
RESEARCH ARTICLE

What Does Automated Feedback Address, and Does It Work? An Investigation of Cambridge Write & Improve in EFL Writing Instruction

Mariam Elouirraoui, Azize El Ghouati², and Cristina M. Gámez-Fernández³

1 Faculty of Languages, Letters, and Arts, Laboratory of Language and Society, Ibn Tofail University, Kenitra, Morocco & Faculty of Education Sciences and Psychology, Languages and Cultures Doctoral Program, University of Córdoba, Córdoba, Spain.

<http://orcid.org/0009-0000-1270-9656>

2 Faculty of Languages Letters and Arts, Laboratory of Language and Society, Ibn Tofail University, Kenitra, Morocco.

<https://orcid.org/0000-0002-4132-1439>

3 Faculty of Education Sciences and Psychology, University of Córdoba, Córdoba, Spain. <http://orcid.org/0000-0002-9990-2260>

Corresponding Author: Mariam Elouirraoui, **E-mail:** mariam.elouirraoui@uit.ac.ma

ABSTRACT

This study investigates the scope and impact of automated feedback provided by Cambridge Write & Improve (W&I) on English as a Foreign Language (EFL) learners' writing skills. Given the fact that education in the last decades has faced rapid changing landscape due to the growth of technological innovations and the integration of Artificial Intelligence (AI), there is an urgent need to determine its impact on language learning outcomes. Previous studies focused on examining the overall impact of automated feedback on writing in general, but a few of them explored the functionalities that these tools provide during the revision process and how they successfully contribute to the overall writing process; hence this piece of research attempts to fill this gap. This mixed-methods study (N=28) revealed that the automated feedback provided by W&I is more concerned with accuracy including grammar, usage, and mechanics rather than higher-order concerns. Further analysis confirmed these results and indicated that learners demonstrated significant improvements across all three domains between first and final drafts, with particularly strong gains in mechanical accuracy. Such results serve as a trigger for decision-makers, including curriculum designers, to properly integrate automated feedback in education and combine it with instructor's feedback to respond to all students' needs in the writing process.

KEYWORDS

AWE (Automated Writing Evaluation), automated feedback, EFL learners, revision process, writing skills, error reduction

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1. Introduction

It is often known that education in the past was primarily unidirectional, meaning that knowledge was imparted from the instructor to the learners. The primary educational strategy that followed was classroom instruction, which now appears to be out of date. Today new technologies have evolved with the aim of assisting learners in all stages of the learning process. One of these prominent tools is automated writing evaluation (AWE) tool. AWE is a writing-based technology which provides learners with automated feedback on various subcomponents of their writing, such as task achievement, coherence and cohesion, vocabulary, and grammatical range and accuracy (Ebadi & Rahimi, 2018; Liao, 2016). One of the important topics that has gained significant attention in the field of English teaching is writing as the primary language proficiency both inside and outside of the classroom. Within this domain, Graham, 2018 proposed the Writer's-Within-Community (WWC) model which states that writing proficiency in argumentative writing stems from high-quality instruction in encouraging environments that (a) make use of students' cognitive, metacognitive, affective, and social resources (e.g., peers) and (b) integrate educational tools and technologies. Therefore, A key

component of language learning when it comes to writing is the role of revision and feedback. Yet, In the Moroccan context, despite the crucial role feedback plays in the writing process, students may not always benefit from. This is attributed mainly to large classes, time constraints, and lack of training and writing assessment literacy in general. This lack of feedback often decreases learners' desire to make significant revisions, make students unsure about their writing level, increases anxiety, and limit development of critical thinking. Thus, AWE tools intended to assist in overcoming these challenges and so reduce the workload of teachers by providing students with numerous opportunities to receive ongoing, immediate feedback even outside of the classroom (Woodworth & Barkaoui, 2020). In the sphere of EFL in Morocco, some attempts have been made to examine the effects of AI-assisted feedback such as ChatGPT, and Grammarly in writing performance and proficiency (bouknify, 2025; Farhane „2025).others explored learners perceptions on the benefits of ChatGPT and Grammarly in boosting writing skills including complexity and accuracy (Azennoud ,2024; Al-Zubaidi et al.,2024) .While examining students perceptions on these tools and exploring its benefits on the final writing product is crucial. Understanding how students actively engage in the writing process while using these tools ensures a more comprehensive view of the overall learning experience. At this point in time, the specific elements of writing that automated feedback addresses and the actual reduction in certain error kinds over multiple revisions have received significantly less attention. Unfortunately to date, scant attention has been given to the study of AWE system, such as "Write and Improve" which is mainly dedicated to writing skill. Therefore, the current study, adopts a user-centric evaluation of an AWE system in a Moroccan university EFL context. Its aim is twofold: (1) to identify which aspects of writing are addressed by the system's feedback, (2) to examine the extent to which this automated feedback reduces Moroccan EFL students' errors in grammar, usage, and mechanics across successive drafts.

2. Literature Review

2.1 The Nature of Revision in Second Language Writing

Studies on Revision were first found in L1 composition and then reached L2 writing (Barkaoui, 2007; Faigley & Witte, 1981). Flower and Hayes (1981) classified the writing process in three stages: planning, translating ideas to text, and reviewing one's work. First, writers plan their content and devise an organizational scheme. Then, ideas are translated into written text. Finally, for the sake of enhancing the quality of the text, cautious evaluation and rectifications are carried out. According to Reid, 1993, p. 233) revision means "seeing again", Therefore, to revise is to resee or edit the text. It is typically thought of as a problem-oriented, recursive, nonlinear process that can happen at any stage of writing. Defined the concept of any modification made during the writing process, which entails identifying the differences between the original and expected writing, selecting suitable and workable adjustments, and acting to bring about the intended outcome of the revision. From these definitions, it appears that the revision process is a crucial step in the whole writing process. It mainly provides feedback on content, grammar, Vocabulary and organization.

The first study investigating the processes of L2 writing, including the process of revision, has been influenced by conceptual models that have been suggested to understand revision in L1 writing. Many scholars agreed that with the rise of process approach, the concept of formative feedback has gained acceptance from many EFL/ESL teachers. (Ferris & Hedgecock, 2013; Hyland & Hyland, 2006). Moreover, Different L1 writing models have served as inspiration for EFL/ESL studies. Faigley and Witte (1981) formed the most common model by examining revision changes from two angles: surface modifications and text-based changes. Formal modifications (spelling, tense, punctuation, etc.) and meaning-preserving changes (additions, deletions, substitutions, etc.) are other subcategories of surface alterations. Microstructure and macrostructure modifications that include additions, deletions, substitutions, permutations, distributions, and consolidations are examples of text-based modifications.

However, although the models proposed in L1 have proven their usefulness, few L2 writing research have used the revision categories to investigate how students make changes in their texts since most studies concentrate on error correction rather than more general text revisions like permutations, distributions, and consolidations (e.g., Ferris, 2002; Han & Hyland, 2015).

2.2 Automated Writing Evaluation (AWE) and Its Influence on Students' Revision Behavior

Automated writing evaluation (AWE) supports students in the writing process through practicing writing, revisiting their texts, and submitting multiple drafts based on the provided automated feedback (Aldosemani et al., 2023). This type of feedback is delivered on word-processed essays using statistical methods, natural language processing, or latent semantic analysis (Heift & Hegelheimer, 2017). Generally speaking, AWE aims to encourage and favor process approach to writing, an evidence-based approach that prioritizes an iterative procedure of planning, drafting, reviewing and revising, guided by self-reflection and feedback (Graham et al., 2024). In addition, it was proven that AWE Influences writing quality. Graham et al., 2014 highlights the role that automated feedback plays in providing continuous practice-feedback cycle, which middle school teachers have been struggling to implement daily when depending only on their feedback. In line with this argument, Liao (2016) and Stevenson and Phakiti (2014), found that learners had the chance to revise their drafts on a recursive basis when provided with automated immediate feedback. Consistent with this, other studies confirmed the previous findings, emphasizing the role automated feedback plays in promoting grammatical accuracy, organization, and revision quality when integrated into structured instructional cycle (Nunes et al., 2022; Wei et al., 2023).

Chodorow, Gamon, and Tetreault (2010) identified two dimensions that can be used for the evaluation of a system for detecting and correcting errors: system-centric evaluation, and user-centric evaluation. While user-centric analysis concentrates on how users behave (i.e., their engagement with and response to the feedback, or subsequent textual operations conducted to address the errors) or how the system affects the users, system-centric evaluation places emphasis on issues related to how the system operates, such as the number of errors identified correctly by the system. In line with this distinction and given the focus of the present study on learners' error reduction across drafts during the revision process and their interaction with AWE feedback, a user-centric evaluation approach is adopted. Guided by the theoretical insights and emerging research on EFL writing and automated feedback, the present study explores the type of feedback provided by AWE tools and its efficiency in reducing errors on students' writing. It seeks to address the following research questions:

1. Which linguistic aspects of writing are addressed by Cambridge Write & Improve feedback?
2. To what extent does revision based on Cambridge Write & Improve feedback reduce grammar, usage, and mechanics errors in students' drafts?

3. Methodology

3.1 Research design

This study employed a mixed-methods design to investigate the nature and effectiveness of automated writing feedback provided by W&I. First, the study used qualitative content analysis to determine the linguistic aspects addressed by the AWE tool W&I. Then, A quantitative one-group draft-revision design was used to investigate the impact of automated writing evaluation (AWE) feedback on reducing errors on students' writing final drafts.

3.2 Participants

The participants were 28 Moroccan EFL undergraduate students majoring in English studies in the Higher School of Education and Training (ESEF) in Kenitra, Morocco. Among the participants were 16 female and 12 male who were selected through convenience sampling.

3.4 Automated Writing Evaluation Tool

3.4.1 Cambridge Write & Improve

This study will employ Write & Improve developed by Cambridge English, which is part of the University of Cambridge (writeandimprove.com, 2019). It is an AWE tool that aims at improving students' writing skills by providing immediate automated feedback. Besides providing instant feedback, it gives a score based on the Common European Framework of Reference (CEFR) scale from A1 (lowest) to C2 (highest). This AWE tool avoids subjective human assessment by delivering instant, automated, timely, effective, non-judgmental, and contextualized feedback (Karpova, 2020).

With the use of machine-learning technology Write & Improve determines errors at both word—and sentence—level by providing indirect, semi—corrective feedback on spelling, grammar, vocabulary choice, and style (such as register and punctuation). Through the recursive cycle of revising and editing the tool provides, process approach to writing is supported. For the sake of the study, the class view option was used which allows the researcher to assign, grade, and supervise writing assignments. In this study, the researcher assigned the tasks and the student's use the Write & Improve feedback cycle by making modifications as they wish and then click "Check" once more to resubmit their work. Here students are allowed to carry out this process as often as they choose. before submitting their final work. One of the features that distinguishes the class view is the teacher's ability to check the work that has already been marked by Write & Improve and students' drafts. It also allow teachers to add their own comments and a final grade. Yet because of the study's interest on the tool's feedback, this feature was not used.

Figure 1. The class view Interface of W&I

Class view feature

Class view provides teachers with multiple features which facilitate tracking students' revision process and writing progress as well. First, teachers can see the number of submissions of each student (see figure 1) which allow them identify learners who actively engage in multiple revisions versus those who revise very little. Second, teachers can see every version of students' writings and the changes made after each submission. This allows for the analysis of the revision process rather than focusing only on the final product. Finally, +Class View progress graphs allow teachers to track students' writing performance over time using CEFR levels and monitoring long-term development as well as identifying learners who may need additional support (see figure 2).

Figure 2. Monitoring Students' Writing Submissions through Cambridge Write & Improve +Class View

Task: Is part-time work beneficial or harmful to students' academic success?			
Student	Check	Date	Level
	13	29-04-2026 12:48	C1
	12	29-04-2026 12:45	C1
	11	29-04-2026 12:43	C1
	10	29-04-2026 12:29	B1
	9	29-04-2026 12:28	B2
	8	29-04-2026 12:24	B2
	7	29-04-2026 12:22	B2
	6	29-04-2026 12:21	B2

Figure 3. Tracking Students' Revisions through Cambridge Write & Improve +Class View.

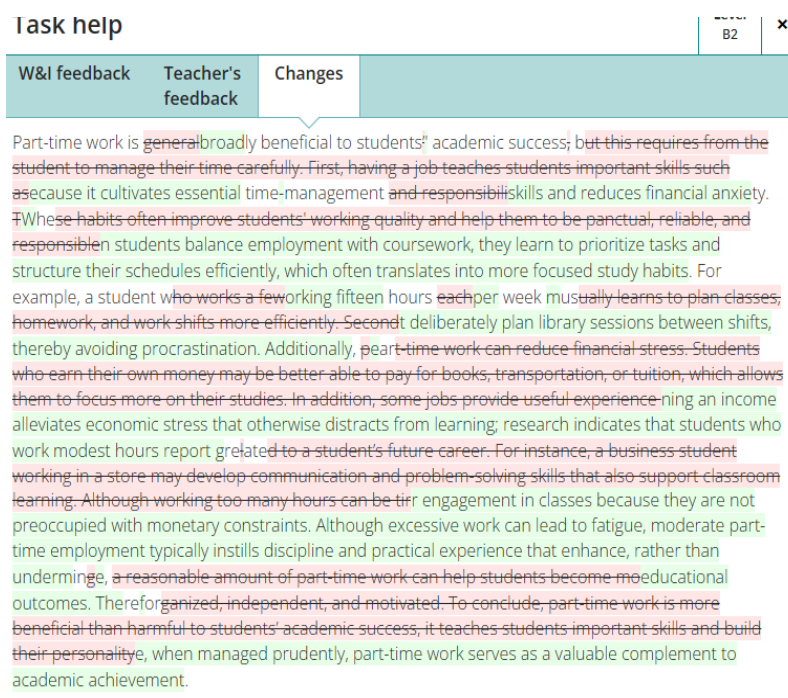
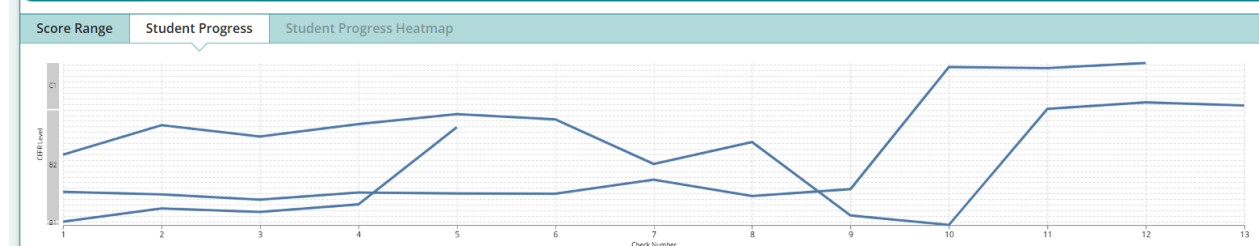


Figure 4. Monitoring Students' Writing Progress through Cambridge Write & Improve +Class View.



3.5 Data Collection Procedure

In the beginning, students completed a writing task that was assigned by the researcher in the platform. After submitting their first drafts, students received automated feedback which allowed them to revise their drafts and submit again. This cycle of re-checking and submitting was limited until students felt satisfied with their writing and submitted their final drafts. After that, the First and final drafts, together with the automated feedback generated by the system, were collected for analysis.

3.6 Data Analysis

First of all, to answer the first research question, the researcher opted for a qualitative content analysis that was conducted on the feedback generated by the tool. This feedback was then coded based on the categories provided by the platform, including spelling, grammar, wrong words, word building, missing word, extra word, and suspicious word. And later grouped into broader linguistic aspects of writing: grammar, usage, and mechanics, to determine the error types targeted by the tool. In addition, to deal with the second research question, the original and final draft of each participant were compared to identify changes in grammar, usage, and mechanics errors. A coding framework was constructed inductively based on the feedback categories generated by Cambridge Write & Improve and was classified into three broader categories as mentioned earlier: grammar, usage, and mechanics. Finally, Descriptive statistics were carried out, and paired-samples *t*-tests were performed to examine whether the reductions in errors were statistically significant.

4. Results

4.1 Aspects of writing addressed by feedback from Cambridge Write & Improve

To answer the first question, research question, the feedback provided by the tool was analyzed using a coding framework developed from the system's feedback categories. The analysis revealed that seven feedback labels were grouped into three broader writing aspects: grammar, usage, and mechanics.

Table 1. Writing aspects addressed by Cambridge Write & Improve

Writing Aspect	Addressed by Write & Improve	Examples of Feedback
Grammar	✓	Subject-verb agreement (<i>was</i> → <i>were</i>)
Spelling	✓	<i>rotine</i> → <i>routine</i> ; <i>belive</i> → <i>believe</i>
Vocabulary / Word Choice	✓	<i>of</i> → <i>for</i> ; <i>body</i> → <i>everybody</i> ; <i>they</i> → <i>them</i>
Word Formation	✓	<i>activly</i> → <i>actively</i> ; <i>usefull</i> → <i>useful</i>
Missing Words	✓	Suggests adding missing articles (e.g., <i>the</i>)
Redundant Words	✓	Identifies unnecessary words that should be removed
Contextual Word Use	✓	Flags "Suspicious word" when a word appears inappropriate in context
Organization	X	No feedback observed
Coherence	X	No feedback observed
Cohesion	X	No feedback observed
Content Development	X	No feedback observed
Argumentation	X	No feedback observed

As shown in table 1 the tool provides feedback on three broad aspects of writing: grammar, usage, and mechanics. This feedback includes linguistics errors such as grammatical agreement, omitted or redundant words, lexical choice, word formation, and spelling. However, when it comes to higher order writing features including coherence cohesion content development etc., no feedback is provided in this sense.

Table 2. Coding framework for the analysis of Cambridge Write & Improve feedback

Write & Improve Feedback	Writing Aspect
Agreement	Grammar
Missing Word	Grammar
Extra Word	Grammar
Wrong Word	Usage
Word Building	Usage
Suspicious Word	Usage
Spelling	Mechanics

From table 2, it is shown that each aspect of writing was translated into different feedback. First, Grammar-related feedback included agreement, missing-word, and extra-word errors. Second, usage-related feedback focused on inappropriate lexical choice, incorrect word formation, and contextually inappropriate vocabulary. Finally, Mechanics-related feedback primarily consisted of spelling corrections.

Figure 5. Examples of mechanics (spelling) and usage feedback generated by Cambridge Write & Improve.

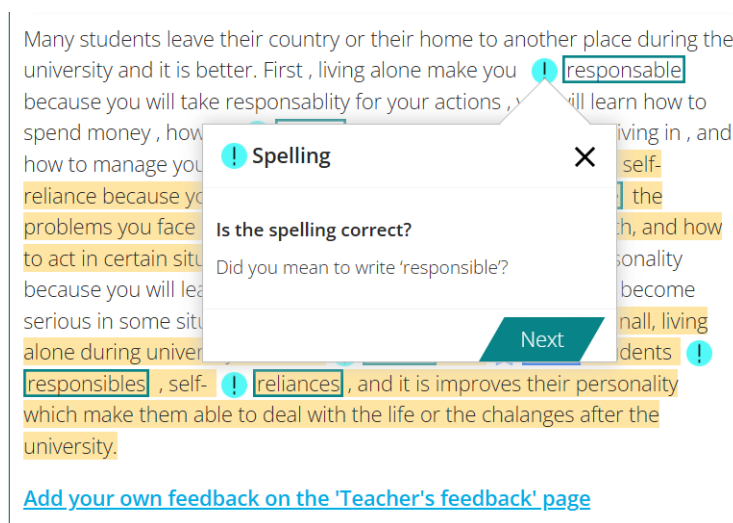
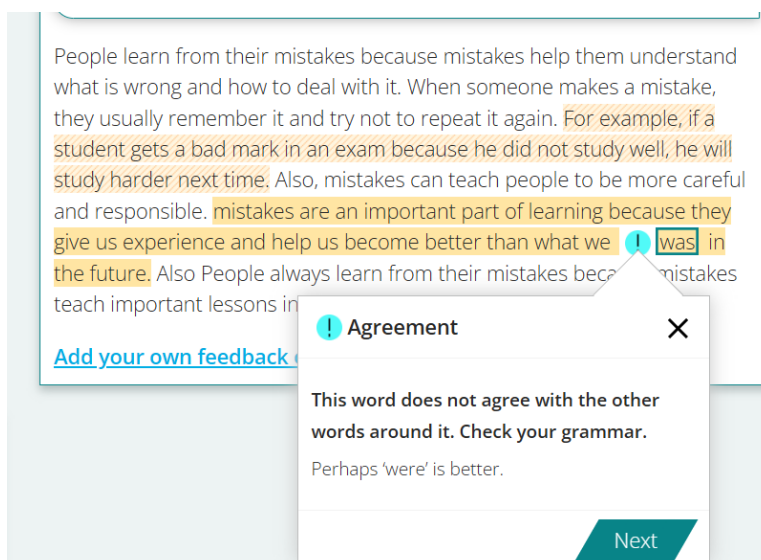


Figure 6. Examples of grammar and usage feedback generated by Cambridge Write & Improve.



4.2 The effectiveness of revision based on Cambridge Write & Improve feedback on the reduction of grammar, usage, and mechanics errors in students' drafts

To examine the extent to which feedback provided by Write & Improve contributed to error reduction, students' first drafts and final drafts were compared. After scoring each student, first and revised drafts, Descriptive statistics were first calculated to determine changes in the frequency of grammar, usage, and mechanics errors. (see table 3)

Table 3. Descriptive Statistics of errors before and after revision

	N	Minimum	Maximum	Sum	Mean	Std. Deviation
Grammar before	28	1.00	7.00	117.00	4.1786	1.44154
Grammar after	28	.00	5.00	93.00	3.3214	1.63421
Usage before	28	.00	4.00	45.00	1.6071	1.19689
Usage after	28	.00	3.00	30.00	1.0714	1.08623
Mechanics before	28	.00	12.00	110.00	3.9286	2.47848
Mechanics after	28	.00	6.00	67.00	2.3929	1.72861
Valid N (listwise)	28					

Descriptive statistics in table 3 indicated a reduction in all three linguistic categories after students' exposure to the automated feedback. As shown in the table, the mean of grammar errors decreased from 4.18 errors in the first draft to 3.32 errors in the revised draft), likewise, usage errors decreased from 1.61 to 1.07 errors. While mechanics errors showed the greatest improvement, decreasing from 3.93 errors to 2.39 errors, indicating a large decrease in errors.

Prior to further analysis, the normality of the difference scores was assessed using the Shapiro–Wilk test, given the sample size ($N = 28$). Results showed that all three variables (grammar, usage, and mechanics difference scores) significantly deviated from normality, $p < .001$. As a result, the Wilcoxon signed-rank test was used instead of the paired-samples t-test.

Table 4. Wilcoxon Signed-Rank Test Results for Pre-Post Differences

Variable	Z	p	r
Grammar	-2.864	.004	.54
Usage	-2.724	.006	.51
Mechanics	-3.814	< .001	.72

Note. r = effect size ($Z/\sqrt{N}$). Effect size benchmarks: .10 = small, .30 = medium, .50 = large (Cohen, 1988).

Table 4 shows that the feedback given by the online platform significantly reduced error counts of all the three variables, $p < .05$. Based on the table, mechanics has shown the strongest decrease in errors after the intervention, $Z = -3.814$, $p < .001$ followed by Grammar, $Z = -2.864$, $p = .004$ and then language use, $Z = -2.724$, $p = .006$. To further quantify the strength of these effects, effect sizes (r) were calculated. Following Cohen's (1988) guidelines (small = .10, medium = .30, large = .50), the three variables revealed large effects: grammar ($r = .54$), usage ($r = .51$), and mechanics ($r = .72$).

5. Discussion

This study looks at the writing aspects of writing addressed by the feedback provided by W&I as well as its effectiveness in reducing students' errors in the writing process through formative assessment. The results showcased significant insights (RQ1). In this regard, AWEF facilitates error identification, specifically writing accuracy by addressing grammar (agreement, missing/extra words), usage (word choice, word formation, contextual word use), and mechanics (spelling). However, when it comes to higher order writing skills manifested in organization, coherence, cohesion, content development, etc. The tools don't provide any feedback on this regard. This suggests that AWEF focuses more on surface level linguistics accuracy and ignores higher order skills. These results are consistent with several studies that indicates that AWE tools and AI-driven tools excel in providing feedback on grammatical errors but fails in promoting improvement in higher-order concerns such as coherence, organization, and content development (Elouirraoui et al., 2026; Ghufon & Rosyida, 2018; Koh, 2017; Mekheimer, 2025).

Taken together, the findings from RQ1 and RQ2 draw a clear picture of Write & Improver's feedback nature and impact. RQ1 insists that the tool's feedback primarily focuses on grammatical errors and stylistic inconsistencies, specifically grammar, usage, and mechanics. Findings from RQ2 are consistent with this scope, through exposure to repeated and immediate corrections provided by the tools, students' writing gradually enhanced and developed accuracy. The areas of improvement were mainly reducing grammatical and spelling mistakes, producing well-structured constructions, enhancing readability, and clarity. This pattern is consistent with Aldosemani et al. (2023), who found that learners' writing improvement predominantly revolved around grammatical and orthographic inaccuracies, while none of the discourse-level or rhetorical dimensions of writing were mentioned. Based on the findings of RQ1 and RQ2 we can assert and validate the tool's usefulness in providing feedback on sentence-level accuracy. Recognizing this boundary is crucial in two directions: first, it allows users to effectively and accurately represent Write & Improver's pedagogical value. Second, it guides on how to integrate AWE tools effectively by filling out the gap through mixing teachers' formative feedback on higher-order writing skills with the tools surface level feedback.

6. Conclusion

This study provides compelling evidence for the pedagogical potential of Write and improve generated formative feedback in enhancing Moroccan EFL students' paragraph writing accuracy. The current study revealed that the AWCF was more useful in correcting errors related to grammar, usage, and mechanics. Furthermore, findings from the qualitative content analysis showed that the tool does not assess higher order writing skills. Moreover, the integration of quantitative analysis tested whether that addressed content led to measurable improvement. After comparing learners' first and final drafts, the analysis showed that students' final drafts showed a statistically significant error reduction across all the pre-defined three domains namely grammar, usage, and mechanics, and therefore offering instructors extra time for higher-order concerns. The lack of significant improvement of content and idea development that the results demonstrated highlights the importance of integrating the instructor's feedback to cater for higher-order writing skills such as organization, coherence, and argumentation, that are classified outside the scope of the tool's current feedback capabilities. In addition, besides teachers' formative assessment, instructors can benefit more from

the AWCF provided through integrating the online platform in process-based writing courses during the revision and editing phases.

Several limitations can be acknowledged when interpreting the results of this study. Firstly, the findings may not be generalizable due to the relatively small sample size (28), which may not adequately represent all Moroccan university EFL learners. Furthermore, given the study's one-group draft-revision design and the absence of a control group limits the ability to draw definitive conclusions about the pedagogical usefulness of AWE tools. Conducting a study using an experimental research paradigm involving control groups, larger samples, and delayed post-tests would help in validating the present findings and clarify whether the gains observed in this study can be translated into durable improvements in learners' writing skills.

Nonetheless, the present study carries several pedagogical implications. Given the digital area where we are living nowadays, the integration of such automated feedback tools has become mandatory as it aligns with the new innovative approaches and pedagogical practices. Its ability to promptly identify students' writing errors, offer immediate, individualized feedback with the advantage of reducing teacher workload makes it a powerful tool to be integrated the writing process. However, when it comes to the limitations of these tools (e.g., the absence of feedback on some higher order writing issues) and while waiting for improved functions in these tools, instructors and decision makers can think of ways to cater for the disadvantages. For instance, the teacher feedback on higher order skills can be used alongside the automated feedback to fill out the gap left by the tool and mitigate the teacher workload for and surface level errors.

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ORCID iD : <http://orcid.org/0009-0000-1270-9656>

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