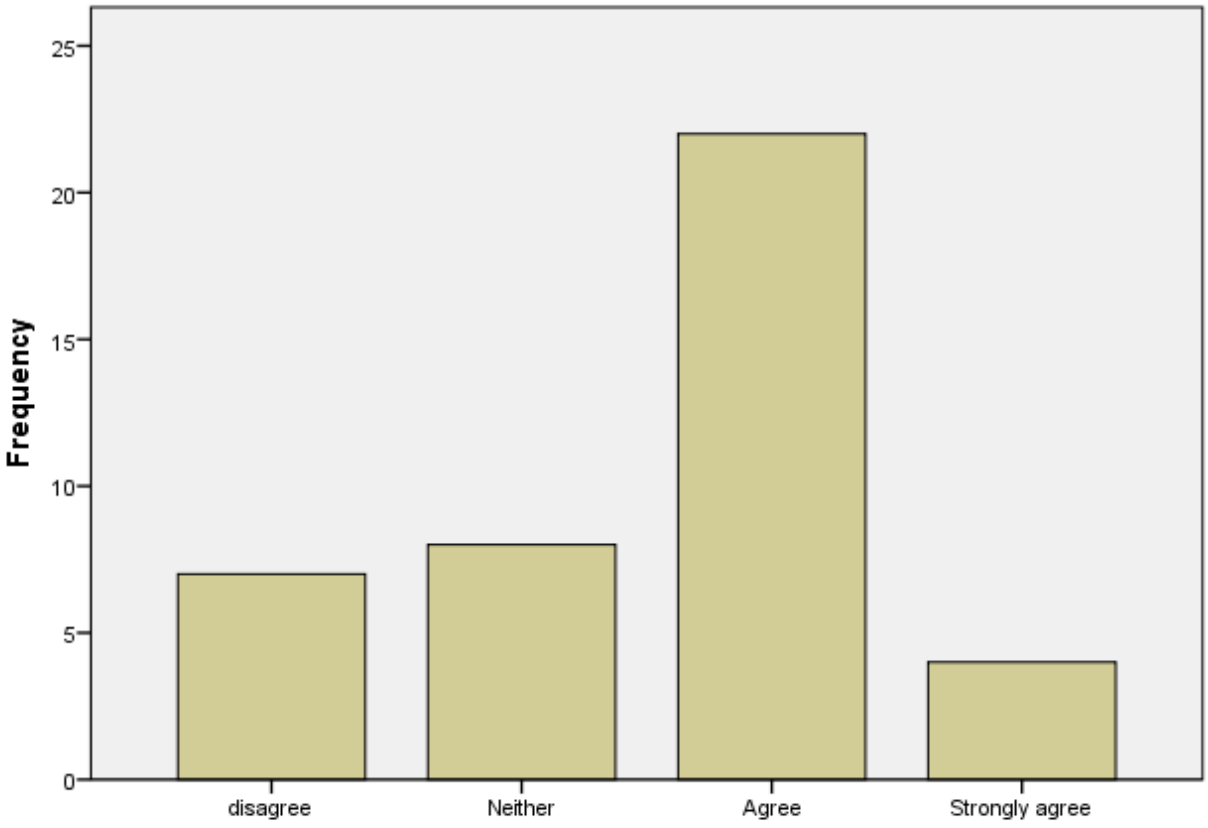
Table 3.9.

Participants Attitudes about Adopting AWCF in Classrooms

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	0	0	0	0
	Disagree	7	17.1	17.1	17.1
	Neither	8	19.5	19.5	36.6
	Agree	22	53.7	53.7	90.2
	Strongly agree	4	9.8	9.8	100.0
	Total	41	100.0	100.0	

Figure 3.3.

Participants Attitudes about Adopting AWCF in Classroom



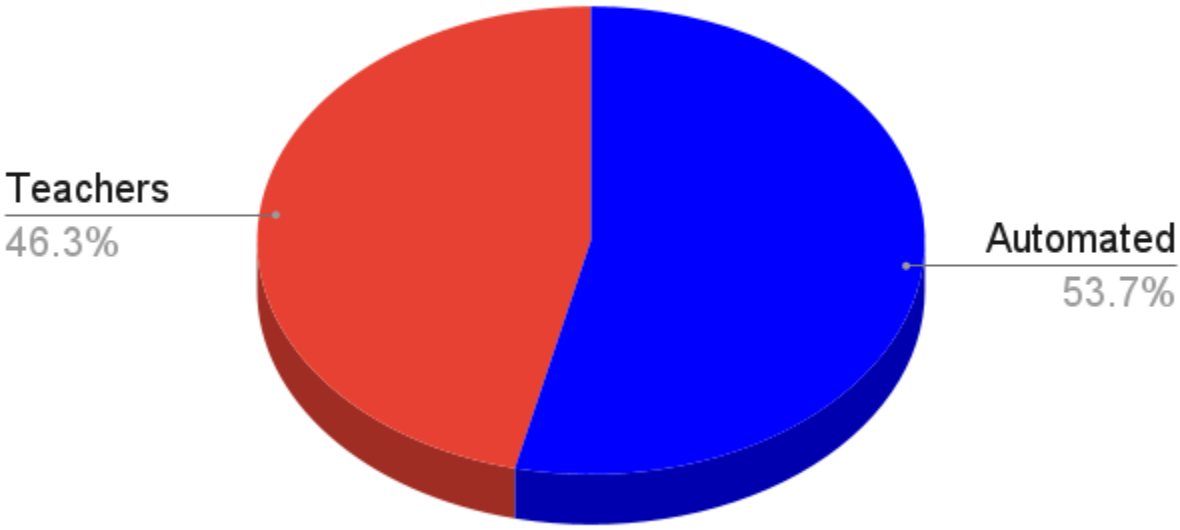
The table 3.9. and figure 3.3. are used together for the same reason as in item 07. Both show the participants' attitudes towards adopting AWCF in Classrooms. As mentioned above, no participant (00) strongly disagreed. As Shown on the bar charts, (07) participants disagreed with the idea of adopting the AWCF in classrooms, and other (08) ones preferred to answer with neither, while the majority (22 participants) agreed with the idea. Finally, seven (04) participants agreed strongly with the idea.

Item 11: Which source of feedback do you think helps you best in learning spelling accuracy?

The following pie chart will display the answer:

Figure 3.4.

Feedback Source that Helps Participants Best in Spelling Accuracy



Note: Teachers = Teachers Corrective Feedback. Automated= Automated Written Corrective Feedback

Figure 3.4. demonstrates spelling feedback sources that help participants best, according to the pie chart, (53.7%) of participants believe that the AWCF helps them better in spelling accuracy; however, the rest (46.3%) participants believe it is the teacher's corrective feedback

that helps them better.

Section Three: Spelling Accuracy

Item 12: How do you find spelling words in English?

The following chart will answer the question:

Figure 3.5.

Participants' Attitudes Toward Spelling Words in English

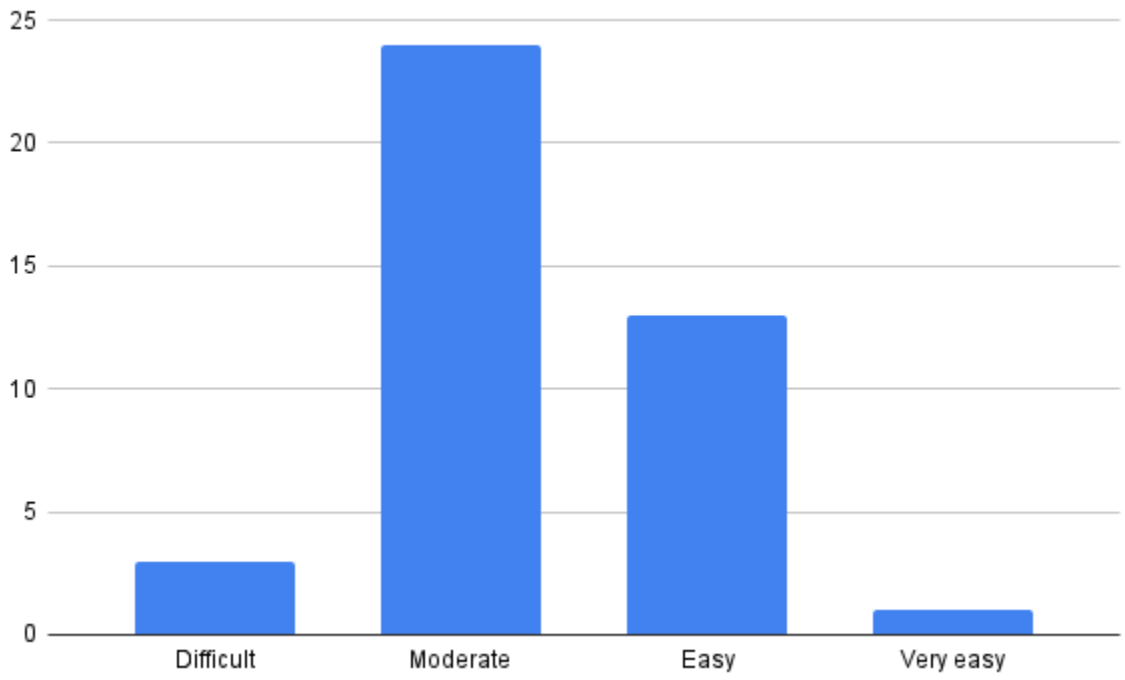


Figure 3.5. demonstrates how participants find spelling words in English, (03) participants affirmed it is difficult, the majority (24) said it is moderate, (13) believed spelling words is easy for them, while only one (01) participants declared that it is very easy.

Item 13: Do you have any spelling difficulties?

The answers to this question are displayed in the pie chart below:

Figure 3.6.

Distribution of Responses about Spelling Difficulties

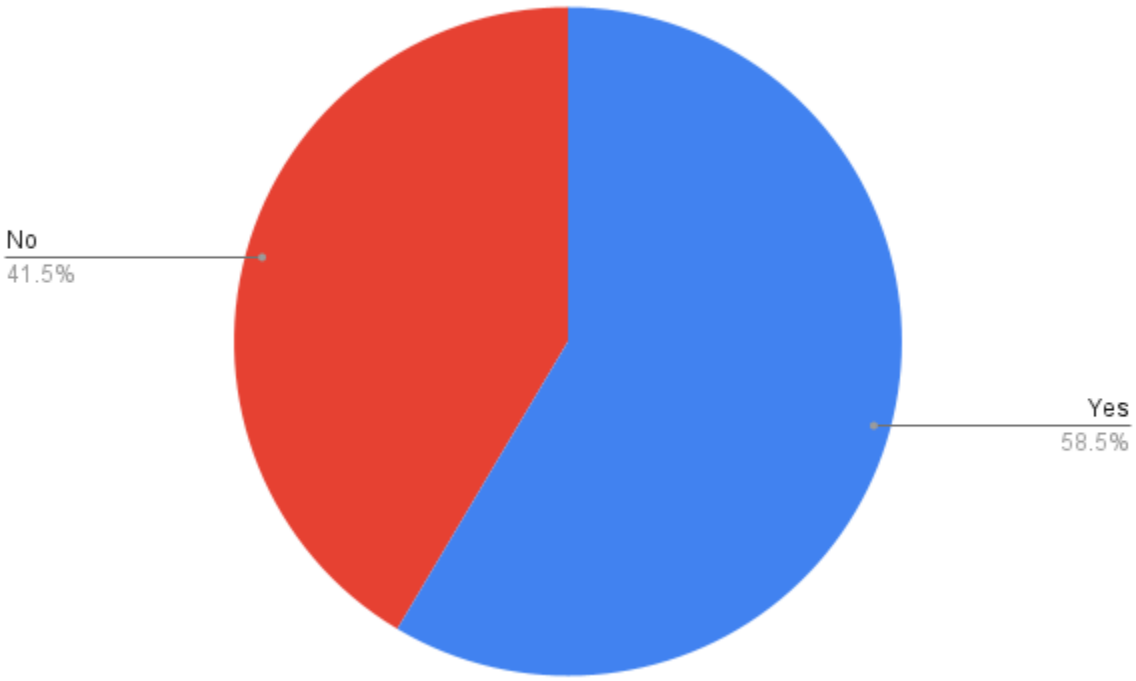


Figure 3.6. illustrates that among the participants, (24) individuals reported having spelling difficulties, while the remaining (17) indicated that they do not face such challenges. This distribution highlights that a majority of respondents, approximately (58.5%), experience spelling difficulties, whereas around 41.5% do not encounter such issues. This suggests that spelling difficulties are relatively common among the surveyed population.

Item 14: To what extent do you agree that the use of AWCF is helpful in improving your spelling accuracy?

The following chart will answer the question:

Figure 3.7.

Perceived Helpfulness of AWCF in Improving Spelling Accuracy: Agreement Levels

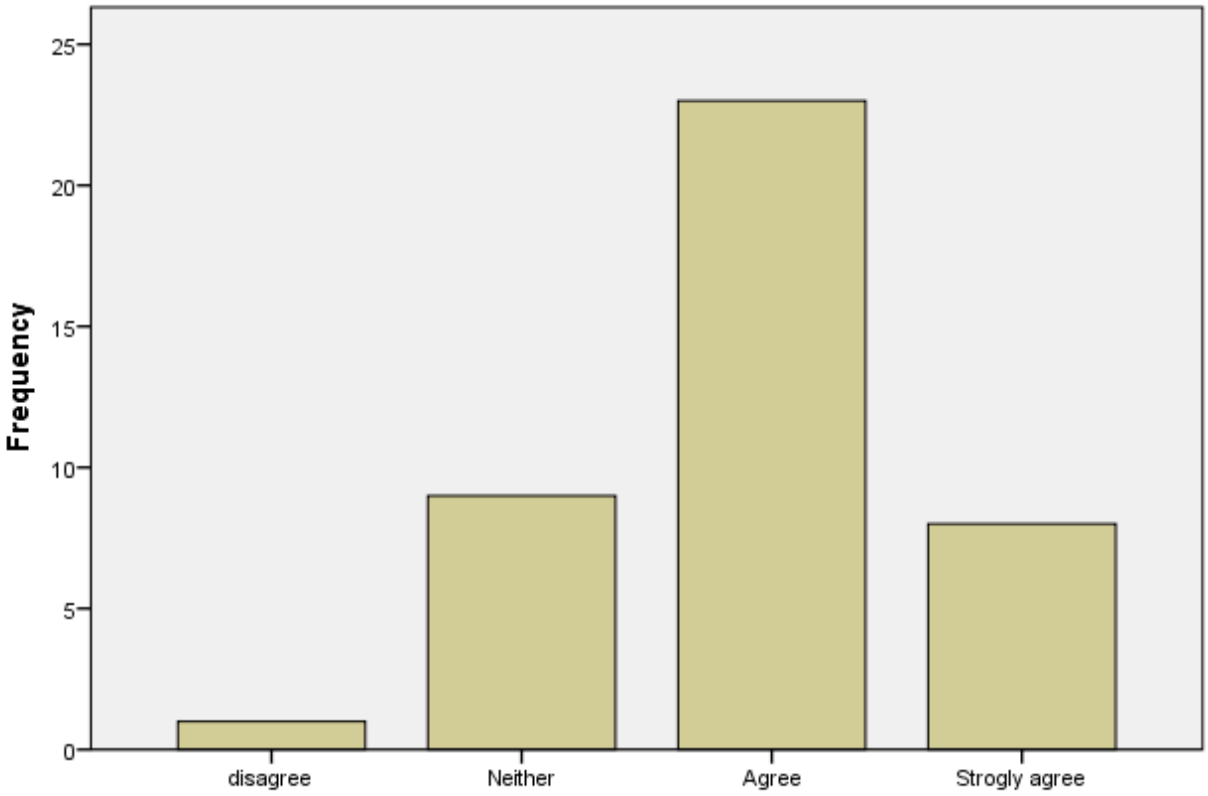


Figure 3.7. provides insights into participants' perceptions regarding the helpfulness of AWCF in improving their spelling accuracy. Among the responses, the majority of participants (23) individuals, indicated agreement with the statement, while (8) participants strongly agreed. On the other hand, only 1 participant disagreed, and none strongly disagreed, with 9 participants expressing neutrality. The data suggest that the majority of participants find AWCF beneficial for

enhancing their spelling accuracy, with a combined total of (31) participants either agreeing or strongly agreeing. Conversely, a small minority disagreed with this notion.

Table 3.10.

Mean of the helpfulness of the AWCF

N	Valid	41
	Missing	0
Mean		3.927
Std. Deviation		.7208

Note: Mean readings:

[1.00:1.80] = Strongly disagree

[1.81:2.60]= Disagree

[2.61:3.40]= Neither

[3.41:4.20]= Agree

[4.21:5.00]= Strongly agree

Additionally, table 3.10. Shows that the calculation of the mean on SPSS reads 3.927 which represents the value “Agree”, this suggests that the participants agree that the AWCF is helpful in improving their spelling accuracy.

Item 15: To what extent do you agree that the use of AWCF is accurate in identifying your spelling mistakes?

The following chart will answer the question:

Figure 3.8.

Assessment of AWCF Accuracy in Identifying Spelling Mistakes: Agreement Levels

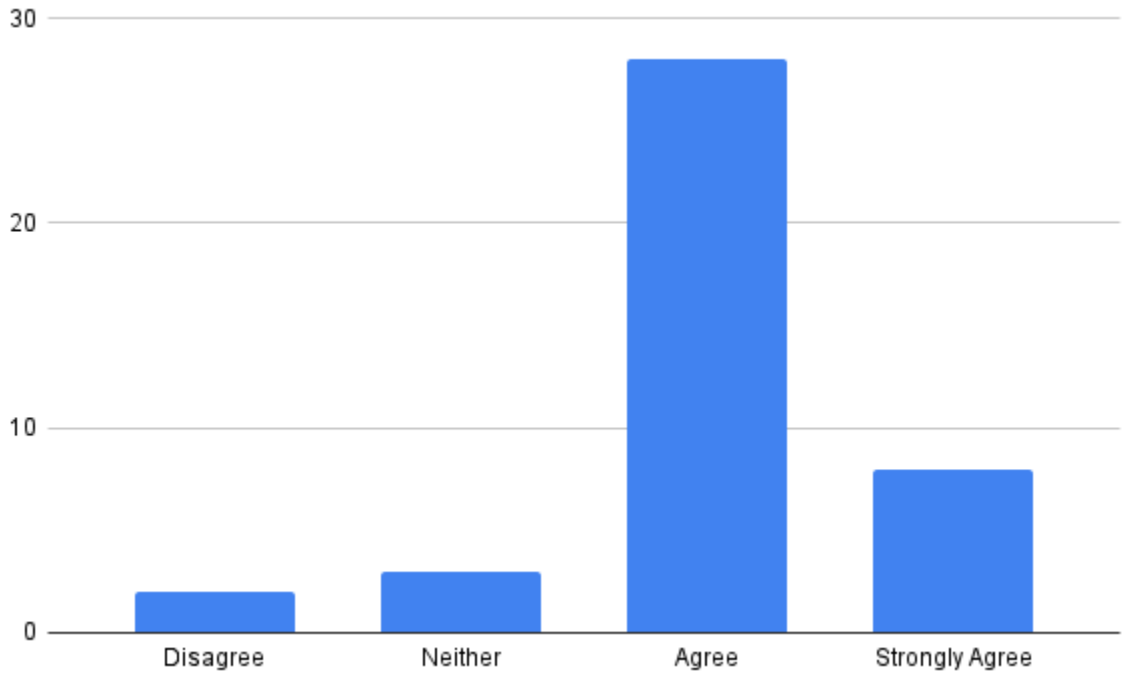


Figure 3.8. expresses that the majority of participants, (28) in total, expressed agreement with the accuracy of the AWCF in identifying their spelling mistakes. Additionally, (8) participants strongly agreed with this statement. This indicates a significant level of confidence in the accuracy of AWCF among a combined total of (36) participants. On the contrary, a smaller portion of participants, consisting of (2) individuals, disagreed with the accuracy of AWCF, while (3) participants neither agreed nor disagreed.

Additionally, table 3.11. Shows that the calculation of the mean on SPSS reads 4.024 which represents the value “Agree”, this suggests that the participants’ agree that the AWCF is accurate in identifying their spelling mistakes.

Table 3.11.

The Mean of Participants Answers on the AWCF Accuracy

N	Valid	41
	Missing	0
Mean		4.024
Std. Deviation		.6888

Note: Mean readings:

[1.00:1.80] = Strongly disagree

[1.81:2.60]= Disagree

[2.61:3.40]= Neither

[3.41:4.20]= Agree

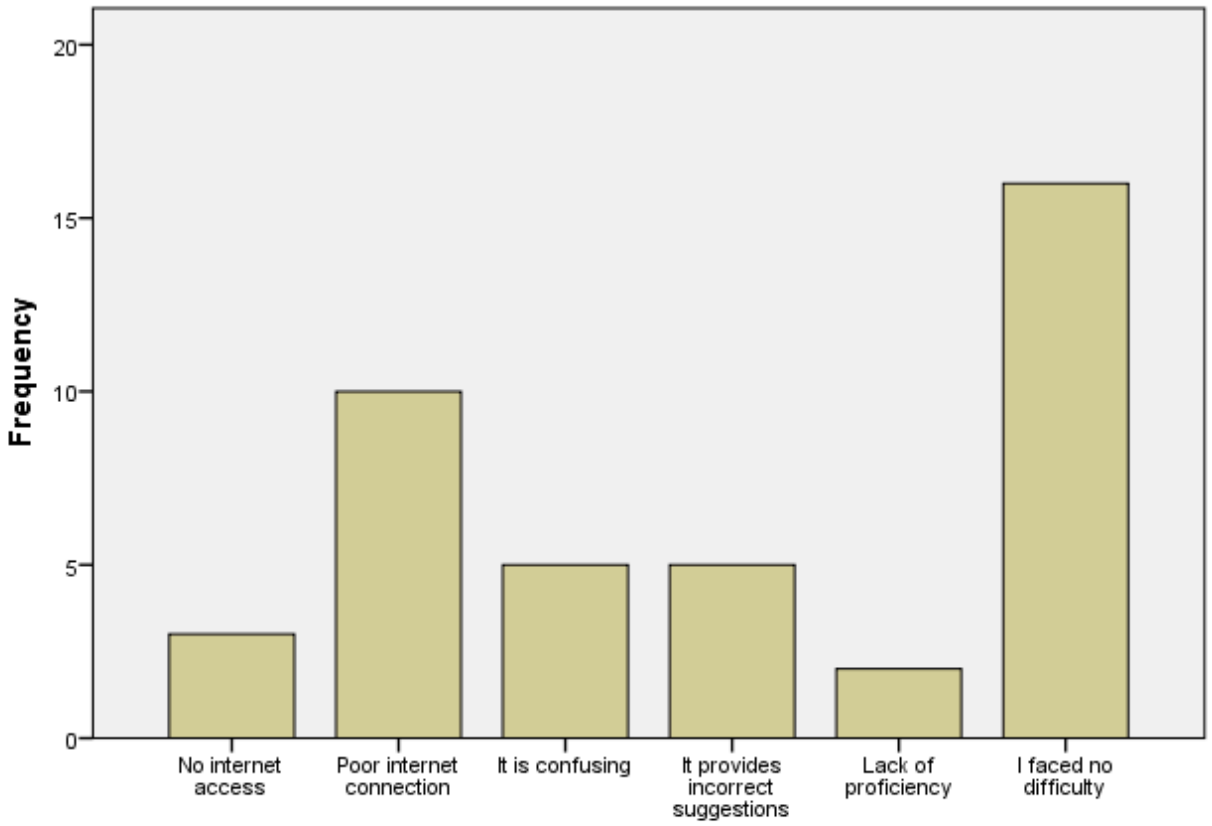
[4.21:5.00]= Strongly agree

Item 16: What kind of difficulty did you face in using AWCF to correct your spelling mistakes, if any?

The following chart will answer the question:

Figure 3.9.

Difficulty Levels in Utilizing AWCF for Spelling Correction



The bar chart represents the types of difficulties participants encountered while using AWCF to correct their spelling mistakes. The responses are categorized into six distinct categories: "No internet access," "Poor internet connection," "It is confusing," "It provides incorrect suggestions," "Lack of proficiency," and "I faced no difficulty."

The most prevalent difficulty reported by participants was "Poor internet connection," with 10 individuals experiencing this issue. Following closely behind, 5 participants each

reported facing difficulties due to AWCF being "Confusing" or providing "Incorrect suggestions." Additionally, 3 participants cited "No internet access" as a barrier to using AWCF, highlighting the importance of internet connectivity for accessing online resources like AWCF.

On a positive note, 16 participants reported facing no difficulties while using AWCF, indicating that a majority of users found the tool to be accessible and user-friendly.

Lastly, only 2 participants attributed their difficulties to a "Lack of proficiency," suggesting that the complexity of the language or the tool itself may have posed challenges for a small subset of users.

Item 17: How do you rate your spelling accuracy before using the Automated Written Corrective Feedback?

The following chart will answer the question:

Figure 3.10.

Participants' Self-rating in Spelling Accuracy Before Using the AWCF

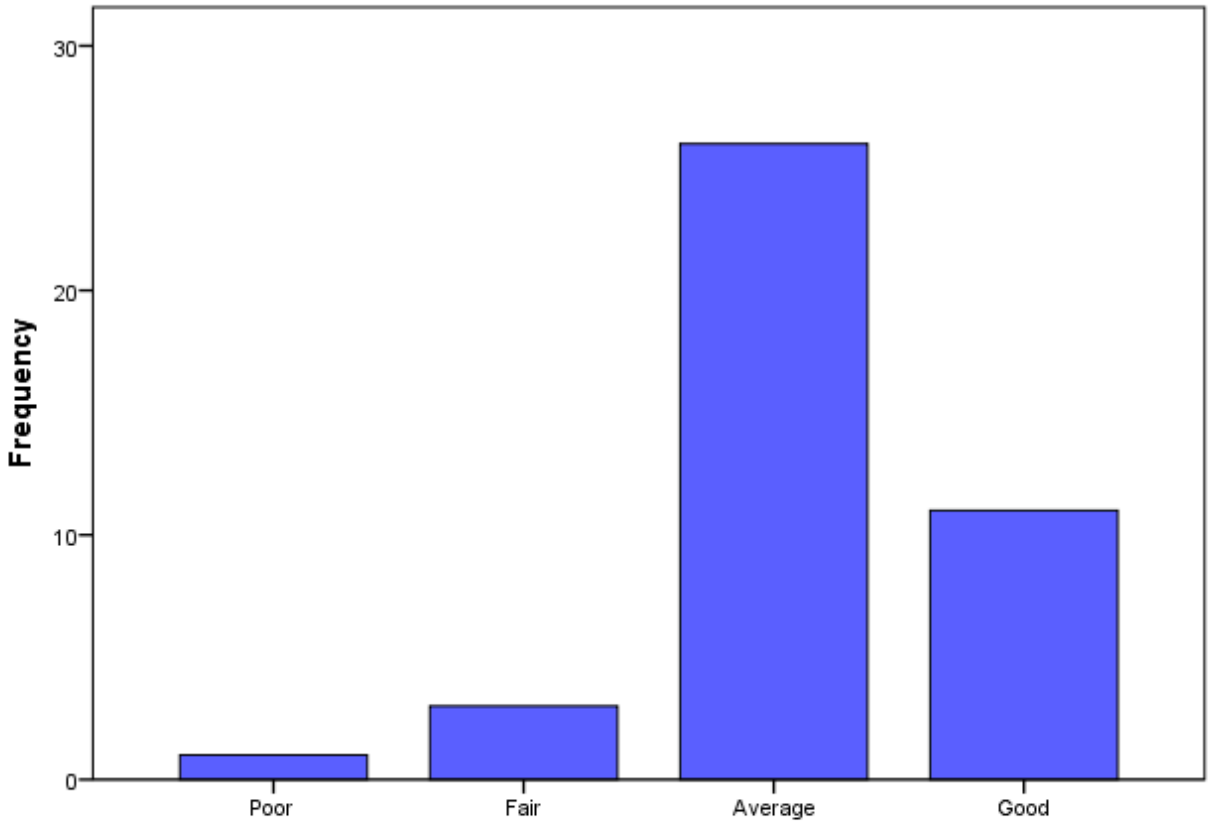


Figure 3.10. illustrates participants' ratings of their spelling accuracy before utilizing AWCF. Notably, the majority of respondents perceived their spelling as "average," with (26) participants selecting this option. "Fair" was the next most common response, chosen by (3) participants, indicating a moderate level of spelling abilities. Conversely, only one participant considered their spelling "poor". Notably, a significant number of participants rated their spelling

as "good," with (11) individuals expressing confidence in their abilities. No participants rated their spelling as "excellent".

Additionally, the table 3.12. Shows that the calculation of the mean on SPSS reads 3.146 which represents the value “Average”, this suggests that the participants’ attitudes towards their spelling accuracy before using the AWCF was average.

Table 3.12.

Calculation of the Pre-usage Mean

		Before
N	Valid	41
Mean		3.146
Std. Deviation		.6543

Note: Mean readings:

[1.00:1.80] = Poor

[1.81:2.60]= Fair

[2.61:3.40]= Average

[3.41:4.20]= Good

[4.21:5.00]= Excellent

Item 18: How do you rate your spelling accuracy after using the Automated Written Corrective Feedback?

The following chart will answer the question:

Figure 3.11.

Participants' Self-rating in Spelling Accuracy After Using the AWCF

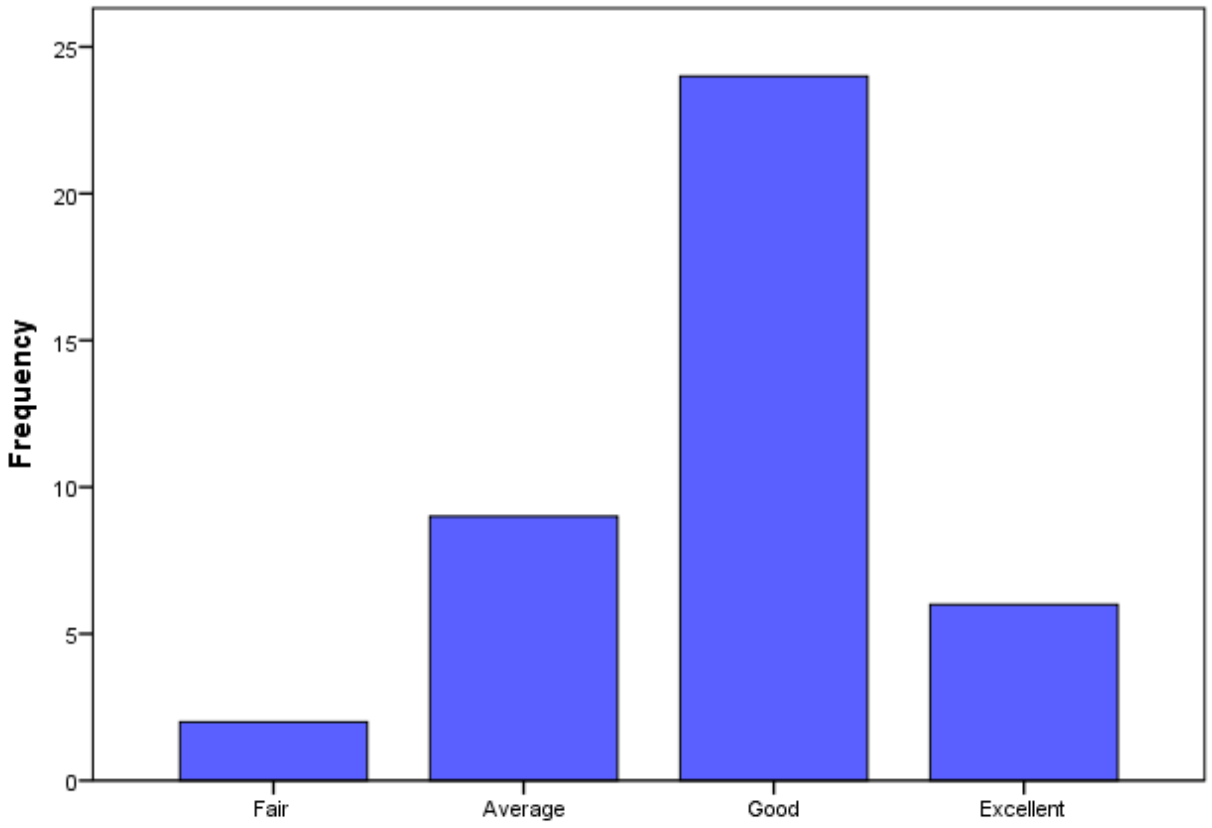


Figure 3.11. displays participants' ratings of their spelling accuracy after utilizing AWCF. Notably, the majority of respondents rated their spelling accuracy positively, with the largest group (24 participants) indicating a "good" level of accuracy. Following closely, 6 participants rated their accuracy as "excellent." Additionally, a substantial number of participants, 9 in total, perceived their spelling as "average." However, there were only 2 respondents who rated their accuracy as "fair," and none rated it as "poor." This distribution suggests a generally positive

perception of spelling accuracy post-AWCF implementation, highlighting the effectiveness of such automated feedback systems in enhancing written language skills.

Additionally, table 3.13. Shows that the calculation of the mean on SPSS reads 3.829 which represents the value "Good", this suggests that the participants' attitudes towards their spelling accuracy after using the AWCF was good.

Table 3.13.

Calculation of the Post-usage Mean

		After
N	Valid	41
	Missing	0
Mean		3.829
Std. Deviation		.7383

Note: Mean readings:

[1.00:1.80] = Poor

[1.81:2.60]= Fair

[2.61:3.40]= Average

[3.41:4.20]= Good

[4.21:5.00]= Excellent

3. 3 Discussion and Synthesis of Findings

After presenting detailed results' interpretations the students' questionnaire, this part will be devoted to comprehensively synthesizing and discussing the key findings of the study. The

analysis of the students' questionnaire findings provided significant and reasonable answers to the research questions.

Initially, the findings of the study suggest that the participants agreed that the AWCf is useful in enhancing their spelling accuracy. The demographic profile of the participants reveals a diverse range of backgrounds, among 41 participants, 14 students were master one students and 27 were master two students. Thirty-one participants reported that they have been studying English language for more than 11 years, while the other 10 participants reported that they have been studying English for 11 years. Also, 25 participants declared that they use smartphones and computers together, then smartphone alone users with 15 participants, then computer alone users with 01 user.

Additionally, the findings also suggest that the participants generally found the AWCF accurate in identifying spelling errors. The participants stated that their ICT literacy was intermediate, although the great minority of them said they were beginners. Despite the fact that many participants said that they faced no difficulty while using the program, few other participants suffered from poor internet connectivity and others said it is confusing and provides incorrect corrections.

Furthermore, to answer the last research question, the participants were asked to rate their spelling accuracy before and after the use of the AWCF. The findings showed that the participants said that their spelling accuracy before using the tool was average; however, after using the tool it was surprisingly good. The participants' perceptions of their spelling accuracy has significantly improved after using the AWCF. This finding suggests that the tool may have positively impacted their spelling skills or at least their confidence in their spelling abilities.

Conclusion

The third and last chapter represents the practical part of the present study. First, the research method, population, and sampling were discussed along with the rationale behind the selection of the data gathering instruments. Second, the chapter covered details about the procedures of collecting data through students' questionnaire; in addition to, describing, analyzing, and interpreting study results and findings. Summary and discussion of results revealed that EFL master learners perceive the AWCF tools as useful tools in upgrading their spelling accuracy.

General Conclusion

General Conclusion

The fundamental reason for conducting this study was to explore EFL master students' perceptions and challenges on the use of AWCF tools in enhancing their spelling accuracy. Mainly, to explore the usefulness of the AWCF, the accuracy thereof in identifying spelling mistakes, and check if it has any manipulation in students' spelling accuracy. This chapter will sum up the research through summarizing the key research findings in relation to the research aims and questions and discussing the value and contribution of it. It will also review the limitations of the study and propose opportunities for future research.

In this study, the theoretical part was divided into two chapters; namely, automated written corrective feedback tools and spelling accuracy. The first chapter discussed some theoretical concepts of the AWCF, such as definitions, historical background of the tools, types thereof, the effectiveness of the tools in spelling correction, and many other important related aspects. Additionally, the second chapter aimed to explore a comprehensible literature about spelling accuracy and many aspects related to the term, such as definitions, requirements for learning spelling accuracy, the importance of spelling accuracy, teaching spelling, and spelling problems. The first chapter reviewed the importance of the AWCF in education for both students and teachers in the EFL teaching/learning context. As for the practical part, which is the third chapter, it encompassed data description, analysis, and interpretation.

Importantly, in order to collect the necessary data for the research, a semi-structured questionnaire was adopted. The questionnaire was administered to (41) EFL master one and master two students from both specialties; Sciences of the Language and Literature and Civilization at

Biskra University. The data collected via the data collection instrument aimed to answer the research questions.

Through the results of the questionnaire, it was found that the students had positive perceptions towards the tools despite the fact that some of them had faced difficulties. After the collection and analysis of the data, the results obtained from the students' questionnaire suggested that EFL master students emphasized the helpfulness of the AWCF in improving their spelling accuracy despite the fact that the students sometimes suffered from poor connection. Moreover, the participants agreed that the program was accurate in identifying their spelling mistakes when using it in various types of assignments like writing dissertations, research papers, web research, and even chatting. Further, the findings demonstrated that the participants' spelling accuracy had improved after the use of the AWCF throughout the entire period of use. It is deduced that students were satisfied with the potential of the automated written corrective feedback and its effectiveness in improving their spelling accuracy.

To conclude, the research questions have been answered and the aims have been accomplished; however, it is important to acknowledge that accurate and in-depth further research concerning the relationship between the use of automated written corrective feedback and students' spelling accuracy is crucial, in order to reach better understanding and confirm the perceptions and beliefs accumulated.

Pedagogical Implications and Recommendations

Based on the studies and research above, the following implications and recommendations can be extracted to provide some considerations that should be taken into account in order to assist learners and teachers in enhancing learners' academic level and to use AWCF features to improve their writing.

1. Implications

- These systems can increase the efficiency of providing feedback on written works in EFL classrooms and academic contexts.
- Automated Written Corrective Feedback tools can improve the writing accuracy of EFL learners by providing immediate feedback on different error types; grammar, spelling, punctuation, and vocabulary.
- Automated Written Corrective Feedback tools can help reinforce correct language usage and address common errors more effectively.
- Automated Written Corrective Feedback tools can enhance student engagement in EFL classrooms by providing interactive feedback and opportunities for self-assessment.

2. Recommendations

- Using these tools to facilitate the feedback process, which would allow teachers to allocate more time to other aspects of teaching, such as instruction and curriculum development.
- Allowing learners to receive instant feedback and revise their writing independently by themselves.

- Encouraging self-regulated learning practices by incorporating AWCF into classroom activities and assignments.
- Leveraging AWCF to create dynamic learning experiences that motivate students to actively participate in writing tasks.
- Integrating AWCF into instruction to support students in navigating digital tools and resources effectively as AWCF systems help EFL learners develop digital literacy skills by familiarizing them with technology-enhanced learning environments.
- Using AWCF to monitor student progress and identifying areas for improvement, and adjusting instruction accordingly because AWCF systems facilitate formative assessment practices in EFL classrooms by providing ongoing feedback on student writing throughout the learning process.

Limitations of the Study

The research in hand attempted to investigate EFL master students' perceptions on the effectiveness and challenges of using the automated written corrective feedback tools in regard to their spelling accuracy. However, some obstacles faced the researcher while collecting data and prevented the researcher from gathering more adequate data. The following are some limitations to be taken into account:

The number of the students who answered the questionnaire was limited to forty-one participants although the researcher shared the questionnaire and waited for more than four days. Despite the fact that the questionnaire was administered online, the number of participants was still limited. The period of around five days may not seem sufficient to collect data from enough participants, but the researcher had a limited time to finish the work.

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Appendices

Students' Questionnaire

The Relationship Between English Foreign Language Learners' Use of Automated Written Corrective Feedback Tools and their Perceived Usefulness in Spelling Accuracy

Dear Student,
This questionnaire is to collect data for the accomplishment of a master dissertation on "The Relationship Between English as a Foreign Language Learners' Use of Automated Written Corrective Feedback Tools and their Perceived Usefulness in Spelling Accuracy" Therefore, you are kindly requested to fill in it by ticking (√) the appropriate answer(s). Be sure that your answers will be anonymous and will be used for research purposes only.

Thank you for your time, effort and collaboration.

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Section One: General Information

Q1: What is your current level at university?

☐ M1

☐ M2

Q2: How many years have you been studying English?

☐ 11 years

☐ More than 11 years

Q3: Which devices do you use?

☐ Computer ☐ Smartphone ☐ Tablets ☐ All above

Section Two: The Use of Automated Written Corrective Feedback Tools

Definition: Automated Written Corrective Feedback (AWCF) is a software feature in computers and smartphones that instantly indicates and corrects the grammatical and spelling errors in written products (while typing), usually integrated with keyboards' applications.

Q4: How is your ICT literacy:

☐ Beginner ☐ Intermediate ☐ Advanced

Q5: Are you familiar with the use of AWCF?

☐ Yes ☐ No

Q6: How frequently do you use Automated Written Corrective Feedback?

☐ Never ☐ Rarely ☐ Sometimes ☐ Often ☐ Always

Q7: To what extent do you find Automated Written Corrective Feedback easy to use?

Very difficult	Difficult	Moderate	Easy	Very easy
☐	☐	☐	☐	☐

Q8: What kind of assignments do you use AWCF for?

☐ Dissertations ☐ Take home activities ☐ Presentations

☐ Research papers ☐ Chatting ☐ web research ☐ All above

Q9: Which AWCF programs are you most familiar with? (you can tick more than one option).

☐ Smartphone's default keyboard

☐ Grammarly

☐ Ginger

☐ Other (Please specify): ……

Q10: To what extent do you agree that adopting AWCF in classrooms is a good idea?

☐ Strongly Disagree ☐ Disagree ☐ Neither ☐ Agree ☐ Strongly Agree

Q11: Which source of feedback do you think helps you best in learning spelling accuracy?

☐ Teachers corrective feedback ☐ Automated Written Corrective Feedback

Section Three: Spelling Accuracy

Definition: Spelling accuracy refers to the correctness of written words in terms of using the right letters in the right order. It is to avoid both typos and adhering to established spelling conventions, like silent letters and double consonants. Spelling accuracy measures how well written words match the standard and accepted form in the language.

Q12: How do you find spelling words in English?

Very difficult	Difficult	Moderate	Easy	Very easy
☐	☐	☐	☐	☐

Q13: Do you have any spelling difficulties?

☐ Yes ☐ No

Q14: To what extent do you agree that the use of AWCF is helpful in improving your spelling accuracy?

☐ Strongly Disagree ☐ Disagree ☐ Neither ☐ Agree ☐ Strongly Agree

Q15: To what extent do you agree that the use of AWCF is accurate in identifying your spelling mistakes?

☐ Strongly Disagree ☐ Disagree ☐ Neither ☐ Agree ☐ Strongly Agree

Q16: Did you encounter any difficulties in using AWCF to correct your spelling mistakes?

☐ Yes ☐ No

- If yes, what kind of difficulty did you face? (You can tick more than one option).

☐ No internet access

☐ Poor internet connection

☐ It is confusing

☐ It provides incorrect suggestions

☐ Lack of proficiency

☐ Other. Please specify: ……

Q17: How do you rate your spelling accuracy **before** using the Automated Written Corrective Feedback?

☐ Poor ☐ Fair ☐ Average ☐ Good ☐ Excellent

Q18: How do you rate your spelling accuracy **after** using the Automated Written Corrective Feedback?

☐ Poor ☐ Fair ☐ Average ☐ Good ☐ Excellent

Thank you for your collaboration

ملخص

يُعتبر التصحيح الآلي للأخطاء الكتابية إحدى الميزات البرمجية التي تُستخدم كأداة لتصحيح أخطاء الإملاء، واستفاد من هذا الطلاب الذين يعتمدون عليه في كتابة مختلف أنواع الواجبات. تهدف هذه الدراسة الحالية إلى استكشاف فعالية استخدام التصحيح الآلي للأخطاء الكتابية على دقة الإملاء لدى طلاب اللغة الإنجليزية كلغة أجنبية، كما تسعى إلى دراسة تصورات وتحديات هؤلاء الطلاب تجاه إستخدام هذه الخاصية. لتحقيق هذا الهدف، تم استخدام تصميم بحث استكشافي في محاولة للإجابة على أسئلة هذا البحث. في هذا السياق، استخدم الباحث استبيانًا للطلاب. تم توزيع الاستبيان من خلال نموذج جوجل على واحدا وأربعين طالبًا من طلاب اللغة الإنجليزية وآدابها في جامعة بسكرة. كشفت النتائج عن تصورات إيجابية رغم التحديات التي واجهها الطلاب مثل بطء الاتصال بالإنترنت ونقص التدريب على تكنولوجيا المعلومات والاتصالات. وعلاوة على ذلك، أظهرت النتائج التي تم الحصول عليها أن طلاب الماستر في اللغة الإنجليزية اتفقوا على أن أدوات التصحيح الآلي للأخطاء الكتابية كانت مفيدة ودقيقة في تحسين إملائهم وتحديد أخطائهم الإملائية. وبالتالي يُنصح للمؤسسات التعليمية بالنظر في دمج أدوات التصحيح الآلي للأخطاء الكتابية في المناهج الدراسية.

الكلمات المفتاحية: التصحيح الآلي للأخطاء الكتابية. الميزات البرمجية