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The Effect of Feedback Types on Learner Engagement and L2 Writing Development*

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With technological advancements, Automated Writing Evaluation (AWE) has garnered increasing interest in L2 writing research, significantly enhancing our understanding of AWE tools' practices and efficacy in L2 writing instruction. However, the relationships between feedback types (teacher vs. AWE) and different dimensions of engagement (cognitive and affective) remain largely underexplored. This study investigates the impact of feedback types on learners' cognitive and affective engagement, as well as their L2 writing development. Seventy-two EFL learners participated as part of their regular English curriculum. Over twelve weeks, students received feedback on their essays from either a teacher or AWE programs. Progress in writing abilities was tracked through measurement tests, and engagement questionnaires were administered. Results indicated that both feedback types improved L2 writing abilities. However, teacher feedback proved more effective in promoting students' cognitive and affective engagement compared to AWE feedback.

Keywords: second language writing; student engagement; automated writing evaluation; teacher feedback

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1. INTRODUCTION

In English as a Foreign Language (EFL) classrooms, the significance of writing often takes a backseat. Typically, teachers instruct various language skills such as listening, speaking, reading, and grammar before assigning students the task of composing sentences. This approach necessitates learners to grasp vocabulary, grammar, organizational structure, content, and mechanics to articulate their thoughts in writing. However, writing in a second language (L2) remains a formidable challenge not only for students at all educational levels but also for teachers. Studies have shown that while teachers acknowledged the importance of L2 writing instructions, they often found it difficult to provide helpful feedback instantly to students, mostly due to time availability, class size, and proficiency discrepancy among students within the same classroom (Hidayati, 2018; Kim, 2014; Lee, 2011). Nevertheless, L2 writing instruction has received increasing focus from policymakers and learners. Korea is not the exception to this trend.

In Korea, the revised national English curriculum for 2022 signals a notable departure from the 2015 curriculum, placing a heightened emphasis on writing as an important component. This shift reflects an astute recognition of the evolving dynamics of language acquisition. A significant modification in the revised curriculum is the individualized L2 writing experiences and incorporation of feedback to L2 writing. This change is expected to empower students to revise their writing by incorporating instant and individualized feedback, which may, in turn, foster a continuous improvement mindset. Teachers are responsible for considering various types of feedback tailored to their classes that can help fulfill their students' personal needs regarding L2 writing instructions.

With the advancements in technology, new digital tools have been integrated into secondary school classrooms to facilitate L2 learning processes, including writing. Of various tools available to L2 teachers, AWE tools have received increasing attention from teachers and researchers (Li, Dursun, & Hegelheimer, 2019) as they have been found helpful in providing individualized learning experiences to students and in making writing instructions more efficient on the teacher's end.

Learner engagement has emerged as a critical factor in the feedback loop of L2 writing, significantly influencing the development of L2 writing skills. To enhance students' engagement with written corrective feedback (WCF), teachers are encouraged to meticulously consider their feedback strategies, taking into account their students' unique histories and beliefs (Han & Hyland, 2015). Cheng and Liu (2022) suggested the importance of understanding students' language skills and feedback preferences, highlighting it as a crucial pedagogical practice.

In accordance with the current trend and policy change in English education in Korea, the purpose of the study was to explore the extent to which feedback type (i.e., teacher feedback

and AWE feedback) affects L2 writing development and the level of cognitive and affective engagement of L2 learners. Of particular importance is the use of AWE tools in intact English classes as part of a regular school curriculum over a period of one semester. In addition, this study aimed to shed light on how students engage in corrective feedback (CF) in terms of cognitive and affective aspects and how their engagement levels change according to the type of feedback.

2. REVIEW OF THE LITERATURE

2.1. Written Corrective Feedback in L2 Writing

2.1.1. Teacher feedback

In the field of L2 writing, an increasing focus has been placed on exploring the effectiveness of WCF in advancing L2 writing skills. Bitchener and Storch (2016) described WCF as a written response to linguistic errors made by L2 learners, with the intention of correcting the error or providing insights into its underlying causes. WCF has been found to promote L2 writing abilities by helping learners identify gaps, test their own interlanguage knowledge, and foster metalinguistic reflection of L2 learners (Van Beuningen, 2010).

In the traditional L2 classroom, teachers have often been acknowledged as the sole source of WCF. Accordingly, extensive scholarly attention has been directed toward unraveling how teacher feedback operates within the L2 writing classroom. For example, Ferris and Roberts (2001) conducted a study on university-level English as a Second Language (ESL) student writers, examining the effects of teacher feedback on learners' error correction behaviors. Results indicated that the feedback groups exhibited a significant improvement in revising errors and writing quality compared to the control group (i.e., no-feedback group), emphasizing the positive impact of feedback and error correction on the quality of L2 writing.

Ferris (2006) examined the effectiveness of addressing language errors in student writing. This comprehensive investigation encompassed a detailed analysis of over 200 initial and revised drafts produced by 92 undergraduates learning English as an L2, along with supplementary questionnaires and interview data. Ferris examined various strategies that teachers employed to provide CF and assessed their impact on both immediate and long-term accuracy rates in L2 learners' essays.

In a complementary vein, Srichanyachon's (2012) research delves into the significance of teacher-written feedback on the development of L2 students' writing skills, with a particular focus on its influence on language accuracy and motivation. The study not only explores students' feedback preferences, methods of feedback delivery, and instructional practices

but also underscores the nuanced nature of effective feedback—whether delivered directly or indirectly. The investigation emphasized the importance of tailoring feedback to address students' specific needs for error correction while navigating the pragmatic constraints of the classroom environment. The provision of clear explanations and praise is highlighted, as positive feedback emerges as a potent motivator for students to enhance their writing skills. Consequently, teacher-written feedback stood out as a powerful tool for instigating motivation in students' writing endeavors. Within the Korean EFL context, Park (2018) investigated the effectiveness of teacher and peer feedback in a university writing class. Findings indicated that while both feedback types were helpful to students, teacher feedback was more balanced in terms of categories (i.e., identification, suggestion) and areas (i.e., thesis, organization) of feedback. Furthermore, students preferred receiving feedback from a teacher, thereby incorporating more of teacher feedback.

While the advantages of teacher feedback are evident, including its positive impact on language accuracy, cognitive factors, and motivation in L2 writing, the literature also recognizes the practical challenges posed by teachers' workload constraints. This intricate balance between the benefits of teacher feedback and the pragmatic constraints faced by educators underscores the complexity of fostering effective writing development within the classroom.

2.1.2. AWE with written corrective feedback

Despite the acknowledged efficacy of teacher feedback across various dimensions, as reviewed in the preceding section, the challenges are clear due to teachers' heavy workloads and time constraints in providing WCF. Accordingly, WCF, initially delivered on paper, has evolved to include electronic modes, whether synchronous or asynchronous. Furthermore, teacher feedback, a traditional avenue for WCF in L2 writing, is juxtaposed with the emerging AWE, which represents a promising frontier in this domain. AWE has garnered attention as a viable alternative to traditional teacher feedback. For example, Wang, Shang and Briody (2013) explored the effectiveness of AWE in EFL writing classes. Employing the "Correct English" AWE program in a university setting, they observed significant improvement in the writing accuracy of the students who received AWE feedback. Results showed that the AWE program was useful in providing CF, particularly on language forms, and in facilitating error correction. However, the participants expressed a sense of disconnect as they felt like they were communicating with the machine. This finding highlighted the need to consider students' engagement in AWE feedback despite its effectiveness in facilitating L2 writing ability. More recently, Hassanzadeh and Fotoohnejad (2021) demonstrated the positive impact of AWE feedback on L2 writing quality in an EFL context. Xu and Zhang (2021) further highlighted the effectiveness of AWE feedback in reducing

writing accuracy disparities among English learners with various proficiency levels. Similarly, a longitudinal case study by Lee (2020) demonstrated the helpful role of an AWE program (i.e., Criterion) in improving two EFL university students' writing abilities over time. Automated feedback from Criterion was found helpful in improving L2 writing proficiency by directing the learners' attention to grammar, form, usage as well as meaning.

Fu, Zou, Xie and Cheng (2024) comprehensively reviewed 48 research articles on AWE feedback to examine types of AWE feedback, its learning outcomes, and implications. Findings showed that while AWE feedback was proven beneficial in improving students' L2 writing skills, students reported that they had found human feedback, whether from a teacher or a peer, more effective than AWE feedback. Furthermore, students noted that AWE feedback was useful and motivating but was not accurate and explicit enough.

Another line of research compared the efficacy of teacher feedback and AWE feedback in developing L2 writing skills. For instance, Zhang and Hyland (2018) explored the effect of teacher and AWE feedback on L2 writing through interviews with students. AWE feedback was identified as a valuable formative assessment tool, providing diagnostic assessments during revisions and emphasizing learners' active roles. However, students valued teacher feedback because a teacher provided both holistic and analytic feedback in a visually efficient way. The study indicated the usefulness of AWE feedback, particularly for teachers with heavy teaching loads in large classes; however, for a small group of students, teachers may need to determine which type of feedback would be more beneficial in promoting L2 learners' writing ability.

Tian and Zhou (2020) shed light on the feedback practices of Chinese EFL learners in an online writing course when they received AWE, peer, or teacher feedback. They examined how the learners incorporated feedback from different sources. Findings showed that while AWE offered the most feedback on both meaning-related and surface-level errors (e.g., spelling, punctuation, grammar, and word choice), AWE feedback was the least incorporated by the learners during the revision processes. On the other hand, teacher feedback, which focused more on surface-level errors than on meaning-related issues, resulted in the greatest number of uptakes from the learners. Proficiency was found to be a significant factor affecting the learners' feedback practices. Learners with higher proficiency were less likely to incorporate feedback from AWE and their peers.

As reviewed thus far, while previous research has advanced our understanding of the effect of AWE and teacher feedback on L2 writing development and how L2 learners incorporate different types of feedback, little research has been carried out within the context of intact classrooms at a secondary school to investigate how to integrate AWE tools into regular language classes and how helpful AWE feedback is for developing L2 writing skills under continued provision of feedback over a semester when compared to the traditional teacher feedback.

2.2. Learner Engagement with Written Feedback

Engagement in learning refers to a student's commitment and interest in their learning process. It encompasses their attention, curiosity, interest, and willingness to use language proficiency and learning skills. These elements are realized through affective, behavioral, and cognitive elements, facilitating effective responses to feedback (Zhang & Hyland, 2018). Ellis (2010) originally proposed multi-dimensional engagement as a heuristic. He proposed that there are three different ways to analyze someone's engagement with CF, but interrelated perspectives: "Engagement can be examined from three different perspectives: a cognitive perspective (where the focus is on how learners attend to the CF they receive), a behavioral perspective (where the focus is on whether and in what way learners uptake oral corrections or revise their written texts), and an affective perspective (where the focus is on how learners respond attitudinally to the CF)" (p. 342).

Much research on affective engagement traced affective and attitude changes, focusing on the changes in learners' emotive and attitudinal responses. Emphasis was placed on recognizing and assessing these shifts (Pearson, 2024). Researchers have tried to identify affective engagement. For example, Yu and Jiang (2020) explored the dynamic and complex engagement of two Ph.D. students with reviewers' feedback on their manuscripts, influenced by the feedback nature and the researcher's experience. The study found that affective engagement in novice researchers was primarily influenced by the nature of feedback and their ability to evaluate and appreciate reviewer feedback, and they tended to address reviewer comments behaviorally. Also, affective engagement improved if reviewers' input was understood cognitively. Zhang (2020) investigated the teacher's role in enhancing student engagement in writing through collaborative methods, group revisions, and detailed feedback. It revealed that a collaborative approach significantly enhances student engagement. It promoted active behavioral, positive affective, and deep cognitive engagement in writing and revision processes, offering pedagogical implications for academic writing and teacher feedback practices in higher education. Students were more likely to be able to explain themselves adequately and give answers that were truer to their feelings and thoughts when interviews were conducted in the participant's first language (Zhang, 2020; Zhang & Hyland, 2022). Han and Hyland (2015) examined how four non-English major Chinese EFL learners cognitively process WCF. Cognitive operations encompass the mental strategies and skills learners use to process and respond to WCF (Han & Hyland, 2015), such as their use of reasoning, language knowledge, and the context of writing. Language errors were observed and/or understood by the learners, who also applied metacognitive and cognitive processes during the processing phase. Ellis (2010) found that while WCF is more noticeable than oral CF, it can be overlooked, misinterpreted, and misidentified, and learners often struggle to understand metalinguistic rules. Four students

used meta-cognitive and cognitive operations to process WCF and address errors, but their effectiveness largely depended on individual factors, highlighting the need for further research.

It is interesting to note that other research defines cognitive engagement more behaviorally, citing learning and revision techniques as examples of cognitive engagement. Zheng and Yu (2018) found that low English proficiency affected their engagement with teacher WCF in EFL writing, leading to cognitive and behavioral engagement imbalances. These students lack behavioral and cognitive engagement despite a relatively positive affective engagement. According to Zhang and Hyland (2018), revision procedures were used as evidence of student engagement. The study identified two students as highly engaged and moderately engaged, revealing their varying responses to teacher and AWE feedback. It found the significance of student engagement with teacher and AWE feedback in L2 writing research, highlighting the role of language proficiency and learning strategies. Using explicit instruction on cognitive strategies, adopting a reassuring tone, and implementing classroom practices that enhance language proficiency can be crucial.

2.3. The Current Study

The purpose of the study was to investigate the extent to which different types of feedback (teacher feedback vs. AWE feedback) affect L2 writing abilities and the level of cognitive and affective engagement of Korean EFL learners in a secondary school. By delving into the complexities of WCF, this study aimed to shed light on the role of feedback type in promoting the learning of L2 writing and better engaging students in feedback practices. The following research questions were formulated according to this aim:

1) How does the type of feedback affect the improvement of L2 writing skills?
2) What is the difference in cognitive engagement levels between the teacher feedback group and the AWE feedback group?
3) How do affective engagement levels vary between students in the teacher feedback group and the AWE feedback group?

3. METHODOLOGY

3.1. Participants

The participants of this experimental study consisted of 72 mixed-level EFL Learners, aged between 14 and 16, who are currently third-year students at a middle school in Busan,

South Korea. Participants' homeroom classes were randomly assigned into two groups. Classes 3 and 4 were selected as the teacher feedback and consisted of 27 students (15 males; 12 females). Lastly, Classes 5, 6, and 7 were selected as the AWE feedback group of 45 students (23 males; 22 females).

The feedback groups were taught using the process-writing approach wherein students were required to go through the pre-writing, drafting, and revising stages, each informed by feedback. All of the groups met three times a week. The AWE feedback group received feedback via Grammarly on their submissions, revised their writing assignments online using students' tablet devices, and submitted them to their teachers on Google Classroom. The other groups, the teacher groups, received paper-based feedback on their submissions, revised their writing assignments in the classroom, and submitted them directly to their teachers.

The participants received four 45-minute English classes per week, with English writing instruction accounting for roughly 10 percent of the curriculum per their regular course. Participants were informed beforehand that their results in this writing assignment would not affect their academic performance.

For this study, the students' proficiency levels were determined using the online program Write & Improve (https://writeandimprove.com). It is a term-limited free tool through which learners can submit their writing and get results linked to the international standard of language ability, the CEFR. The students' writing proficiency was at the CEFR scale level, ranging from A1 to B1.

3.2. Materials

3.2.1. Automated Writing Evaluation (AWE) tool: Write & Improve

Write & Improve, developed by the University of Cambridge, is a term-limited free tool designed to enhance English writing skills for learners of all levels. It offers several advantages that cater to learners' needs and helps them improve their writing proficiency. Firstly, Write & Improve provides learners with a wide array of writing tasks spanning various difficulty levels. Learners can select tasks from diverse topics or even create their own tasks, allowing for tailored writing practice. Upon completing their writing, learners submit their work and receive a score linked to the Common European Framework of Reference (CEFR), an international standard for evaluating language proficiency. There are six levels (A1, A2, B1, B2, C1, C2) on the CEFR, with A1 as the lowest level. Write & Improve offers free writing practice covering all levels, including beginner (A1, A2), intermediate (B1, B2) and advanced (C1, C2). This feedback provides learners with a clear indication of their writing level and improvement areas. Furthermore, Write & Improve

offers automatic feedback on areas where a learner's writing may require enhancement. This feedback guides learners on how to refine their spelling, grammar, and vocabulary usage, fostering continuous improvement. One of the key benefits for students is the opportunity to receive metalinguistic explanations alongside their scores. These explanations identify specific types of errors, such as run-on sentences or subject-verb agreement issues, helping learners understand their mistakes and learn from them. In addition to these primary functions, Write & Improve boasts several specific features, including a library of over 400 topics for instructors. Teachers can select writing tasks from this library to assess students' English proficiency and track their writing development over time. Overall, Write & Improve empowers learners to enhance their writing skills through targeted practice, personalized feedback, and insightful explanations, ultimately enabling them to become more proficient English writers.

3.2.2. Analytic essay scoring scale

An analytic (multi-trait) scoring rubric has been widely used in L2 writing studies to measure test quality. The Cambridge English assessment scale was employed as the rubric of this research. The scale scripts are rated on eight domains: topic, supporting sentences, organization, sentence structure, vocabulary, grammar, punctuation, and spelling. The number of students' errors chooses the domains. Each domain's score is from 1 to 4. Incorporating analytic subscores can help the learners identify their specific weaknesses and strengths in writing. The students' low and intermediate English levels are equivalent to the CEFR's A1 to B1 levels. Students are expected to recognize their strengths and weaknesses through the feedback. Consequently, the rubric also fulfilled the purposes of a controlled variable in the experiment, thus providing consistency during the assessment.

3.2.3. Self-report survey

Self-report survey measures are the most common method for assessing student engagement. In this methodology, students are provided items reflecting various aspects of engagement and select the response that best describes them. Self-report methods are particularly useful for assessing emotional and cognitive engagement, which are not directly observable and need to be inferred from behaviors.

The students completed an online-based questionnaire during a 20-minute class. The questionnaire was divided into three components. The first was the demographic section, which collected their name, gender, and class. The following two sections presented the research questions. Items were scored on a 6-point Likert scale, with one indicating strongly disagree and six indicating strongly agree. Eight affective and cognitive engagement items

were designed to measure the students' writing engagement. The affective engagement was defined as connecting to an activity (e.g., "I can have self-confidence through my English writing class"). Cognitive engagement reflects learners' attention and mental effort in learning (e.g., "In my English writing class, I think my writing proficiency is improving."). The entire self-report survey and its English translation can be found in Appendix B.

3.3. Procedure

This classroom-based study was conducted following the procedure shown in Table 1. This classroom-based experiment was completed through three phrases of essay writing. In contrast, essay writing and post-essay writing are done by three different middle school English teachers who were fully informed and trained in advance on handling their class.

TABLE 1

The Procedure of the Study

	AWE Feedback	Teacher Feedback
Pre-essay writing	Training Session and Pre-essay Writing Do you agree that online games can hurt children?	
Essay 1 (1st class)	Essay Writing Session 1 'Flying taxis can be the best form of transport.' Do you agree?	
Essay 1 (2nd class)	Feedback from *Grammarly* Revisions and final draft	Teacher feedback Revisions and final draft
Essay 2 (1st class)	Essay Writing Session 2 'Which one do you prefer 10- minute-long video or one-minute-long video?'	
Essay 2 (2nd class)	Feedback from *Grammarly* Revisions and final draft	Teacher feedback Revisions and final draft
Essay 3 (1st class)	Essay Writing Session 3 'We should kill mosquitoes because of our public health.' Do you agree?	
Essay 3 (2nd class)	Feedback from *Grammarly* Revisions and final draft	Teacher Feedback Revisions and final draft
Post-essay writing	Post-essay Writing and Self-report Survey 'Do you agree that cell phones are not allowed at school?'	

3.3.1. Pre-essay writing phase

In the pre-essay writing phase, all students took a proficiency test and were trained on the analytic essay scoring scale and how they scored it. The first step in this process was the administration of the Write & Improve to know the student's level of writing proficiency and record their levels in the Write & Improve program. The pre-essay writing was administered under controlled conditions, including equivalent writing prompts with an identical topic, time limit, and required word limit. The students were asked to write a three-

paragraph argumentative essay incorporating an introductory paragraph, a body paragraph with support and evidence, and a concluding paragraph online. After finishing their essays, the students instantly checked their scores. According to the level ratings accompanying the test, the student scores ranged from A1 to B1. As a follow-up to the pre-essay writing, the students were taught about writing processes and how to develop a three-paragraph essay based on the contents they read before writing.

3.3.2. While-essay writing phase

After completing the pre-essay writing phase, the essay writing phase began. All students had three essay writing, feedback, and revising sessions in their essay writing class. The first step in writing was to read an article to activate their schema knowledge. The articles were chosen based on student's interests and reading proficiency levels. The topics of writing prompts were flying taxis, TikTok, and mosquitoes. The students were asked to plan and write a three-paragraph essay on their tablet devices. The next step involved submitting the original draft to Google Classroom, receiving feedback, revising, editing, and resubmitting the essay on paper to the teachers. Each process was carried out in the classroom.

After submitting the original draft, each group received two types of feedback: teacher and AWE feedback. The teacher feedback groups were given feedback by their teachers in standard pen-and-paper format. Teachers checked analytic scale rubrics on paper while they read students' submissions. Then, students in the group read their rubrics and revised their written works on paper. Grammarly gave the last AWE feedback group their feedback. Students in the group copied their writing prompts and pasted them on the Grammarly website. The errors were flagged on the website, enabling students to revise until finished, save, and resubmit their final draft to the Google Classroom. This procedure was repeated over the subsequent sessions until the three essay prompts were completed.

3.3.3. Post-essay writing phase

In the post-treatment phase, all the students completed a post-essay writing similar to the pre-essay writing. The post-essay writing was conducted in the classroom online on the Write & Improve website. The same procedure was rigorously enforced as in the pre-writing essay phase, using equivalent writing prompts with time and word limits and excluding the topic. If students chose to write the same topic, they remembered what they had already written. Furthermore, to measure the students' writing engagement, students completed a questionnaire with 13 questions.

3.4. Statistical Analysis

To answer the first research question, a repeated measures analysis of variance (RM ANOVA) was carried out to see to what extent the feedback type would affect the development of L2 learners' writing abilities. Writing scores in the pre-essay writing and post-essay writing sessions served as the dependent variable, whereas group (teacher feedback vs. AWE feedback) was included as a between-subject variable, and time (pre-essay writing vs. post-essay writing) as a within-subject variable. For the second and third research questions, an independent *t*-test was carried out multiple times to investigate whether there was any significant difference between the teacher feedback and the AWE feedback groups in terms of the levels of students' cognitive and affective engagement.

4. Result

4.1. Feedback Type and L2 Writing Development

The first research question investigated the impact of feedback type on the development of L2 writing skills using a mixed-design approach. This analysis accounted for both the within-subject factor (time: pre-essay writing vs. post-essay writing) and the between-subject factor (group: AWE feedback vs. teacher feedback). The findings showed a significant main effect of feedback type, demonstrating a significant overall improvement in the students' writing skills from pre-essay writing to post-essay writing across the two groups: F (1, 70) = 12.13, p = .001, r = .38.

However, the interaction effect between time and group showed no significant difference in writing skill improvement between the two groups: F (1, 70) = 2.229, p = .140. This suggests that the feedback type did not significantly influence the degree of improvement in the students' writing skills. Despite the absence of a significant interaction effect, there was a marginally significant difference in overall performance between the two groups (p = .052), which may suggest that while some difference existed in the effectiveness of the two feedback types, it did not lead to a significant difference between the two participant groups.

In conclusion, both AWE and teacher feedback effectively enhance writing skills among EFL learners. However, the type of feedback does not significantly affect the extent of this improvement. These results underscore the potential of both feedback methods in supporting writing development, though further research is necessary to explore their differential impacts.

4.2. Feedback Type and Cognitive Engagement

The second research question reports on the difference in cognitive engagement levels between the teacher feedback group and the AWE feedback group. The results showed significant differences in various aspects of cognitive engagement between the two groups. Overall, the participants who received teacher feedback demonstrated significantly higher levels of cognitive engagement across multiple dimensions compared to the AWE group (see Table 2).

TABLE 2

Effects of Feedback Type on Cognitive Engagement (*N* = 72)

Question	Group	*M*(*SD*)	*t*	*p*	*d*
38	AWE	4.33(0.15)	2.638*	.011	.60
	Teacher	4.96(0.18)			
44	AWE	4.02(0.20)	2.430*	.018	.60
	Teacher	4.81(0.17)			
46	AWE	3.81(0.21)	2.480*	.016	.60
	Teacher	4.67(0.27)			
49	AWE	4.24(0.19)	2.137*	.037	.50
	Teacher	4.30(0.28)			
50	AWE	4.24(0.19)	1.242	.230	.20
	Teacher	4.59(0.28)			
60	AWE	4.42(0.16)	0.816	.328	.10
	Teacher	4.85(0.29)			
62	AWE	3.91(0.20)	2.654*	.011	.70
	Teacher	4.85(0.29)			

*p <.05

Specifically, for question 38 (*While writing in English, I realized the areas where my English skills were lacking.*), the teacher feedback group showed higher engagement (M = 4.96, SD = 0.18) than the AWE feedback group (M = 4.33, SD = 0.15): t = 2.638, p = .011, and a large effect size, d = 0.6. Similarly, for question 44 (*Through the feedback I received on my writing, I learned a lot about vocabulary, grammar, and expressions.*), the teacher feedback group (M = 4.81, SD = 0.27) outperformed the AWE feedback group (M = 4.02, SD = 0.20): t = 2.430, p = .018, and a large effect size, d = 0.6. In question 46 (*When I write in English, I make a plan on how to structure my writing*.), the teacher feedback group again showed higher cognitive engagement (M = 4.67, SD = 0.27) than the AWE feedback group (M = 3.82, SD = 0.21): t = 2.48, p = .016, and large effect size, d = 0.6. For question 49 (*I have my own method that I use when writing in English.*), the teacher feedback group (M = 4.30, SD = 0.28) was significantly more engaged than the AWE feedback group (M = 3.53,

SD = 0.23: $t = 2.137$, $p = .037$, and large effect size, $d = 0.5$. Question 50 (*When I write in English, I review and check my finished writing.*) showed no significant difference between the teacher feedback group ($M = 4.59$, $SD = 0.28$) and the AWE feedback group ($M = 4.24$, $SD = 0.19$). Similarly, question 60 (*I incorporated a lot of the feedback I received into the revision process of my writing.*) also showed no significant difference between the teacher feedback group ($M = 4.85$, $SD = 0.29$) and the AWE feedback group ($M = 4.42$, $SD = 0.16$). Finally, for question 62 (*I hope we continue to have feedback activities related to writing during class time in the future.*), the teacher feedback group ($M = 4.85$, $SD = 0.29$) demonstrated significantly higher engagement than the AWE feedback group ($M = 3.91$, $SD = 0.20$): $t = 2.654$, $p = .011$, and a large effect size, $d = 0.7$.

These findings may suggest the effectiveness of teacher feedback in enhancing cognitive engagement and writing proficiency compared to the AWE tools. Despite the potential benefits offered by the AWE tools, they may not fully replicate the personalized and interactive nature of teacher feedback, which appears to have a more substantial impact on students' writing development and enthusiasm for learning.

4.3. Feedback Type and Affective Engagement

For the third research question, the affective engagement levels were compared between the teacher feedback group and the AWE feedback group across eight affective engagement questions. Students in the teacher feedback group consistently demonstrated higher levels of affective engagement than the AWE feedback group across various affective dimensions, as represented by the statements in the questionnaire (see Table 3).

For instance, question 17 (*After practicing writing, I feel motivated to write better next time.*) revealed that students in the teacher feedback group exhibited significantly higher levels of affective engagement ($M = 5.37$, $SD = 0.12$) compared to those in the AWE feedback group ($M = 4.31$, $SD = 0.20$): $t = 3.797$, $p = .000$, $d = .70$). Similarly, for question 21 (*I felt more motivated to write more after receiving feedback and making revisions on my English writing.*), the teacher feedback group demonstrated a higher level of affective engagement ($M = 5.07$, $SD = 0.19$) than the AWE feedback group ($M = 4.07$, $SD = 0.21$): $t = 3.206$, $p = .002$, $d = .60$. Regarding question 24 (*The feedback I received on my writing motivated me to write more in English.*) the teacher feedback group reported significantly higher affective engagement ($M = 5.26$, $SD = 0.15$) than the AWE feedback group ($M = 3.93$, $SD = 0.19$): $t = 4.804$, $p = .000$, $d = 1.00$).

Furthermore, for question 25 (*After practicing writing, my anxiety about writing has decreased.*), students in the teacher feedback group exhibited higher affective engagement ($M = 4.85$, $SD = 0.22$) compared to the AWE feedback group ($M = 3.71$, $SD = 0.22$): $t = 3.430$, $p = .001$, $d = .70$. Similarly, for question 34 (*After writing, the feedback has reduced*

my burden of writing in English.) the teacher feedback group had a higher score on average in affective engagement questionnaires (M = 4.70, SD = 0.23) than those in the AWE feedback group (M = 3.78, SD = 0.20): t = 2.962, p = .004, d = 0.6. For question 43 (*Through the feedback I received after writing, I gained confidence in writing in English.*), teacher feedback was found to be more effective in promoting affective engagement (M = 5.11, SD = 0.17) than AWE feedback (M = 4.00, SD = 0.17): t = 4.361, p = .000, d = 0.9. Regarding question 45 (*I was satisfied with the feedback activities while writing*.), the teacher feedback group exhibited a higher level of affective engagement (M = 5.19, SD = 0.14) compared to the AWE feedback group (M = 4.27, SD = 0.16): t = 3.860, p = .000, d = 0.8. Finally, for question 19 (*After practicing writing, I no longer feel like writing in English.*), there was no significant difference in the level of affective engagement between the teacher feedback group (M = 4.48, SD = 0.27) and the AWE feedback group (M = 4.18, SD = 0.19): t = 0.940, p = .350, d = 0.2.

TABLE 3

Effects of Feedback Type on Affective Engagement (N = 72)

Q	Group	*M*(*SD*)	*t*	*p*	*d*
17	AWE	4.31(0.20)	3.797*	.000	.70
	Teacher	5.37(0.12)			
21	AWE	4.07(0.21)	3.206*	.002	.60
	Teacher	5.07(0.19)			
24	AWE	3.93(0.19)	4.804*	.000	1.00
	Teacher	5.26(0.15)			
25	AWE	3.71(0.22)	3.430*	.001	.70
	Teacher	4.85(0.22)			
34	AWE	3.78(0.20)	2.962*	.004	.60
	Teacher	4.70(0.23)			
43	AWE	4.00(0.17)	4.361*	.001	.90
	Teacher	5.11(0.17)			
45	AWE	4.27(0.16)	3.860*	.000	.80
	Teacher	5.19(0.14)			
19	AWE	4.18(0.19)	0.940	.350	.20
	Teacher	4.48(0.21)			

*p <.05

These findings may indicate that while both teacher and AWE feedback can be helpful in engaging students in the L2 writing process, teacher feedback appears to be more effective in fostering the level of affective engagement among students, thereby contributing to a more supportive and motivating writing environment.

5. Discussion

This study used a mixed-design approach to investigate the impact of feedback type on improving L2 writing skills, considering learners' performance in pre-essay writing and post-essay writing and the type of feedback (AWE feedback vs. teacher feedback). The findings indicated a significant overall enhancement in writing skills across all participants over a period of one semester. However, there was no significant interaction effect between feedback type and L2 writing development, suggesting that the type of feedback did not differentially influence the degree of L2 writing skill improvement. Specifically, the results demonstrated that both AWE tools and teacher feedback were effective in enhancing writing skills among EFL learners. The marginally significant difference in overall performance between the two groups hints at potential subtle differences in feedback efficacy, though not statistically significant. This suggests the importance of providing structured writing practice and feedback, regardless of the feedback source. The present finding corresponds to previous research in that both teacher feedback and AWE feedback were found helpful in developing L2 writing skills. (Tian & Zhou, 2020; Zhang & Hyland, 2018). This may suggest that it is important to provide opportunities to students for structured writing practices and for receiving WCF, whether from a teacher, a traditional avenue for feedback, or an AWE tool. Moreover, the study showcased the possibility of incorporating feedback practices within in-class writing instructions in a secondary school context.

The study also delved into the comparative efficacy of teacher feedback and AWE feedback in promoting cognitive and affective engagement levels among students during writing activities. The findings unveiled a pronounced superiority of teacher feedback in fostering cognitive engagement across multifaceted dimensions. These dimensions encompass heightened self-awareness of language deficiencies, comprehension of language mechanics, strategic structuring of writing, and cultivation of individualized writing methodologies. Concurrently, participants in the teacher feedback cohort showcased elevated affective engagement, particularly evident in their motivation to enhance writing skills, alleviation of writing-related anxiety, bolstering of confidence through feedback interactions, and overall satisfaction with feedback mechanisms. The current findings concur with those of previous research with respect to the positive role of teacher feedback in facilitating L2 learners' cognitive and affective engagement in writing practices. As in Zhang (2020) and Zhang and Hyland (2022), this study suggested that teacher feedback has the greatest potential to enhance students' overall engagement in L2 writing practices. When provided to adolescent learners during within-class writing activities, teacher feedback can be useful in promoting positive affective and deep cognitive engagement in writing and revision processes.

These findings suggest the pivotal role of teacher feedback in not only cultivating

cognitive dexterity but also in nurturing affective resonance within writing tasks. The bespoke and interactive nature inherent in teacher feedback mechanisms emerged as pivotal factors in augmenting students' writing proficiency and enthusiasm, eclipsing the capabilities of AWE tools. The discernible disparities observed across myriad dimensions underscore the inadequacy of AWE tools in replicating the nuanced and personalized feedback that human instructors offer.

The implications stemming from these findings are twofold. Firstly, educators are urged to acknowledge the indispensable value of teacher feedback in enriching students' writing engagement and prowess. This necessitates concerted investments in teacher training and resource allocation to optimize the delivery of effective feedback practices, thereby fostering more profound and meaningful learning encounters for students. Secondly, while AWE tools may serve as valuable adjuncts, their integration should be discerningly juxtaposed with teacher feedback to afford comprehensive support for students' writing development.

Drawing upon the insights garnered from this study, it is recommended that educators prioritize the seamless integration of teacher feedback into writing pedagogies, leveraging technological innovations to streamline feedback delivery and bolster student engagement. Furthermore, there is a pressing need for further inquiry into optimal methodologies for harmonizing AWE tools with teacher feedback to optimize the synergistic benefits of both modalities. Longitudinal investigations tracking the trajectory of students' writing development over time stand poised to yield invaluable insights into the enduring efficacy of disparate feedback modalities.

6. Conclusion

This study aimed to explore the impact of teacher feedback versus AWE feedback on the development of L2 writing abilities and on enhancing the level of cognitive and affective engagement of EFL learners.

Our findings showed that both teacher feedback and AWE feedback contributed significantly to the development of writing skills among Korean secondary students. However, significant differences were found between these two feedback types. Students who received teacher feedback demonstrated heightened levels of both cognitive and affective engagement compared to those utilizing AWE tools. The personalized nature of teacher feedback appeared to foster a deeper understanding of language mechanics, strategic writing planning, and confidence in writing abilities. Conversely, while AWE tools offered automated feedback and practice opportunities, they lacked the interactive and tailored support provided by human instructors. These results underscore the importance of integrating both teacher feedback and AWE tools into language learning curricula. While

AWE tools provide valuable supplementary practice and immediate feedback, teacher feedback remains essential in offering personalized guidance and fostering students' engagement in writing tasks.

Several limitations inherent in the study merit careful consideration. Foremost among these is the potential constraint posed by the sample size on the generalizability of the findings, necessitating future endeavors with larger and more diverse cohorts to validate the outcomes. Furthermore, the exclusive focus on English writing activities necessitates caution in extrapolating findings to other linguistic and contextual domains. Additionally, the dearth of exploration into the longitudinal ramifications of teacher feedback and AWE tools on writing proficiency underscores the imperative for protracted investigations to discern sustained impacts.

For future research, we recommend further exploration of the long-term effects of different feedback modalities on writing proficiency and engagement. Additionally, there is a need to refine strategies for effectively integrating technology into language learning environments, particularly in optimizing the benefits of AWE tools alongside teacher feedback. By leveraging a blended approach, educators can optimize students' writing development by capitalizing on the strengths of both feedback types.

In conclusion, this study contributes to the field of L2 writing by providing insights into the comparative effectiveness of teacher feedback and AWE feedback in enhancing L2 writing abilities as well as cognitive and affective engagement among EFL adolescent learners, particularly within the classroom context. By acknowledging the complementary roles of different feedback types, educators and practitioners may create more enriching and effective L2 writing experiences for EFL students.

Applicable levels: Early childhood, elementary, secondary, tertiary

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APPENDIX A

Analytical Rubric for Scoring Student Essays

1. English translation

Criteria				
	4	3	2	1
Topic	There is an opinion on whether they agree or disagree. Mention it again in the conclusion	There is an opinion on whether they agree or disagree. Not mention it again in the conclusion	Unclear if the opinion is in favor or against. Not mention it again in the conclusion	There is not enough written to evaluate.
Supporting Sentence	Two supporting sentences related to the topic sentence, each with appropriate reasoning in the body part.	Two supporting sentences related to the topic sentence, each with inappropriate	Two supporting sentences related to the topic sentence in the body part.	One supporting sentence or there is not enough written to evaluate

		reasoning in the body part.		
Organization	Text clearly divides into introduction, body, and conclusion and is well organized	Text clearly divides into introduction, body, and conclusion	Text divides into introduction, body, and conclusion	There is no division of introduction, body, and conclusion.
Sentence Structure	There is no run-on sentence.	There are one or two run-on sentences.	There are three or four run-on sentences.	There are more than five run-on sentences.
Vocabulary	There are no words that are out of place or inconsistent with the flow of the text.	There are one to two words that are out of place or inconsistent with the flow of the text.	There are three to four words that are out of place or inconsistent with the flow of the text.	There are more than five words that are out of place or inconsistent with the flow of the text.
Grammar	There are no errors in agreement, number, or tense in the grammar.	There are one to two errors in agreement, number, or tense in the grammar.	There are three to four errors in agreement, number, or tense in the grammar.	There are more than five errors in agreement, number, or tense in the grammar.
Punctuation & Capitalization	There are no errors in punctuation and capitalization.	There are one or two errors in punctuation and capitalization.	There are three or four errors in punctuation and capitalization.	There are more than five errors in punctuation and capitalization.
Spelling	There are no spelling errors.	There are 1 to 2 spelling errors in the text.	There are 3 to 4 spelling errors in the text.	There are more than 5 spelling errors in the text.

APPENDIX B

Self-Report Survey

1. Cognitive Engagement

	Statements	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
38	While writing in English, I realized the areas where my English skills were lacking.	①	②	③	④	⑤	⑥
44	Through the feedback I received on my writing, I learned a lot about vocabulary, grammar, and expressions.	①	②	③	④	⑤	⑥
46	When I write in English, I plan on how to structure my writing.	①	②	③	④	⑤	⑥
49	I have my own method that I use when writing in English.	①	②	③	④	⑤	⑥

50	When I write in English, I review and check my finished writing.	①	②	③	④	⑤	⑥
60	I incorporated a lot of the feedback I received into the revision process of my writing.	①	②	③	④	⑤	⑥
62	I hope we continue to have feedback activities related to writing during class time in the future.	①	②	③	④	⑤	⑥

2. Affective Engagement

	Statements	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
17	After practicing writing, I feel motivated to write better next time.	①	②	③	④	⑤	⑥
19	After practicing writing, I no longer feel like writing in English.	①	②	③	④	⑤	⑥
21	I felt more motivated to write more after receiving feedback and making revisions on my English writing.	①	②	③	④	⑤	⑥
24	The feedback I received on my writing motivated me to write more in English.	①	②	③	④	⑤	⑥
25	After practicing writing, my anxiety about writing has decreased.	①	②	③	④	⑤	⑥
34	After writing, the feedback has reduced my burden of writing in English.	①	②	③	④	⑤	⑥
43	Through the feedback I received after writing, I gained confidence in writing in English.	①	②	③	④	⑤	⑥
45	I was satisfied with the feedback activities while writing.	①	②	③	④	⑤	⑥