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# Integrating Generative Artificial Intelligence in K-12 Students' EFL Academic Writing

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**Abstract:** This quantitative study examines the perceptions of male and female students on their written performance who learn English as a foreign language and use Artificial Intelligence (AI) tools. The researcher administered 550 survey questionnaires. However, the retrieved were 511. The researcher adapted the Teng and Wang (2021) scale to achieve the purposes of the study. The analysis of students' assessment level of their writing self-efficacy beliefs was moderate. The results uncovered that there were no differences in the students' writing self-efficacy beliefs due to some variables, such as gender. In other words, since both sexes in Palestine share the same learning environment, there were no differences in their perceptions of their own academic writing self-efficacy. Thus, it is essential to promote writing in the classroom from a young age. Teachers of the English language ought to focus more on their pupils' writing abilities. Instead of learning how to write, students in Palestine frequently memorize works. This is due to the possibility that language instructors may not offer sufficient teaching or training in the foundations of writing. By providing individualized feedback, assisting students in comprehending and refining the writing process, and encouraging self-efficacy in writing, AI-driven technologies can assist language instructors. These resources can offer prompt, focused feedback for enhancement, enabling students to advance their writing abilities more successfully.

**Keywords:** Artificial Intelligence (AI), gender, academic writing, self-efficacy beliefs

## Introduction

It is commonly known that developing writing confidence is essential to learning writing skill and abilities. Writing confidence is the degree to which students believe they can successfully finish writing assignments. Provided are the distinctions between writing in one's first language (L1) and writing in a second or foreign language, present a model of writing self-efficacy that encompasses three aspects: performance, self-regulation, and linguistic (Zhang & Zhang, 2024). Leaners need to develop a number of the abilities in order to learn a language is writing. It is the most crucial ability that language learners must acquire (Hadingham & Thompson, 2024). English as a Foreign Language (henceforth, EFL) learners need to put in a lot of effort and work consistently to improve their writing skills. Language instructors' job is to inspire students to work on their writing. Numerous aspects of self-efficacy beliefs in academic writing have been demonstrated in studies, including the effectiveness of linguistic knowledge, the effectiveness of self-regulation, the effectiveness of information organization, the effectiveness of writing performance, and the effectiveness of rehearsal and memory. Students' writing abilities are greatly impacted by these ideas, which also help to explain why academic writing performance differs among students EFL writing. Research underscored the significance of comprehending students' self-perceptions as writers. Acquiring competence in writing in the English language is an essential component of both professional and personal development. Writing is a basic form of interpersonal interaction that enables us to successfully convey our opinions, ideas, and

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feelings. Research highlighted the significance of understanding learners' self-perceptions as writers, particularly since these perceptions influence their involvement with scholarly writing and educational methodologies.

Generative AI applications can help students develop and improve academic writing skills in English at different levels. Examining students' writing self-efficacy while they are learning English as a second language is the goal of this study. According to Teng (2024), the study also intends to consider the writing skills and self-efficacy of EFL students, both male and female. According to the context of teaching EFL in Palestine, there is still a gap in highlighting the academic writing self-efficacy beliefs in English as teachers neglect this skill for a long time. When students go to the last grade before the university enrollment, they need to prepare for their final examinations what is called in Palestine as (Tawjihi) or the last class in K-12. In this class, students start to suffer from writing genres such as essays, emails, applications…etc. This is because they are not trained well on these types of writing and are not well prepared for this. To the best of the researchers' knowledge, the writing self-efficacy of EFL students has not been the subject of any previous research. To confirm how widespread this phenomenon is, more investigation is required. Thus, it is essential to evaluate students' writing self-efficacy beliefs since they may be a predictor of their academic writing performance. The study aimed to answer the following questions: (1) What is the level of writing self-efficacy beliefs among the Palestinian students who are in the K-12 using AI tools? and (2) Does gender play significant role in the writing self-efficacy beliefs of Palestinian students who use AI tools?

## Review of Literature

Writing self-efficacy beliefs is the confidence that students have in their capacity to write well (Moussaoui, 2024). According to Kara et al. (2024), these thoughts are originated in Bandura's social cognitive framework, which emphasizes the mutual relationships that exist between ideas, actions, and surroundings. Writing self-efficacy has an effect on students' performance, academic choices, and perseverance in educational settings (Zhang & Zhang, 2024). Research in the field has indicated that a variety of factors including peer participation, feedback, and instructional conditions, can affect students' writing self-efficacy influence learners' writing (Mohammadi et al., 2024). Sometimes learners might overestimate their writing prowess, underscoring the necessity of pedagogical interventions to assist them in appropriately calibrating their perceptions. The attitudes, methods, and feedback provided by teachers are critical in influencing students' writing self-efficacy (Tao & Yu, 2024). In general, writing self-efficacy is still a motivating factor that can be raised in secondary education settings with the help of supportive teachers and effective instructional strategies in contexts related to higher education (Wei et al., 2024). By offering students individualized, real-time feedback and support that builds confidence in their writing skills, AI tools can have a substantial impact on students' writing self-efficacy beliefs (Zhang & Li, 2025). AI-powered tools like writing aides, grammar checks, and style boosters give students quick, helpful feedback so they can monitor their progress and pinpoint areas for growth. When presented in a favorable light, this feedback helps students see their own writing proficiency since it provides them with concrete proof of their development and strong points (Wang & Zhang, 2024). Additionally, through enabling students to write goals and get ongoing performance feedback, AI supports self-regulation and cultivates a growth mentality. All things considered, students' self-efficacy in academic writing is increased by AI's ability to offer tailored guidance and lessen writing anxiety, which strengthens their confidence in their writing skills (Huang & Mizumoto, 2024). Self-efficacy is regarded as an important educational motivator that may have significant proactive effects on performance in school. There is a connection between writing performance and self-efficacy views (Moussaoui, 2024).

Researchers focused their attention on investigating the correlation between writing accomplishments and writing self-efficacy in the context of second/foreign language acquisition. Cordeiro et al. (2018) concluded that female students are performing better in writing and self-efficacy than male students. Setyowati et al. (2024) The findings indicate that the majority of students' self-

efficacy levels (58%), with the remaining 42% falling into the high category. The correlation study's findings indicate that there is no relationship between students' writing effectiveness and writing self-efficacy (r=-.020, n = 50, p =.892). Some researchers are interested in writing motivation and writing self-efficacy, according to a study by Yeung et al. (2024), which looked at the relationship between the ability to write and three writing motivation and affective components in 273 Chinese fourth graders. The results of the structural equation modelling showed that there was a significant correlation between writing anxiety and writing performance, but not between writing performance, writing self-efficacy, or perceived writing value. Through writing anxiety, writing self-efficacy had an indirect impact on writing performance. Research on Chinese students' writing anxiety and self-efficacy yielded different results than studies on Western students. These differences could indicate that Chinese students are more likely to be driven to put in more effort because they are afraid of failing their classes because they believe in their own skills.

## Methodology

The study used the analytical descriptive approach, which is based on describing a specific phenomenon and collecting information about it (Hasan et al., 2024). The study population consisted of all K-12 students who are studying English at the schools in Palestine in Qalqilya city in January 2025 to April 2025 in the scholastic year 2025.

### Participants

When the participants agreed voluntarily to take part in this study signing a consent, the researcher was able to collect 511 students from ten high schools in Qalqilya city in the northern districts of Palestine. The students studied English for eight years (K 1-K 12). Their English for Palestine course is built based on integrating all the English language skills. Unfortunately, students are not well – prepared to write and produce English essays or paragraphs. Students suffer from this overlooking of this important language skill when enrolling the Tawajehi (secondary grade) as mentioned earlier. Sample distribution based on their gender is clear in table 1.

**Table 1.** Sample distribution according to the gender

| Variable | F | Percentage |
|---|---|---|
| Male | 141 | 27.5% |
| Female | 370 | 72.5% |
| Total | 511 | 100% |

It is clear from Table 1 that 27.5 % of the study sample were males, and 72.5 % were females. The researcher identified the members of the study sample who are students K-12. To avoid delays, the researcher distributed the scale on paper hand-delivered and filled out by 511 students who expressed their self-efficacy in writing. The circumstances of the study were so hard as the present educational environment, students and teachers' attendance to schools was in its most cases three-days a week. This was due to the deteriorating economic conditions of educational institutions in Palestine because of the cuts in wages because of the socio-political situations.

### Instrumentation

The researcher implemented Teng and Wang (2021) Academic Writing Self-Efficacy Belief Questionnaire (AWSEBQ) to conduct the study. It evaluates students' proficiency in EFL writing. The first section contains personal information broken down into multiple categories, including gender, and containing a variety of variables. The following categories of Academic Writing Self-Efficacious Belief are included in the second section: Language Knowledge Effectiveness (LKE), Information Organization Effectiveness (IOE), Rehearsal and memory effectiveness (RME), Self-regulatory effectiveness (SRE), and Write Performance Efficiency (WPE). A self-efficacy assessment of the learners' improvement in their EFL writing was also employed by the researcher.

### Validity and Reliability

The researcher established the face validity through the experts who stated that some modifications should be made to it in order to be valid and normalize the questionnaire for the purposes of collecting data from, as the questionnaire in its final form consisted of (30) items. To gain the high degree of stability coefficient of the instrument, the researcher calculated the reliability coefficient using the (Cronbach alpha) formula. The reliability was (79.0), which is good stability coefficient for conducting this study using this instrument as a suitable tool for this study.

## Findings

The following scale helps in reading the means of students' responses.

**Table 2.** Scaling of students' responses

| Rank | Mean range |
|---|---|
| Very low self-efficacy | 1.80-1 |
| low self-efficacy | 2.60-1.81 |
| Medium self-efficacy | 3.61-2.261 |
| high self-efficacy | 3.62--4.20 |
| Very high self-efficacy | 5.0-4.21 |

### Level of Writing Self-Efficacy Beliefs among the K-12 Palestinian EFL Students

**Table 3.** Means, SDs, and percentages of students of self-efficacy domains in their EFL writings in K-12

| Order | | Writing self-efficacy | M | % | Response |
|---|---|---|---|---|---|
| 1 | 1 | linguistic knowledge Effectiveness | 4.21 | 80% | high self-efficacy |
| 2 | 2 | Information Organization Effectiveness | 3.72 | 75% | high self-efficacy |
| 3 | 3 | Rehearsal and memory effectiveness | 3.59 | 72% | Medium self-efficacy |
| 4 | 5 | Self-Regulatory Effectiveness | 3.44 | 69% | Medium self-efficacy |
| 5 | 4 | Writing Performance Efficiency | 3.30 | 66% | Medium self-efficacy |
| Total Score | | | 3.61 | 72% | Medium self-efficacy |

Table 3 presents the total score for the domains of students' perceptions of their self-efficacy in EFL writing in higher education institutions in Palestine. These domains are ranked by the highest means as follows:

The linguistic knowledge domain had the highest mean 4.21, indicating that students feel capable of understanding, using, and applying appropriate vocabulary, terminology, and grammatical structures in academic writing. The second domain, information organization, had a mean of 3.72. Participants generally agreed that they could effectively break down academic essay writing into smaller components and adapt new ideas into their own language for use in academic contexts. Such result confirms with Zhang and Zhang (2024).

Rehearsal and memory ranked third, with a mean of 3.59, reflecting students' belief in their ability to repeatedly study course materials to build knowledge for academic writing. This domain also highlighted their use of effective study strategies and their passion for their field of study, which helps them retain essential information. Writing performance competence came fourth, with a mean of 3.44. Students demonstrated strong performance in academic writing tasks and exercises in English courses, showing proficiency in writing techniques and strategies. Finally, self-regulation efficacy ranked lowest, with a mean of 3.30, indicating a neutral response from students regarding their ability to manage and regulate their writing processes independently. Overall, the arithmetic mean for students' perceptions of their self-efficacy in English writing across all domains was 3.61, showing a moderate level of agreement. This result suggests that English-major students have a clear understanding of their writing abilities. Writing is perceived as a process of thinking and the culmination of other language skills. It serves as a formal method of communication in various fields. For instance, a learner's understanding of a subject is often reflected in their test performance, where their writing demonstrates their ability to connect ideas and express their thoughts clearly through written symbols. The findings indicate that students perceive their written performance in English as moderate.

**Significant Role of Gender in the Writing Self-efficacy Beliefs of Palestinian Students:**

To analyze the results of this question, I used Independent Sample t-test to compare the means, SD, t-values, DF, and statistical significance. The results are clear in the table below:

**Table 4.** Results of the (t) test for independent samples to compare between two means of two independent samples (Independent Sample t-test) according to the gender variable

| Domain | male | | male | | df | t | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | | | |
| Language Knowledge Effectiveness (LKE) | **4.1548** | **.56789** | **3.9605** | **.58174** | **88** | **1.152** | **.252** |
| Information Organization Effectiveness (IOE) | **3.8333** | **.64384** | **3.7061** | **.71950** | **88** | **.617** | **.539** |
| Rehearsal and memory effectiveness (RME) | **3.5714** | **.52540** | **3.5974** | **.45313** | **88** | **-.192-** | **.848** |
| Self-Regulatory Effectiveness (SRE) | **3.3125** | **.67715** | **3.3026** | **.65424** | **88** | **.052** | **.959** |
| Write Performance Efficiency (WPE) | **3.3857** | **.99989** | **3.4605** | **.76874** | **88** | **-.319-** | **.751** |
| Students' self-efficacy in their writing in English as a foreign language | **3.6604** | **.56528** | **3.6103** | **.43574** | **88** | **.377** | **.707** |

It is evident from the data in the table 4 that there are no significant differences ($\alpha \geq 0.05$) in students' self-efficacy in writing across all study domains due to the gender variable. The statistical significance for English as a foreign language was recorded as 0.707. According to statistics, the null hypothesis is higher than 0.05. Other factors, such motivation, past academic experiences, or language competency, may have a greater influence on students' opinions of their writing talents, while gender does not appear to be a decisive factor in students' self-efficacy beliefs. To gain a better understanding of the main components influencing self-efficacy in EFL writing, future studies could look into these alternative factors. Academic results may be impacted by gender disparities in specific educational or cultural contexts. However, this study demonstrates that students' self-perceptions of their academic writing do not seem to be influenced by gender in the context of Palestinian higher education institutions. This could suggest that both male and female students receive the same opportunities and support, or that gender stereotypes may be less noticeable in these institutions when it comes to language-related tasks. These results do not confirm with Cordeiro et al. (2018). From a teaching point of view, this result supports the notion that students' self-efficacy in academic writing can be addressed without the need for gender-specific instructional methods. Without having to worry about possible gender-related differences in self-efficacy, educators may concentrate on other, more pertinent aspects, including improving writing teaching, offering helpful criticism, and encouraging self-regulation.

## Conclusion and Recommendations

This study contributes to the theoretical and empirical understanding of self-efficacy in EFL writing of the Palestinian K-12 students. Three essential conclusions were drawn from the study: first, it shows a quantifiable relationship between writing outcomes and domain-specific self-efficacy beliefs; second, it shows how these beliefs vary depending on the writing task and level of proficiency; and third, it identifies important knowledge gaps regarding the ways in which technological mediation affects self-efficacy. Although the single-context design of the study has drawbacks, these results offer a strong basis for further investigation at the nexus of educational technology, self-regulation theory, and writing pedagogy. The findings specifically highlight the necessity of more complex theoretical frameworks that take into consideration. Future researchers may consider the developmental paths of writing self-efficacy across various teaching modalities through longitudinal intervention studies using growth modelling techniques. The complex effects of AI writing tools should also be investigated experimentally. A cross-cultural research is required to investigate cultural moderators of the development of self-efficacy and validate results in a variety of EFL contexts. Lastly, studies of teacher-focused aspects should be conducted, such as studies of teacher attitudes towards educational technology and successful professional development models for self-efficacy-informed instruction. The study suggests a more focused and effective EFL writing pedagogy by endorsing the use of validated tools to assess students' self-beliefs before implementing focused interventions.

## References


Cordeiro, C., Castro, S. L., & Limpo, T. (2018). Examining potential sources of gender differences in writing: The role of handwriting fluency and self-efficacy beliefs. *Written Communication*, *35*(4), 448-473. https://doi.org/10.1177/0741088318788843

Hadingham, O., & Thompson, G. (2024). Changes in the academic writing self-efficacy beliefs of students in transition from high school to an English medium instruction university programme in Japan. In *Building the Self-Efficacy Beliefs of English Language Learners and Teachers* (pp. 220-240). Routledge.

Hasan, M. R., Ray, R. K., & Chowdhury, F. R. (2024). Employee performance prediction: An integrated approach of business analytics and machine learning. *Journal of Business and Management Studies*, *6*(1), 215-219. https://doi.org/10.32996/jbms.2024.6.1.14

Huang, J., & Mizumoto, A. (2024). Examining the effect of generative AI on students' motivation and writing self-efficacy. *Digital Applied Linguistics*, *1*, 102324. https://doi.org/10.29140/dal.v1.102324

Kara, A., Ergulec, F., & Eren, E. (2024). The mediating role of self-regulated online learning behaviors: Exploring the impact of personality traits on student engagement. *Education and Information Technologies*, 1-30. https://doi.org/10.1007/s10639-024-12755-3

Mohammadi, K., Jafarpour, A., Alipour, J., & Hashemian, M. (2024). The impact of different kinds of collaborative prewriting on EFL learners' degree of engagement in writing and writing self-efficacy. *Reading & Writing Quarterly*, *40*(1), 1-18. https://doi.org/10.1080/10573569.2022.2157783

Moussaoui, S. (2024). Enhancing writing quality and self-efficacy beliefs through process-oriented task-based instruction and multiple feedback forms. *Journal of Educational and Psychological Studies*, *18*(1), 96-116. https://doi.org/10.53543/jeps.vol18iss1pp96-116

Setyowati, L., Sukmawan, S., Karmina, S., & Mabaroh, B. (2024). The correlation between students' writing self-efficacy and essay writing performance. *Journal of Languages and Language Teaching*, *12*(1), 72-87. https://doi.org/10.33394/jollt.v12i1.9140

Tao, Y., & Yu, J. (2024). Cultural threads in writing mastery: a structural analysis of perfectionism, learning self-efficacy, and motivation as mediated by self-reflection in Chinese EFL learners. *BMC Psychology*, *12*(1), 80. https://doi.org/10.1186/s40359-024-01572-5

Teng, L. S. (2024). Individual differences in self-regulated learning: Exploring the nexus of motivational beliefs, self-efficacy, and SRL strategies in EFL writing. *Language Teaching Research*, *28*(2), 366-388. https://doi.org/10.1177/13621688211006881

Teng, M. F., & Wang, C. (2023). Assessing academic writing self-efficacy belief and writing performance in a foreign language context. *Foreign Language Annals*, *56*(1), 144-169.

Wang, Y., & Zhang, L. (2024). The impact of AI use on college students' academic self-efficacy and anxiety. *Journal of Educational Technology & Society*, *27*(2), 45-58.

Wei, W., Cheong, C. M., Zhu, X., & Lu, Q. (2024). Comparing self-reflection and peer feedback practices in an academic writing task: a student self-efficacy perspective. *Teaching in Higher Education*, *29*(4), 896-912. https://doi.org/10.1080/13562517.2022.2042242

Yeung, P. S., Chung, K. K. H., Chan, D. W. O., & Chan, E. S. W. (2024). Relationships of writing self-efficacy, perceived value of writing, and writing apprehension to writing performance among Chinese children. *Reading and Writing*, 1-47. https://doi.org/10.1007/s11145-024-10512-z

Zhang, H., & Li, X. (2025). The effects of generative AI platforms on undergraduates' narrative intelligence and writing self-efficacy. *Education and Information Technologies*, *30*(1), 123-139.

Zhang, J., & Zhang, L. J. (2024). Profiling L2 students' writing self-efficacy and its relationship with their writing strategies for self-regulated learning. *System*, *122*, Article no. 103253. https://doi.org/10.1016/j.system.2024.103253


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