Effect of EditGPT on the Learners` Autonomy and Learning Anxiety

Mustafa Mahdi Jubier ID
University of Anbar, Iraq

Marwah Firas Abdullah Al-Rawe ID
University of Anbar Iraq

Ali Al Ghaithi ID
Sohar University, Oman

Abstract. Recently, the use of automated writing applications has increased in English writing instruction. Therefore, this study aimed to measure the effect of using an automated writing evaluation system, called EditGPT, on learning anxiety and learners' autonomy. Thirty Omani EFL learners were selected as participants of this study in two equal groups of control and experimental groups. Pre-tests were conducted to ensure homogeneity of the groups. The data was used to collect the foreign language anxiety (FLA) questionnaire and autonomy scales developed by Horwitz et al. (1986) and McCrocklin (2016). The experimental group used the EditGPT AI (artificial intelligence) application during the treatment period. After treatment, post-tests were performed to measure discrepancies in the results. The findings of the study revealed that, in the post-test, the experimental group showed less anxiety and more autonomy than the control group. The results of this study will be helpful to both students and teachers.

Keywords: automated writing evaluation; learning anxiety; learner autonomy

1. Introduction

Foreign language anxiety (FLA) is a multifaceted emotion that has been described as elusive, intricate (Dornyei & Ṛimṣek, 2017), and multidimensional (Horwitz, 2001, 2010; MacIntyre & Gardner, 1991; Young, 1991). FLA falls under the category of particular circumstance anxiety, which is distinct from trait or condition anxiety (Gardner, 1985; Horwitz, 2010; Horwitz et al., 1986). Anxiety, as defined within the discipline of psychological research, is an affective state characterized by personal sensations of tension, stimulation of the autonomic nervous system, and

fear and stress. Physical manifestations of anxiety, such as perspiration, quivering, or an elevated pulse rate, can be useful in identifying it (Kazdin, 2000).

In light of the intricate nature of anxiety associated with foreign languages, MacIntyre (2007) defined FLA as the affective state of individuals who are apprehensive about or adversely affected by the process of acquiring a foreign language. According to Gardner (1985), language anxiety is characterized by negative affective responses when one needs to study and utilize L2. Horwitz et al., (1991) demonstrated how FLA permeates students' emotions, views, convictions, and actions in classroom settings by concentrating on particular scenarios involving interaction with instructors, peers, and native speakers. The method by which adverse views or opinions are formed from interpreting negative affective experiences while employing and acquiring a foreign or second language is referred to as FLA in this investigation. Research has demonstrated that FLA detrimentally affects the results of language acquisition (Dordinejad & Nasab, 2013; Hu et al., 2021).

English language study is difficult and demanding (Bill, 2001, as cited in Ali et al., 2021). Each language learner is confronted with an unprecedented situation that can profoundly alter their character (Burhan Ismael et al., 2021). Consequently, proficient language acquisition necessitates unwavering commitment, peak performance of mental faculties, and adept emotional management (Sabir et al., 2021). Additional variables contribute to the complexity of second language acquisition. Language anxiety is a significant determinant of language acquisition trajectory, among numerous other factors (Saleh et al., 2021). A prevalent occurrence among English students is the development of apprehension during language acquisition. Anxiety plays a significant role, even though the intensity of emotions experienced by foreign language learners differs among individuals (Sorguli et al., 2021). Students may find acquiring English as a second language arduous and taxing.

According to Talim et al. (2021), more than half of second language learners experience apprehension. Anxious second language students might find that studying a foreign language is less enjoyable, and they might also become conscious of how their anxiety impacts their academic performance. Extensive studies have examined the multifaceted factors that lead to apprehension while acquiring a second language (Anwar & Abdullah, 2021). These elements fall into two categories: situational variables and learner characteristics. Learners are impacted by a variety of factors, including, but not limited to, motivation, self-assurance, race, age, personality traits, and identity (Anwar, 2016). The factors listed above engage in diverse interactions that contribute to developing and exacerbating anxiety in individuals learning foreign languages (Anwar & Climis, 2017). The difference between debilitating and facilitative anxiety underscores the correlation between language ability and anxiety accomplishment (Anwar & Ghafoor, 2017).

In the past few years, more studies have focused on applying cutting-edge technologies to support classroom teaching of second language writing (Xu et al., 2019; Howell et al., 2021). Previous studies have demonstrated that the implementation of instructional technology can effectively reduce the writing

anxiety of second language learners (Bailey & Judd, 2018; Marandi & Seyyedrezaie, 2017), enhance their ability to pay attention and consequently enable them to concentrate on more complex cognitive tasks such as "idea organization, meta-cognitive assessment, and peer feedback" (AbuSeileek & Abualsha'r, 2014, as cited in Chang et al., 2021, p. 2). Furthermore, implementing instructional technologies may help foreign language students enhance various components of their L2 writing, including grammar proficiency, mechanical accuracy (e.g., spelling), and structural organization. This is achieved through input, organizational, and review instruments, which can be found in technological solutions (Chang et al., 2021).

Meta-analyses are required to synthesize research evidence, even though many research investigations have been conducted on the use of technology for learning in writing lessons (Bikowski & Vithanage, 2016; Rahimi & Fathi, 2022). As per the authors' understanding, a solitary meta-analytic investigation (Xu et al., 2019) was undertaken to assess the efficacy of instructional technology use methodically concerning the subcategory of L2 writing proficiency. A meta-analysis conducted by Xu et al. (2019) examined 16 studies on the L2 writing achievement of adult language students published between 2000 and 2017. Adult language learners benefit from technology-enhanced writing classes that are more efficient than teaching that does not incorporate technology. Furthermore, they proposed that the programme intensity and type of writing may influence the efficacy of instructional technology tools.

According to Benson (2011), learner autonomy is the ability of the student to assume control over the learning process. At the outset, it was postulated that an autonomous learner could establish goals for learning, delineate subject matter and develop it, opt for instructional techniques and approaches, oversee the learning process, and assess acquired knowledge (Holec, 1981). Subsequent theories and models, on the other hand, largely agree that autonomy is a scale of variation and can present itself in different ways, contingent upon a multitude of personal, environmental, and sociocultural elements. Recently, there has been growing contention regarding how learner autonomy has been influenced by interactions incorporating handheld devices, desktop computers, and Internet access (Benson, 2013). According to Yagcioglu (2015), technology offers all-encompassing accessibility to education. It serves as a conduit through which all facets of education can be addressed, ranging from the syllabus to students. Technology can facilitate learner autonomy.

As abundant evidence demonstrates, technological advancements can significantly enhance learners' language proficiency and autonomy. Most of the time, language students utilize technology to enhance their listening abilities, according to a study by Çelik et al. (2012) on the effect of ICT in ELT on autonomous learning. In addition to their personal computers, they also utilize English-language videos and audio clips from YouTube. According to the research conducted by Young (2003), the Internet is also regarded as an interactive resource, which makes it advantageous for English language learning.

Various learning methods are enabled by the collaborative character of technology, which can subsequently encourage the attainment of autonomy for

learners and successful learning. In addition to the classroom, Prihatin (2012) found that computers can potentially motivate students of other languages to study beyond the classroom. The potential of blogs to provide autonomy in learning has also been demonstrated by Pinkman (2018). Engaging in blog activities beyond the confines of the classroom enriches their understanding of English. Inducing specific anticipated behaviours, which in this particular situation is learning, is an advantage of technologies (Ryder & Wilson, 1996). Research findings suggest that learner autonomy (LA) and academic success are further correlated in the context of second language (L2) acquisition (Ozer & Yukselir, 2021).

Furthermore, studies have demonstrated that both FLA and LA affect the efficacy of L2 writers (Tahmouresi & Papi, 2021; Zabihi, 2018). L2 writing instructors should implement measures to mitigate FLA and encourage LA. Utilizing technology to minimize FLA and increase LA in L2 learners is accomplished by implementing computer-assisted language learning (CALL). Anxiety associated with learning a foreign language has been alleviated through the use of electronic resources and instruments, including virtual reality (VR) (Thrasher, 2022; York et al., 2021), speech recognition systems (ASR) (Bashori et al., 2021), gaming (Yang et al., 2022), and robot-assisted language learning (RALL) (Alemi et al., 2015). According to CALL research, technology may also contribute to the improvement of LA. Effective approaches have been demonstrated for enormously popular online courses (MOOCs), mobile-assisted language learning (MALL) (Sato et al., 2020), videoconferencing (Lenkaitis, 2020), and ASR (McCrocklin, 2016). According to Gayed et al. (2022), automatic writing evaluation (AWE) can lessen the cognitive burden of second language (L2) writers through the implementation of automated systems that deliver individualized feedback. Pupils can devote more time to more advanced writing assignments, such as organizing and composing content, instead of devoting a greater amount of working memory to lower-level writing assignments (e.g., punctuation, translation, spelling, and grammar).

In a single available study available in the context of Oman, Behforouz et al. (2022) evaluated language anxiety among EFL learners in Oman, both in face-to-face and online environments. The study's results indicated that Omani EFL learners had a moderate level of anxiety in both face-to-face and online environments. Learners experience a sense of ease and familiarity in both educational environments. Results also demonstrated that classroom engagement and active participation were significant factors contributing to EFL learning anxiety among the online group. Nevertheless, within the in-person group, the teacher assumes a crucial role as one of the main catalysts for students' language anxiety.

Prior research on using AWE in educational environments mostly concentrated on its influence on users' revision strategies and writing skills. Psychological aspects are equally as important as cognitive skills in the writing process; hence, need examination from a student's point of view. Self-efficacy, self-regulation, and anxiety are interrelated psychological elements (Csizér & Tankó, 2017). Research indicates that incorporating technology into teaching practices can enhance self-efficacy and self-regulation and reduce anxiety. However, there is a lack of

empirical evidence on how integrating technology into feedback provision specifically impacts these factors in the context of EFL writing instruction (Sari & Han, 2024). Therefore, this study aims to measure the impact of EditGPT as an automated writing tool on the anxiety and autonomy of Omani EFL learners. The following research questions are addressed in this study:

1. Does using the EditGpt tool in the writing process affect Omani EFL learners' anxiety levels?
2. Does using the EditGpt tool during the writing process affect the autonomy of Omani EFL learners?

To tackle such questions, the following null hypotheses were formed:

H0: The EditGpt tool does not have a substantial impact on the anxiety levels of Omani EFL learners.

H0: The EditGpt tool has no substantial impact on the autonomy of Omani EFL learners.

2. Literature Review

2.1. Automated Writing Evaluation (AWE)

A programmed application that produces grades and critical comments regarding writing is called automated writing evaluation (AWE), automatic writing assessment, or automatic written grading (Saville, 2017; Hockly, 2019). Initially implemented as a summative assessment tool in high-stakes writing examinations, AWE technology is now being progressively integrated into writing courses in the classroom (Stevenson, 2016; Lee, 2017). AWE tools are accessible, including Ellis Page's 1968 Project Essay Grade (PEG), Pearson's Intelligent Essay Assessor, Educational Testing Service's Criterion, Vantage's MY Access!, Cambridge English Writing & Improve, and Pearson Writing to Learn.

While the feedback layout may vary slightly among AWE programs, overall, the automated grades generated by these applications rely on hidden semantic evaluation, machine learning, and natural language processing (Stevenson, 2016). PEG, for instance, incorporates a peer review mechanism, whereas writing and improving permits instructor feedback. These characteristics offer students a variety of writing experiences and personalized feedback. Moreover, AWE offers numerous benefits to both instructors and students. One significant benefit of AWE is its ability to provide immediate, individualized, and corrective feedback (Li et al., 2015). Therefore, particularly in the case of sizable courses, AWE is "a viable, cost-effective alternative to the costly endeavour of hand-scored writing evaluations" (Ware & Warschaue, 2006, p. 107).

AWE is also advantageous for students as it fosters autonomy and strengthens their capacity for autonomous writing and self-revision (Chen & Cheng, 2008; Stevenson & Phakiti, 2019). In addition, many students expressed favourable sentiments regarding AWE feedback (Grimes & Warschauer, 2010; Wali & Huijser, 2018). Multiple studies have demonstrated the efficacy of AWE evaluation in writing classes, particularly concerning grammatical correctness. Saricaoglu (2019) examined the impact of automated formative feedback on developing written causal justifications in ESL. The findings revealed statistically important alterations in pupils' explanations of causality for a single cause-and-

effect essay. In addition, Li et al. (2017) investigated both the immediate and long-term effects of the Criterion online writing evaluation service feedback on the growth of grammar proficiency among ESL learners. In eight out of the nine grammar types, the findings indicated that using Criterion to reduce grammatical errors in revised manuscripts for varying proficiency levels had an advantageous short-term impact. However, only one category has demonstrated beneficial long-term effects. Among the five categories introduced by Criterion, the grammar category received the highest ratings from students. In a study examining Bahraini pupils' thoughts regarding Write & Improve, Wali and Huijser (2018) found that grammar was deemed the most beneficial aspect by 88% of the participants in terms of enhancing their writing. A recent eye-tracking investigation conducted by El Ebyary and Windeatt (2019) demonstrated the favourable disposition of their pupils towards grammar in AWE. A discussion of the ideas method and a survey were utilized to determine how students interacted with objective feedback. According to the findings, there is a general tendency to prioritize grammar over organization and development.

Similar to any technological instrument, it is not anticipated that AWE will replace educators. AWE does not qualify as a magic or silver bullet for advancing language and literacy (Hockly, 2019). It is preferable to capitalize on its strengths while offsetting its weaknesses. AWE corrective feedback is especially advantageous when applied to individual sentences as it detects the grammatical and usage of language mistakes. However, it lacks the necessary level of development to offer comprehensive feedback at the discourse level.

Teachers may utilize AWE to assist students with linguistic elements such as grammar, allowing them to redirect their feedback towards other critical areas, including organization and concept development. Therefore, it is advisable for instructors to "exceed the layout of the evaluation tool itself" (Saville, 2017, p. 204) to fully utilize its capabilities. Educators gain advantages by employing AWE as coaches rather than prescribers (Warschauer & Grimes, 2008). A learning environment emphasizing writing techniques and the final product may include AWE. Liao (2015) incorporated AWE into a process-oriented methodology in which the instructor provided corrective feedback centred on concepts and structure, while AWE was utilized to rectify grammatical and accuracy deficiencies. Similarly, Cotos (2014) utilized the AWE program IAED to assist with revisions for an academic writing course. Such research demonstrates how AWE can assist instructors in concentrating on commenting on the more complex elements of writing while saving them time and effort. If AWE demonstrates efficacy in linguistics and grammar (Chen & Cheng, 2008; Liao, 2015), it could prove advantageous to or be particularly well suited for writers who are hesitant to use it. According to several studies, linguistic mistakes are a greater concern for anxious writers (Abdel Latif, 2015). Therefore, an AWE evaluation may cater to the specific requirements of anxious writers. The study hypothesizes that apprehensive authors would benefit from AWE's constructive criticism to improve incidental grammar acquisition.

2.2. Technology and Foreign Language Anxiety

According to Horwitz et al. (1986, p.128), FLA is "a distinctive complex of self-perceptions, opinions, feelings, and behaviors associated with acquiring a language in the educational setting that results from the specific nature of the language acquisition process." A robust inverse relationship is universally accepted as the prevailing viewpoint regarding FLA and L2 performance (Zhang 2019). The Foreign Language Classroom Anxiety Scale (FLCAS) was created by Horwitz et al. (1986) to recognize the importance of FLA in the acquisition of L2. Its purpose is to quantify the particular anxiety learners experience when learning or utilizing an L2. Following its inception, the FLCAS has gained significant traction as the predominant tool for evaluating FLA in L2 learning environments. Research conducted using the FLCAS has revealed that approximately 30–40% of L2 learners encounter FLA to some degree (Horwitz, 2016).

According to CALL research, technology can potentially mitigate FLA among L2 learners. For example, York et al. (2021) demonstrated that VR significantly reduced FLA among Japanese EFL students. Thrasher (2022) observed comparable outcomes when utilizing VR with L2 French learners; the subjects in her research exhibited reduced FLA while utilizing VR, as opposed to a conventional classroom setting. Bashori et al. (2021) found in a study including language learners in Indonesia that pupils who utilized ASR had greater potential for vocabulary expansion than the control group and experienced less FLA when speaking. This is consistent with the findings of Yang et al. (2022), who examined the effects of an online game on juvenile EFL learners in Taiwan and their vocabulary acquisition. According to their research, EFL students who utilized the online game demonstrated greater vocabulary gains and lower FLA levels than those who studied in a traditional classroom setting. It has also been demonstrated that the implementation of robotics can effectively reduce FLA. Alemi et al. (2015) assessed the FLA of Iranian EFL students who utilized RALL compared to those who learned English in a conventional setting. Analyses conducted by the investigators revealed that RALL improved FLA more significantly than conventional instruction did.

2.3. Technology and Learner Autonomy

LA, along with FLA, is a significant determinant of L2 achievement. LA is defined as the capacity of a language student to assume responsibility for various facets of language acquisition (Benson, 2013). "When pupils receive a portion of responsibility for their education, they get more involved in the procedure, which in response enables them to be more successful in both the short and long term" (Lenkaitis, 2020, p. 486). This makes LA significant in the setting of the learning environment for L2. LA encouragement among L2 learners is based on the three tenets proposed by Little (2007): student involvement, student thought, and language goal utilization. Encouraging learner participation in learning a language, such as setting objectives or assessing performance, constitutes learner engagement. Student thought entails the integration of deliberate reflection exercises that foster metacognitive processes, specifically dialogue among groups of students and/or between the instructor and learners. Using the language being studied is self-evident; therefore, students should be motivated to employ L2 whenever feasible, including in and out of the classroom.

A substantial body of research demonstrates that CALL can effectively assist LA. Learners of English as a Second Language (ESL) at an American institution were capable of achieving substantial progress in LA by utilizing ASR for pronunciation training, according to findings from McCrocklin (2016). Lee's (2011) research on blogs showed how the Web 2.0 tool could facilitate LA between learning overseas L2 Spanish pupils. Using a survey-based study methodology, Sato et al. (2020) found that MALL increased the motivation of Japanese EFL students, which subsequently positively affected LA.

Videoconferencing is an additional electronic tool that Los Angeles found to be advantageous. Lenkaitis (2020) integrated videoconferencing software, specifically Zoom, to establish self-directed learning environments for second-language Spanish learners. According to the study's findings, Zoom promoted LA because it enabled students to assume personal responsibility for their education so that they could interact with other students in a less organized setting. Furthermore, Ding and Shen (2022) investigated the impact of MOOC usage on LA among Chinese EFL students in a recent investigation. According to their interview-based analysis, the researchers concluded that MOOCs facilitate LA by pushing students to employ various motivational, emotional, and metacognitive control techniques. Hafner and Miller (2011, as cited in Dizon and Gold, 2023) implemented an innovative approach to foster L2 autonomy. A student-centred strategy was implemented whereby classroom lessons were based on students' pre-existing electronic literacy practices. The research emphasized the significance of integrating the digital literacy practices students utilize into L2 learning environments conducted in the classroom.

2.4. Related Studies
Dizon and Gold (2023) investigated the effects of Grammarly, an automated writing evaluation (AWE) instrument, on FLA and the independence of learners (LA) of EFL. The participants were 58 language learners from an educational institution in Japan. The learners utilized Grammarly to complete weekly writing assignments in a college-level writing course over a sixteen-week semester. Scales specifically designed to assess FLA (e.g., FLCAS) and LA were used to conduct pre- and post-surveys. Additionally, written opinions were obtained. According to the findings, Grammarly significantly affected students' FLA and LA levels from the beginning to the last day of the term. According to the observational findings, pupils were predominantly viewed using Grammarly to enhance their writing skills in English.

Waer (2021) examined the effect of incorporating automated writing evaluation (AWE) on reducing EFL writing anxiety and improving grammar skills. A total of 103 English graduates from an Egyptian university participated in the sample, which was separated into experimental and control groups. The essay writing of the group participating in the experiment was assessed using Cambridge Write & Improve, where the instructor evaluated the written works of the control group. The English Writing Apprehension Scale (EWAS) and Grammar Knowledge Test (GKT) were used to obtain the data. The results indicated statistically significant variations in the experimental group's post-administration EWAS and GKT

scores, suggesting that AWE had a modest positive impact on linguistic skills and a reduction in writing anxiety.

Chang et al. (2021) investigated the effects of using an AI writing evaluation instrument (automated writing evaluation, Grammarly) on the ability to write and the adoption of this novel technology among EFL pupils. A total of 53 EFL learners were randomly allocated to two groups in China: the experimental group (EG), which utilized Grammarly to edit and improve their essays, and the control group (CG), which received conventional instruction without the application of Grammarly. A questionnaire was employed to gather data on the opinions of learners about Grammarly during the sixteen-week implementation of the five essays. The findings revealed an important distinction between the CG and EG regarding writing achievement, with the CG outpacing EG. Pupils valued the instantaneous correction of grammar offered by Grammarly but considered it less beneficial in terms of content and structure, according to the results of the questionnaire. According to the investigation, Grammarly may be a successful tool for enhancing the writing skills of EFL learners, and pupils are generally receptive to its use in writing courses as an automated writing evaluation system. Additionally, 20 students from the experimental group reported that Grammarly reduced their essay writing apprehension.

Tang and Wu (2017) examined the efficacy of Writing Roadmap (WRM), an AWE instrument, in facilitating EFL writing lessons through the developmental use of guidelines and its automated evaluation function. Twenty-three university-level English instructors from 11 Chinese institutions participated. For some time instructors integrated WRM into their writing courses. Utilizing interviews, surveys, and short reports from those who participated, a combination of methods was used to assess the effectiveness of the WRM guidelines and automated evaluation. The findings revealed that the implementation of WRM rubrics, in conjunction with their automated evaluation system, facilitated classroom writing instruction by providing goal-accurate feedback, ensuring that instructional and evaluation objectives were aligned, enhancing pupil and instructor interactions, encouraging student independence, and facilitating the procedure for receiving feedback.

Wang et al. (2013) investigated the effects of AWE on the interaction, learner autonomy, and writing quality among EFL students' learning. There were 57 EFL undergraduates from a Taiwanese university who participated in this study. A quasi-experimental design comprising a control and an experimental group was used. To evaluate the integrity of the writing, t-tests were applied to the quantitative data gathered via pre- and post-evaluations. Qualitative data about learner autonomy and engagement were collected through semi-structured interviews. The findings revealed significant variations between the experimental and control groups in terms of writing accuracy, with the AWE group demonstrating the greater improvement. Students utilizing AWE demonstrated an increased awareness of learner autonomy and improved writing accuracy.

Liu (2022) conducted a study to examine the efficacy of an AWE system in providing reviews and learners' views regarding its utility in enhancing English writing proficiency. From Tianjin Agricultural University, 500 freshmen

participated, with 250 being assigned to an experimental group utilizing AWE technology and 250 to the control group. The two teams completed five writing tasks over a semester. Teachers provided traditional feedback to the control group as opposed to the AWE system for the experimental group. Errors per 100 words were assessed for each writing sample. Language ability was evaluated using the Oxford Quick Placement Test, while student opinions were assessed through a survey. The experimental group produced fewer mistakes in its final three tasks than the control group, suggesting that AWE feedback was beneficial in fostering long-term writing improvement. Error rates negatively correlated with survey responses, indicating that, as writing increased, system acceptance increased.

3. Methodology
3.1. Participants
To collect the required data, 30 Omani EFL students with pre-intermediate proficiency levels were selected as the population of this study. All students were between 18 and 19, and their native language was Arabic. The selected samples were randomly divided into a control group and an experimental group with 15 students each.

3.2 Instruments
3.2.1. Foreign Language Anxiety Scale and Learner Autonomy Scale
The instruments used for research utilized in the present investigation were modified from those described by Dizon and Gold (2023) to fulfil the research objectives. The FLCAS and Learner Autonomy Scale (LAS) comprised a questionnaire with 15 Likert scale items. For these items, pupils were asked to indicate their degree of agreement using a five-point scale: 1 (strongly disagree) to 5 (strongly agree). The survey comprised distinct categories. The initial category contained seven items relating to FLA and was adapted from the initial edition of FLCAS developed by Horwitz et al. (1986). On the other hand, the second category had eight items focused on learner autonomy, which was derived from a study conducted by McCrocklin (2016). To administer the scale to Omani EFL students, the statements in question were translated into Arabic by native Arabic speakers with a Ph.D. in Applied Linguistics and teaching experience in a contextual setting in Oman. After the translation, a pilot examination was conducted with ten EFL pre-intermediate students to evaluate their internal consistency. The final Arabic version of the survey exhibited satisfactory reliability, as indicated by Cronbach's alpha coefficient of 0.88.

3.2.2. EditGpt Tool
Anthropic developed EditGPT, a useful and reliable AI tool. . Constitutional AI ensured the model operated securely and in the participants' best interests. EditGPT is notable for its ability to modify documents and offer suggestions for improvement. EditGPT critically evaluates the written content and context of PDF, Word, and text documents posted by the individual who submitted them. The software can detect and rectify grammar and spelling errors, recommend alternative terms and expressions, draw attention to discrepancies or redundancies, and propose strategies to improve a text's general coherence and structure. Incorporating EditGPT's suggestions into the written material promotes user feedback and enables acceptance or rejection of the proposed modifications.

This feature enables an interactive revision process, in which an AI assistant provides support in improving text creation and writing.

The decision to use EditGPT for this study is supported by its distinctive capabilities and the novel approach to improving writing quality and user interaction. EditGPT emphasizes utility and dependability. It leverages constitutional AI to guarantee secure functioning and prioritize participants' best interests. By adhering to ethical AI norms, this alignment guarantees that users can have confidence in the tool's ability to offer helpful and discreet assistance.

The wide range of capabilities offered by EditGPT makes it appropriate for educational environments, especially those that involve EFL learners. The software's capacity to revise manuscripts and provide recommendations for enhancement encompasses a broad spectrum of writing elements, including rectifying grammar and spelling errors and improving general coherence and organization. These talents are crucial for EFL learners since they frequently face difficulties with the subtleties of language and the structural components of writing in a non-native language.

3.3. Procedure

The data collection period lasted for two weeks. During the initial week, the researchers provided training on the EditGPT and established separate accounts for each student in the experimental group. While numerous features were available, such as revision and grammar correction, students exclusively utilized the proofread and rewrite functions. The student autonomy and foreign language anxiety scales were assigned to the experimental and control groups as pre-tests before the beginning of the treatment period.

The students devoted an average of four hours daily to studying English; therefore, the investigator completed the investigation in two weeks by utilizing the full two hours of English lessons over four days. The initial four treatment classes commenced during the first week, whereas the subsequent four classes commenced in the second week. Each session lasted two hours. Two hours of the first writing lesson were devoted to the instructor's explanation of the format of the advantages and disadvantages of essays to both the experimental and control groups. The instructor then allotted to both groups a homework assignment they were required to finish outside of class and turn it in for the following writing class.

The experimental group was then required to proofread the initial draft via the EditGPT instrument, employing both grammar checks and proofread functionalities. However, the instructor provided indirect and direct evaluations to the pupils inside and outside the classroom. The experimental group was directed to submit their revised and initial drafts of their pieces of writing via email or Microsoft Teams to obtain comments from the instructor. These would be utilized in the second writing lesson to provide more information and explanation. The instructor delivered feedback to the students using the Track Changes feature in Microsoft Word. To guarantee a natural feedback procedure, the instructor was instructed not to restrict comments on matters about the

content or language. A complimentary version of editGpt (https://editgpt.app/) was used to automate corrective feedback. Students submitted their writing to the website to obtain immediate feedback. The control group received conventional feedback from the teacher after completing the initial writing assignment. This procedure persisted until the revised iteration of the seven writing assignments was finalized after the second week. Finally, the students completed the FLA scale and LAS as post-tests in the class at the end of week 2.

3.4. Data Analysis and Findings

Before comparing the results of the groups in the pre-test and post-test, it was necessary to measure the normality of data among the participants of both groups to be able to choose the most appropriate parametric or non-parametric tests. Table 1 shows the normality test results in groups for both the pre-test and post-test:

Table 1: Results of the Shapiro-Wilk Normality Test in Pre-test and Post-test

	Shapiro-Wilk		
	Statistic	df	Sig.
Pre-total	.847	30	.001
Post-total	.853	30	.001

As shown in Table 1, the results of the Shapiro-Wilk normality test revealed that the data in the pre-tests and post-tests were not normally distributed as the sig. of 0.001 was smaller than 0.05. Therefore, non-parametric tests should be used to compare the groups. A Mann-Whitney U test was conducted to measure the pre-tests among the participants of both groups, the results of which are shown in Tables 2 and 3:

Table 2: Descriptive Statistics for the Pre-test of Both Groups

	Groups	N	Mean Rank	Sum of Ranks
Pretotal	Control	15	14.90	223.50
	Experimental	15	16.10	241.50
	Total	30		

As can be observed in Table 2, the mean scores of the groups in the pre-test were close to each other (14.90 in the control group and 16.10 for the experimental group. To gain precise information on the results, Table 3 provides further information on the performance of both groups in the pre-test:

Table 3: Mann-Whitney U Test for the Comparison of Pre-test in Both Groups

	pretotal
Mann-Whitney U	103.500
Wilcoxon W	223.500
Z	-.388
Asymp. Sig. (2-tailed)	.698
Exact Sig. [2*(1-tailed Sig.)]	.713[b]

As shown in Table 3, the sig. level was 0.698, which is much higher than the conventional threshold of 0.05, indicating that there was no significant difference in the performance of both groups in the pre-tests of the anxiety questionnaire. Another Mann-Whitney U test was conducted to measure the performance of participants in both groups in the post-test.

Table 4: Mann-Whitney U Test of Both Groups in the Post-test

	posttotal
Mann-Whitney U	35.500
Wilcoxon W	155.500
Z	-3.243
Asymp. Sig. (2-tailed)	.001
Exact Sig. [2*(1-tailed Sig.)]	.001[b]

Table 4 revealed a significant difference in the performance of both groups in the post-test as in the sig. .001, $p < 0.05$. To gain precise information on the outperformed group, Table 5 provides information on the mean scores of the control and experimental group with 10.37 and 20.63, respectively. This suggests that using EditGPT as an intermediator in the experimental group decreased their anxiety levels.

Table 5: Descriptive Statistics of Both Groups in Post-tests

	Groups	N	Mean Rank	Sum of Ranks
Post-total	Control	15	10.37	155.50
	Experimental	15	20.63	309.50
	Total	30		

The other variable to be measured within the experimental group was the effect of using EditGPT on learners' autonomy. To measure this, a statement-wise questionnaire analysis was performed using the non-parametric Kruskal-Wallis test. Table 6 compares the performance of students in the pre-test and post-test for each statement.

Table 6: Descriptive Statistics of Autonomy within the Experimental Group

	Testperiod	N	Mean Rank
I care about my writing in English	Pre-test	15	9.57
	Post-test	15	21.43
	Total	30	
I want to continue improving my English writing	Pre-test	15	9.93
	Post-test	15	21.07
	Total	30	
I am capable of successfully practising my English writing on my own	Pre-test	15	8.10
	Post-test	15	22.90
	Total	30	
I have the resources and tools that can help me work on my English writing	Pre-test	15	8.27
	Post-test	15	22.73
	Total	30	
I can use technology to help me with my English writing	Pre-test	15	8.00
	Post-test	15	23.00
	Total	30	
	Pre-test	**15**	**23.00**

I need a native speaker to know how to write English correctly	Post-test	15	8.00
	Total	30	
I need a native speaker to correct my English writing to improve	Pre-test	15	22.87
	Post-test	15	8.13
	Total	30	
I need a teacher to help me improve my English writing	Pre-test	15	22.53
	Post-test	15	8.47
	Total	30	

As can be observed in Table 6, the mean scores of students increased in all the statements in the post-test; however, the last three statements showed the opposite results. However this is due to the nature of the statements. Based on the results of the last three statements, the students showed independence from the teacher or native speaker as the source of learning.

To determine whether students' performance in the post-test was significant, Table 7 provides more detailed information:

Table 7: Detailed Comparison of Pre-test and Post-test of Autonomy using the Kruskal-Wallis Test

	St.1	Stat.2	Stat.3	Stat.4	Stat.5	Stat.6	Stat.7	Stat.8
Kruskal-Wallis H	15.575	13.730	23.032	21.371	23.387	23.221	22.011	21.610
df	1	1	1	1	1	1	1	1
Asymp. Sig.	.000	.000	.000	.000	.000	.000	.000	.000

As can be observed in Table 7, the significant value in all the statements is 0.000; since this number is smaller than the p-value, which is 0.05, it can be concluded that students in the experimental group outperformed in the post-test and became more autonomous learners.

4. Discussion
The current study focused on implementing automated writing in the language learning process to measure the FLA of 30 Omani students. In addition, this study attempted to measure the autonomy of language learners within the experimental group. The study's findings for the first research question rejected the first null hypothesis and confirmed that engaging with EditGPT in writing could reduce anxiety levels. The decrease in anxiety can be ascribed to various fundamental

characteristics of EditGPT: its rapid and constructive feedback assists learners in promptly rectifying errors, enhancing their confidence, and diminishing uncertainty. The tool's interactive nature enables learners to accept or decline suggestions independently, promoting self-reliance and mastery over their learning process, hence reducing anxiety. In addition, the reliable and impartial feedback provided by EditGPT fosters a steady and encouraging learning atmosphere, while its explicit and organized assistance assists learners in comprehending and enhancing their writing with greater efficacy. These elements render EditGPT an invaluable instrument for alleviating the anxiety associated with writing.

The findings of this study align with those of Alemi et al. (2015), who investigated the impact of robot-assisted language learning (RALL) on the attitude and anxiety levels of junior high school pupils as they acquire English vocabulary. The RALL group received instruction from a teacher, assisted by a humanoid automaton assistant. According to the study, students in the RALL group enjoyed the learning process immensely and believed they were acquiring knowledge more efficiently, which ultimately increased their motivation. Teachers and material developers are encouraged to incorporate technology into the language learning process, as suggested by the present study's novel insights into the application of technology in language classrooms (Alemi et al., 2015).

In another study with similar results, Bashori et al. (2021) examined the impact of two websites utilizing automatic speech recognition (ASR) on students' vocabulary knowledge, speaking anxiety, and language enjoyment. The results indicated that the students in the two experimental groups exhibited a marked performance improvement compared with the control group. Specifically, both websites effectively enhanced students' understanding of the targeted vocabulary (40 words), diminished their speaking anxiety, and promoted their enjoyment of the language.

The second research question related to the results of using EditGPT to measure the learners' autonomy in writing classes. The findings of the experimental group showed that, after using EditGPT, students were more autonomous in the post-test compared to their performance before the treatment. Therefore, the second null hypothesis is confidently rejected.

Dizon and Gold (2023) conducted a study with results similar to those of the present study. This study investigated the effects of Grammarly, a widely used AWE tool, on Japanese EFL learners' FLA and LA. Students were instructed on Grammarly while revising their English compositions. The analysis revealed that Grammarly exerted a statistically significant positive impact on both FLA and LA. The implications of these results for L2 writing classrooms are substantial, indicating that AWE can be utilized to promote autonomy and alleviate anxiety among language learners.

In contrast, another study contradicted the findings of the current study. Sun and Fan (2022) conducted a study implementing an AWE-assisted assessment approach during a one-semester quasi-experiment in a business writing course. The assessment facilitated by AWE was administered to the experimental group,

whereas the control group received an assessment administered solely by the instructor. The results revealed that writing anxiety did not significantly mediate the relationship between the assessment method and writing performance. Furthermore, the approach did not yield any noteworthy outcomes in terms of participants' writing anxiety, except for a barely significant decrease in their avoidance behavior.

5. Conclusion

This study implemented EditGPT as an automated tool to be the intermediator of 15 Omani pre-intermediate English proficiency level participants in the experimental group to compare anxiety and autonomy levels with those of the other 15 learners in the control group. The findings of the study reveal that the use of technology, in this case, automated machines, in the learning process can reduce students' anxiety levels and increase their autonomy in the learning process.

The findings of this study have implications for both students and instructors. Because of time constraints and potentially overcrowded classrooms, instructors may be unable to offer comprehensive individual feedback to students. In this situation, and following the results of this study, the use of tools such as EditGPT facilitates learning. Students can use such tools and applications to enhance the quality of their writing. These tools generate syntactical and semantic adjustments in response to errors and blunders made by the learners. Thus, by diligently focusing on different aspects of correction, students can prevent the recurrence of these errors in subsequent writing assignments, making them autonomous and confident.

The concerns addressed in the present study may be regarded as limitations and recommendations for future research. One of the most significant limitations of this study was the small sample size. Future studies should use larger populations to obtain comprehensive and generalizable findings. The participants in this study were pre-intermediate English language proficiency candidates. To enhance the comprehension of technological device usage among students and EFL contexts, additional research could be undertaken involving students of all proficiency levels attending various academic institutions in the country. Finally, using one AI tool, EditGPT, in this study might not produce the appropriate results on cognitive features of the learning process; therefore, more devices could be used for such psycholinguistics measurements in future studies.

6. References

Abdel Latif, M. M. (2015). Sources of L2 writing apprehension: A study of Egyptian university students. *Journal of Research in Reading*, *38*(2), 194-212. https://doi.org/10.1111/j.1467-9817.2012.01549.x

Alemi, M., Meghdari, A., & Ghazisaedy, M. (2015). The impact of social robotics on L2 learners' anxiety and attitude toward English vocabulary acquisition. *International Journal of Social Robotics*, *7*(4), 523-535. https://doi.org/10.1007/s12369-015-0286-y

Ali, B. J., Akoi, S., Saleh, P. F., & Sardar, Z. (2021). Factors shaping customer satisfaction with residential flats: Evidence from Sulaymaniyah City. *Black Sea Journal of Management and Marketing*, *2*(2), 1-12. https://doi.org/10.47299/bsjmm.v2i2.69

Anwar, G., & Abdullah, N. N. (2021). Inspiring future entrepreneurs: The effect of experiential learning on the entrepreneurial intention at higher education. *International Journal of English Literature and Social Sciences*, *6* (2), 183-194.

Anwar, K. (2016). The relationship between transformational leadership characteristics and effectiveness: A case study of construction companies in Erbil. *International Journal of Science Technology & Management*, *5*(2), 250-156.

Anwar, K., & Climis, R. (2017). Analyzing the relationship between types of advertisement and customer choice: A study of retailer stores in Erbil. *International Journal of Accounting and Business Society*, *25*(2), 43-52. https://doi.org/10.21776/ub.ijabs.2017.25.2.02

Anwar, K., & Ghafoor, C. (2017). Knowledge management and organizational performance: A study of private universities in Kurdistan. *International Journal of Social Sciences & Educational Studies*, *4*(2), 53. https://doi.org/10.23918/ijsses.v4i2sip53

Bailey, D. R., & Judd, C. (2018). The effects of online collaborative writing and TOEIC writing test-preparation on L2 writing performance. *Journal of Asia TEFL*, *15*(2), 383. http://dx.doi.org/10.18823/asiatefl.2018.15.2.8.383

Bashori, M., Van Hout, R., Strik, H., & Cucchiarini, C. (2021). Effects of ASR-based websites on EFL learners' vocabulary, speaking anxiety, and language enjoyment. *System*, *99*, 102496. https://doi.org/10.1016/j.system.2021.102496

Behforouz, B., Gallema, M. C., Waga, R. M. A., & Al Weshahi, S. (2022). English language learning anxiety in online and face-to-face classes. *The Journal of Asia TEFL*, *19*(2), 469-488. https://doi.org/10.18823/asiatefl.2022.19.2.5.469

Benson, P. (2011). *Teaching and researching: Autonomy in language learning* (2nd Edition). Routledge. https://doi.org/10.4324/9781315833767

Benson, P. (2013). Learner autonomy. *TESOL Quarterly*, *47*(4), 839-843. https://doi.org/10.1002/tesq.134

Bikowski, D., & Vithanage, R. (2016). Effects of web-based collaborative writing on individual L2 writing development. *Language Learning & Technology, 20*(1), 79–99.

Burhan Ismael, N., Jabbar Othman, B., Gardi, B., Abdalla Hamza, P., Sorguli, S., Mahmood Aziz, H., Ali Ahmed, S., Sabir, B. Y., Ali, B. J., & Anwar, G. (2021). The role of training and development on organizational effectiveness. *International Journal of Engineering, Business and Management*, *5*(3), 15-24. https://doi.org/10.22161/ijebm.5.3.3

Çelik, S., Arkın, E., & Sabriler, D. (2012). EFL learners' use of ICT for self-regulated learning. *Journal of Language and Linguistic Studies*, *8*(2), 98-118.

Chang, T.-S., Li, Y., Huang, H.-W., & Whitfield, B. (2021). Exploring EFL Students' writing performance and their acceptance of AI-based automated writing feedback. *2021 2nd International Conference on Education Development and Studies*, 31-35. https://doi.org/10.1145/3459043.3459065

Chang, W. C., Liao, C. Y., & Chan, T. W. (2021). Improving children's textual cohesion and writing attitude in a game-based writing environment. *Computer Assisted Language Learning*, *34*(1–2), 133-158. https://doi.org/10.1080/09588221.2019.1671459

Chen, C.-F. E., & Cheng, W.-Y. E. C. (2008). Beyond the design of automated writing evaluation: Pedagogical practices and perceived learning effectiveness in EFL writing classes. *Language Learning & Technology*, *12*(2). https://doi.org/10125/44145

Csizér, K., & Tankó, G. (2015). English majors' self-regulatory control strategy use in academic writing and its relation to L2 motivation. *Applied Linguistics, 38*(3), 386-404. https://doi.org/10.1093/applin/amv033

Cotos, E. (2014). Enhancing writing pedagogy with learner corpus data. *ReCALL*, *26*(2),

202-224. https://doi.org/10.1017/S0958344014000019

Ding, Y., & Shen, H. (2022). Delving into learner autonomy in an EFL MOOC in China: A case study. *Computer Assisted Language Learning*, *35*(3), 247-269. https://doi.org/10.1080/09588221.2019.1681464

Dizon, G., & Gold, J. (2023). Exploring the effects of Grammarly on EFL students' foreign language anxiety and learner autonomy. *JALT CALL Journal*, *19*(3), 299-316. https://doi.org/10.29140/jaltcall.v19n3.1049

Dordinejad, F., & Nasab, A. H. F. (2013). Examination of the relationship between perfectionism and English achievement as mediated by foreign language classroom anxiety. *Asia Pacific Education Review*, *14*(4), 603-614. https://doi.org/10.1007/s12564-013-9286-5

El Ebyary, K., & Windeatt, S. (2019). Eye tracking analysis of EAP Students' regions of interest in computer-based feedback on grammar, usage, mechanics, style and organization and development. *System*, *83*, 36-49. https://doi.org/10.1016/j.system.2019.03.007

Gardner, R. C. (1985). *Social psychology and second language learning: The role of attitudes and motivation*. Edward Arnold. https://doi.org/10.1037/h0083787

Gayed, J. M., Carlon, M. K. J., Oriola, A. M., & Cross, J. S. (2022). Exploring an AI-based writing assistant's impact on English language learners. *Computers and Education: Artificial Intelligence*, *3*, 100055. https://doi.org/10.1016/j.caeai.2022.100055

Grimes, D., & Warschauer, M. (2010). Utility in a fallible tool: A multi-site case study of automated writing evaluation. *The Journal of Technology, Learning and Assessment*, *8*(6).

Hockly, N. (2019). Automated writing evaluation. *ELT Journal*, *73*(1), 82-88. https://doi.org/10.1093/elt/ccy044

Holec, H. (1981). *Autonomy and foreign language learning*. Pergamon Press.

Horwitz, E. (2001). Language anxiety and achievement. *Annual Review of Applied Linguistics*, *21*, 112-126. https://doi.org/10.1017/s0267190501000071

Horwitz, E. K. (2010). Foreign and second language anxiety. *Language Teaching*, *43*(2), 154-167. https://doi.org/10.1017/s026144480999036x

Horwitz, E. K. (2016). Reflections on Horwitz (1986). Preliminary evidence for the validity and reliability of a foreign language anxiety scale. *TESOL Quarterly*, *50*(4), 932-935. https://doi.org/10.1002/tesq.295

Horwitz, E. K., Horwitz, M. B., & Cope, J. (1986). Foreign language classroom anxiety. *The Modern Language Journal*, *70*(2), 125-132. https://doi.org/doi.org/10.2307/327317

Howell, E., Perez, S., & Abraham, W. T. (2021). Toward a professional development model for writing as a digital, participatory process. *Reading Research Quarterly*, *56*(1), 95-117. https://doi.org/10.1002/rrq.294

Hu, X., Zhang, X., & McGeown, S. (2021). Foreign language anxiety and achievement: A study of primary school students learning English in China. *Language Teaching Research*, *28* (4), 1594-1615 . https://doi.org/10.1177/13621688211032332

Hyland, K., & Hyland, F. (2006). Feedback on second language students' writing. *Language Teaching*, *39*(2), 83-101. http://hdl.handle.net/10722/57356

Kazdin, A. E., & Association, A. P. (2000). *Encyclopedia of psychology*. American Psychological Association Washington, DC.

Lee, I. (2017). *Classroom writing assessment and feedback in L2 school contexts*. Springer Singapore. https://doi.org/10.1007/978-981-10-3924-9

Lee, L. (2011). Blogging: Promoting learner autonomy and intercultural competence through study abroad. *Language Learning & Technology*. https://scholars.unh.edu/lang_facpub/145/

Lenkaitis, C. A. (2020). Technology as a mediating tool: Videoconferencing, L2 learning, and learner autonomy. *Computer Assisted Language Learning*, *33*(5-6), 483-509. https://doi.org/10.1080/09588221.2019.1572018

Li, J., Link, S., & Hegelheimer, V. (2015). Rethinking the role of automated writing evaluation (AWE) feedback in ESL writing instruction. *Journal of Second Language Writing*, *27*, 1-18. https://doi.org/10.1016/j.jslw.2014.10.004

Li, Z., Feng, H. H., & Saricaoglu, A. (2017). The short-term and long-term effects of AWE feedback on ESL students' development of grammatical accuracy. *Calico Journal*, *34*(3), 355-375. https://doi.org/10.1558/cj.26382

Liao, H.-C. (2015). Using automated writing evaluation to reduce grammar errors in writing. *ELT Journal*, *70*(3), 308-319. https://doi.org/10.1093/elt/ccv058

Little, D. (2007). Language learner autonomy: Some fundamental considerations revisited. *Innovation in Language Learning and Teaching*, *1*(1), 14-29. https://doi.org/10.2167/illt040.0

Liu, L. (2022). Application of automated writing evaluation (AWE) system based on intelligent technology. In *2022 IEEE 2nd International Conference on Mobile Networks and Wireless Communications (ICMNWC)* (pp. 1-5). IEEE. https://doi.org/10.1109/ICMNWC56175.2022.10031924

MacIntyre, P. D. (2007). Willingness to communicate in the second language: Understanding the decision to speak as a volitional process. *The Modern Language Journal*, *91*(4), 564–576. https://doi.org/10.1111/j.1540-4781.2007.00623.x

MacIntyre, P. D., & Gardner, R. C. (1991). Language anxiety: Its relationship to other anxieties and to processing in native and second languages. *Language Learning*, *41*(4), 513-534. https://doi.org/10.1111/j.1467-1770.1991.tb00691.x

Marandi, S. S., & Seyyedrezaie, M. S. (2017). The multi-course comparison of the effectiveness of two EFL writing environments: Google Drive versus face-to-face on Iranian EFL learners` writing performance and writing apprehension. *Call-EJ, 18*(1), 9-21.

McCrocklin, S. M. (2016). Pronunciation learner autonomy: The potential of automatic speech recognition. *System*, *57*, 25-42. https://doi.org/10.1016/j.system.2015.12.013

Ozer, O., & Yukselir, C. (2021). Am I aware of my roles as a learner? The relationships of learner autonomy, self-direction and goal commitment to academic achievement among Turkish EFL learners. *Language Awareness*, *32*(1), 19-38. https://doi.org/10.1080/09658416.2021.1936539

Pinkman, K. (2018). Using blogs in the foreign language classroom: Encouraging learner independence. *The JALT CALL Journal*, *1*(1), 12-24. https://doi.org/10.29140/jaltcall.v1n2.r2

Prihatin, P. N. (2012). *The computer integration into the EFL instruction in Indonesia: An analysis of two university instructors in integrating computer technology into EFL instruction to encourage students' language learning engagement* [PhD Thesis, Loyola University Chicago].

Rahimi, M., & Fathi, J. (2022). Exploring the impact of wiki-mediated collaborative writing on EFL students' writing performance, writing self-regulation, and writing self-efficacy: A mixed-methods study. *Computer Assisted Language Learning*, *35*(9), 2627-2674. https://doi.org/10.1080/09588221.2021.1888753

Ryder, M., & Wilson, B. (1996). Affordances and constraints of the Internet for learning and instruction. In *Proceedings of Selected Research and Development Presentations at the 1996 National Convention of the Association for Educational Communications and Technology* (18th, Indianapolis, IN, 1996) (pp. 14).

Sabir, B. Y., Jabbar Othman, B., Gardi, B., Burhan Ismael, N., Abdalla Hamza, P., Sorguli,

S., Mahmood Aziz, H., Ali Ahmed, S., Ali, B. J., & Anwar, G. (2021). Administrative decentralization: The transfer of competency from the Ministry of Education to General Directorates. *International Journal of Rural Development, Environment and Health Research (IJREH)*, *5* (3), 1-13. https://dx.doi.org/10.22161/ijreh.5.3.1

Saleh, P. F., Ali, B. J., Akoi, S., Najmalddin, B., Ali, R. S., & Anwar, G. (2021). Factors affecting the success of female entrepreneurs in Kurdistan. *International Journal of Engineering, Business and Management (IJEBM)*, *5*(1), 1-21. https://doi.org/10.22161/ijebm.5.2.5

Sari, E., & Han, T. (2024). The impact of automated writing evaluation on English as a foreign language learners' writing self-efficacy, self-regulation, anxiety, and performance. *Journal of Computer Assisted Learning*. https://doi.org/10.1111/jcal.13004

Saricaoglu, A. (2019). The impact of automated feedback on L2 learners' written causal explanations. *ReCALL*, *31*(2), 189-203. https://doi.org/10.1017/S095834401800006X

Sato, T., Murase, F., & Burden, T. (2020). An empirical study on vocabulary recall and learner autonomy through mobile-assisted language learning in blended learning settings. *CALICO Journal*, *37*(3), 254-276. http://dx.doi.org/10.1558/cj.40436

Saville, N. (Ed.). (2017). Digital assessment. In *Digital language learning and teaching* (pp. 198–207). Routledge. https://doi.org/10.4324/9781315523293-17

Sorguli, S., Gardi, B., Jabbar Othman, B., Mahmood Aziz, H., Ali Ahmed, S., Sabir, B. Y., Burhan Ismael, N., Abdalla Hamza, P., Ali, B. J., & Anwar, G. (2021). Innovation: Knowledge management in the innovating industries. *International Journal of Electrical, Electronics and Computers (IJECC)*, *6*(3), 10-23. https://dx.doi.org/10.22161/eec.63.2

Stevenson, M. (2016). A critical interpretative synthesis: The integration of automated writing evaluation into classroom writing instruction. *Computers and Composition*, *42*, 1-16. https://doi.org/10.1016/j.compcom.2016.05.001

Stevenson, M., & Phakiti, A. (2019). Automated feedback and second language writing. In K. Hyland & F. Hyland (Eds.), *Feedback in second language writing: Contexts and issues* (pp. 125-142). Cambridge University Press.

Sun, B., & Fan, T. (2022). The effects of an AWE-aided assessment approach on business English writing performance and writing anxiety: A contextual consideration. *Studies in Educational Evaluation*, *72*, 101123. https://doi.org/10.1016/j.stueduc.2021.101123

Tahmouresi, S., & Papi, M. (2021). Future selves, enjoyment and anxiety as predictors of L2 writing achievement. *Journal of Second Language Writing*, *53*, 100837. https://doi.org/10.1016/j.jslw.2021.100837

Talim, S. R., Ali, B. J., & Top, C. (2021). Elaborating the antecedents of purchase intentions in second-hand car industry: Case study in kurdistan region of Iraq. *Journal of Contemporary Issues in Business and Government*, *27*(3), 1526-1547. https://doi.org/10.47750/cibg.2021.27.03.204

Tang, J., & Rich, C. S. (2017). Automated writing evaluation in an EFL setting: Lessons from China. *JALT CALL Journal*, *13*(2), 117-146. https://doi.org/10.29140/jaltcall.v13n2.215

Thrasher, T. (2022). The impact of virtual reality on L2 French learners' language anxiety and oral comprehensibility: An exploratory study. *CALICO Journal*, *39*(2), 219-238. https://doi.org/10.1558/cj.42198

Waer, H. (2021). The effect of integrating automated writing evaluation on EFL writing apprehension and grammatical knowledge. *Innovation in Language Learning and*

Teaching, 17(1), 47-71. https://doi.org/10.1080/17501229.2021.1914062

Wali, F., & Huijser, H. (2018). Write to improve: Exploring the impact of an automated feedback tool on Bahraini learners of English. *Learning and Teaching in Higher Education: Gulf Perspectives*, *15*(1), 14-34. https://doi.org/10.18538/lthe.v15.n1.293

Wang, Y. J., Shang, H. F., & Briody, P. (2013). Exploring the impact of using automated writing evaluation in English as a foreign language university students' writing. *Computer Assisted Language Learning*, *26*(3), 234-257. https://doi.org/10.1080/09588221.2012.655300

Warschauer, M., & Grimes, D. (2008). Automated writing assessment in the classroom. *Pedagogies: An International Journal*, *3*(1), 22-36. https://doi.org/10.1080/15544800701771580

Williams, C., & Beam, S. (2019). Technology and writing: Review of research. *Computers & Education*, *128*, 227-242. https://doi.org/10.1016/j.compedu.2018.09.024

Xu, Z., Banerjee, M., Ramirez, G., Zhu, G., & Wijekumar, K. (Kay). (2019). The effectiveness of educational technology applications on adult English language learners' writing quality: A meta-analysis. *Computer Assisted Language Learning*, *32*(1-2), 132-162. https://doi.org/10.1080/09588221.2018.1501069

Yagcioglu, O. (2015). New approaches on learner autonomy in language learning. *Procedia-Social and Behavioral Sciences*, *199*, 428-435. https://doi.org/10.1016/j.sbspro.2015.07.529

Yang, Y. F., Hsieh, W. M., Wong, W. K., Hong, Y. C., & Lai, S. C. (2022). Reducing students' foreign language anxiety to improve English vocabulary learning in an online simulation game. *Computer Assisted Language Learning*, 1-23. https://doi.org/10.1080/09588221.2022.2039203

York, J., Shibata, K., Tokutake, H., & Nakayama, H. (2021). Effect of SCMC on foreign language anxiety and learning experience: A comparison of voice, video, and VR-based oral interaction. *ReCALL*, *33*(1), 49-70. https://doi.org/10.1017/S0958344020000154

Young, D. J. (1991). Creating a low-anxiety classroom environment: What does language anxiety research suggest? *The Modern Language Journal*, *75*(4), 426-439. https://doi.org/doi.org/10.2307/329492

Young, S. S. C. (2003). Integrating ICT into second language education in a vocational high school. *Journal of Computer Assisted Learning*, *19*(4), 447-461. https://doi.org/10.1046/j.0266-4909.2003.00049.x

Zabihi, R. (2018). The role of cognitive and affective factors in measures of L2 writing. *Written Communication*, *35*(1), 32-57. https://doi.org/10.1177/0741088317735836

Zhang, X. (2019). Foreign language anxiety and foreign language performance: A meta-analysis. *The Modern Language Journal*, *103*(4), 763-781. https://doi.org/10.1111/modl.12590