

## SELF-EFFICACY AND METACOGNITION AS MEDIATING EFFECTS OF GROWTH MINDSET ON STUDENTS' WRITING SKILLS

Amrina<sup>1</sup>, Syarifatul Hayati Zarfi<sup>2</sup>, and Daniyar Satybaldy<sup>3</sup>

<sup>1</sup> Universitas Islam Negeri Mahmud Yunus Batusangkar, Indonesia

<sup>2</sup> Universitas Islam Negeri Mahmud Yunus Batusangkar, Indonesia

<sup>3</sup> Al-Farabi Kazakh National University, Kazakhstan

### Corresponding Author:

Amrina,

Department of Arabic Language Education, Faculty of Teacher Training and Education, Universitas Islam Negeri Mahmud Yunus Batusangkar.

Jl. Jenderal Sudirman No.137, Lima Kaum, Batusangkar, Kabupaten Tanah Datar, Sumatera Barat, Indonesia Email: amrina@uinmybatusangkar.ac.id

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### Abstract

In the field of education, writing skills represent a vital competency that university students must possess. These skills are closely interrelated with self-efficacy and metacognition. Self-efficacy refers to an individual's belief in their capability to execute the actions required to achieve specific goals, while metacognition involves an individual's awareness of their own thinking processes. Both elements are essential for the development of effective writing proficiency. This study aims to examine and observe students' writing skills, which are crucial for academic success in higher education, as an effort to analyze the mediating effects of a growth mindset on students' writing performance. This research employs a quantitative method using a survey design. Data were collected via questionnaires distributed to a sample of students from the Arabic Language Education and English Language Education programs at the State Islamic University (UIN) Mahmud Yunus Batusangkar. Data were analyzed using mediation analysis techniques. The findings indicate that self-efficacy and metacognition significantly function as mediating variables in the relationship between a growth mindset and students' writing skills. These components are proven to be fundamental factors in the educational process. This study demonstrates that writing skill is a critical competence for students. A growth mindset enhances self-efficacy and metacognitive awareness, both of which strongly influence writing effectiveness. When students possess the ability to write effectively, they feel more confident in their abilities. Furthermore, when students utilize metacognitive awareness to construct their writing alongside high self-efficacy, they experience a significant improvement in their overall writing skills.

**Keywords:** Self-Efficacy, Skills/Proficiency, Metacognition



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## INTRODUCTION

The mediating effect on students' writing skills faces several challenges, such as the ambiguity of relationships between variables, variations in individual experiences, and subjective measurements (Shi & Sun, 2025). Furthermore, external factors like the learning environment and faculty support can influence the outcomes. Different levels of student independence may result in varied responses to learning methods, thus complicating the isolation of the mediating effect (Ba et al., 2025). In-depth research is required to better understand these dynamics. Various factors, both external and internal, are known to influence an individual's academic achievement, such as learning styles, motivation, educational facilities, and teaching strategies. Nevertheless, a student's success in learning is primarily determined by themselves (Zhao et al., 2025). When individuals understand their own thinking processes and effective learning methods, academic achievement becomes more attainable.

In the context of the mediating effect on writing skills, several solvable issues include understanding the relationships between variables, improving learning methods, and identifying learning barriers (Tran-Duong & Do-Hung, 2025). Additionally, understanding these mediating effects can assist in personalizing learning and evaluating existing curricula. By addressing these issues, education can become more adaptive and focused on developing better writing skills.

Students vary in their engagement; some are active and diligent in seeking what they need to learn and possess interests in diverse materials (Zanabazar et al., 2025). Other students deeply understand their learning abilities, including their strengths and weaknesses, which requires them to work harder in the learning process. Conversely, there are passive students who are unsure of what to study, let alone how to regulate their own learning methods.

Students who have realized and understood their own thinking and learning processes gain numerous benefits, particularly in enhancing writing skills. This awareness allows students to be more effective in developing learning strategies tailored to their needs. Moreover, the ability to regulate the learning process helps them overcome writing difficulties, as they are better able to recognize their strengths and weaknesses and apply appropriate methods to improve the quality of their writing (Hwang, 2025). Consequently, students can achieve more optimal results in their writing proficiency.

This introduction emphasizes the importance of a holistic approach in teaching writing, which considers different cultural and academic contexts in the Arabic and English departments (Lin et al., 2025). This study aims to identify factors influencing writing skills, such as motivation, social support, and teaching methods. By understanding the specific needs of students in each department, this research is expected to provide appropriate recommendations for curriculum development and effective learning strategies (T. Li et al., 2025). The goal is to create an inclusive learning experience, enhance writing skills, and prepare students for academic and professional challenges.

This research aims to examine the role of self-efficacy and metacognition as mediating effects of a growth mindset on students' writing skills. This study contributes to filling the gap in students' writing skills by identifying specific problems, developing new theories, and providing insights into effective teaching practices. Through program evaluation, this research can help improve curricula and learning methods (Zhong & Wang, 2025). To address these gaps, methods such as surveys and interviews can be used to collect data from students. Additionally, utilizing technology such as online learning platforms can provide additional access for students to develop their writing skills. With this approach, the research can significantly enhance students' writing skills and academic outcomes.

The state of the art in teaching writing skills involves the use of digital technology, project-based approaches, and formative feedback to gradually improve writing ability. Proposed innovations include the integration of artificial intelligence to provide automated feedback, the development of collaborative platforms for joint writing, and mentoring

programs involving experienced students (Mudrák et al., 2025). Furthermore, designing interdisciplinary courses and integrating multimedia elements into the writing process can foster creativity and the relevance of writing in a broader context. These innovations are expected to significantly enhance students' writing skills and prepare them for modern-world challenges.

A comparison with previous research shows that many existing approaches focused on traditional methods, such as direct instruction and written assignments with minimal interaction (W. Li & Hashim, 2025). Previous studies often emphasized the importance of feedback but fell short in utilizing technology and collaborative approaches. While earlier research may have recognized the role of technology, current proposed innovations go deeper into the integration of artificial intelligence and collaborative platforms. Moreover, interdisciplinary approaches and the use of multimedia in writing have not been extensively discussed in prior research (Han & Ganapathy, 2025). In terms of effectiveness, previous studies tended to show improvements through traditional methods, but the currently proposed innovations have the potential to yield more significant results by creating a more interactive and engaging learning environment. Thus, the current approach not only updates teaching methods but also addresses challenges that were not fully resolved by previous research.

It is hoped that future researchers can deepen the understanding of the roles of self-efficacy and metacognition as mediators of a growth mindset in enhancing students' writing skills. It is crucial for researchers to adopt a more comprehensive approach that focuses not only on individual variables but also considers the interactions between these factors across various learning environments (Zhang & Li, 2025). With these efforts, future research is expected to contribute significantly to the development of better writing skills in diverse learning contexts. These findings are beneficial not only to the academic world but also to broader educational practices, helping students reach their full potential as writers and communicators.

## RESEARCH METHOD

The following sections detail the methodology employed in this study, which focuses on the statistical paths between growth mindset, psychological mediators, and writing proficiency.

### ***Research Design***

This study employs a quantitative research design with a specific focus on mediation analysis (Huang & Liu, 2025). The design is structured to test hypotheses regarding numerical data and to observe the mediating effects of self-efficacy and metacognition on students' writing skills. While the core approach is quantitative, the study incorporates in-depth interviews to provide additional qualitative insights, creating a robust framework for understanding the "why" behind the statistical trends. The primary objective is to map the causal pathways between a growth mindset and writing proficiency through psychological mediators.

### ***Research Target/Subject***

The target population for this research consists of students from the Arabic Language Education and English Language Education programs at the State Islamic University (UIN) Mahmud Yunus Batusangkar. The researcher specifically selected students with a demonstrated talent and interest in writing to ensure the environment was supportive of advanced educational outcomes (Asare et al., 2025). A random sampling method was used across these departments to ensure data representation. Out of 50 students invited, the final sample consisted of 30 active respondents (18 from Arabic Education and 12 from English Education), as detailed in the participant distribution table.

### Research Procedure

The research procedure followed a systematic six-stage workflow initiated in mid-semester (October). The stages included: 1) collecting data related to mediating effects; 2) converting the research topic into 20 measurement statements; 3) distributing these statements via Google Forms through WhatsApp; 4) gathering responses from 30 participants and organizing them into a spreadsheet; 5) importing the data into the Jamovi statistical software; and 6) processing the data to refine findings and draw final conclusions (Yu & Ma, 2025). Throughout this process, high ethical standards were maintained, ensuring participant autonomy and the confidentiality of personal data.

### Instruments, and Data Collection Techniques

Data were collected using a structured survey distributed via Google Forms, which contained statements specifically evaluating students' understanding and levels of self-efficacy and metacognition (Ying & Yaakob, 2025). The questionnaire used a categorisation scale where "Agree" was marked within an interval of >90% and "Disagree" within 0-50%. Additionally, semi-structured interview guides were used as a secondary instrument to capture qualitative depth from the language education students. The use of digital forms allowed for efficient and transparent information gathering, enabling students to provide honest responses without risk or coercion.

Table 1. List of Students

No.	Students	Total
1	Arabic Language Education Program	18
2	English Language Education Program	12

As illustrated in Table 1 above, all respondents in this study consist of students from the Arabic Language Education and English Language Education programs. The sample includes 18 students from the Arabic Language Education program and 12 students from the English Language Education program. The total number of respondents is 30.

### Data Analysis Technique

The primary data analysis technique utilized in this study is Path Analysis, specifically focusing on testing mediating effects (Kang & Yeom, 2025). The researcher employed the Hayes Process macro, one of the most effective techniques for mediation analysis, to determine the statistical significance of the mediators. The raw data were processed using Jamovi software to calculate average percentage scores and path coefficients. This systematic approach allowed the researcher to accurately determine how much of the effect of a growth mindset on writing skills is channeled through self-efficacy and metacognition, ensuring valid and reliable conclusions.

Table 2. Details of the Research Sample

No.	Choice Category	Percentage Level
1	Agree	>90%
2	Disagree	0-50%
Total	100%	

From Table 2 above, it can be understood that the mediating effect on the writing skills of students in the Arabic Language Education and English Language Education programs involves several assessment categories: the "agree" category with an interval value of 90%, and the "disagree" category with an interval value of 0-50%. Thus, for the total interval, the overall value is 100%.

## RESULTS AND DISCUSSION

Self-efficacy and metacognition, acting as mediating effects on the writing skills of students in Arabic and English Language Education programs, play a vital role in enhancing student learning outcomes. This differentiated learning approach aims to align instructional methods and materials with the specific needs and characteristics of each student to maximize their potential. In the context of higher education, particularly within these language programs, this approach is highly relevant due to the diverse learning styles that must be accommodated. Online discussion and collaboration facilities further enable students to share knowledge and experiences, thereby enriching the learning process. By leveraging technology and student-centered approaches, educational institutions can foster a more inclusive and effective learning environment.

Self-efficacy and metacognition as mediating effects are essential for improving the academic results of students in Arabic and English Language Education programs. Consequently, researchers proposed several statements and conducted a study regarding these mediating effects to determine their level of influence on student writing skills. The following statements were presented to students within these programs:

Table 3. The Mediating Effects on Student Writing Skills

No.	Statement	Agree (S)	Disagree (TS)
1	Believing that writing skills can be improved through effort and practice.	88%	12%
2	Capable of producing good academic writing despite facing difficulties.	94%	6%
3	Frequently planning ahead before starting to write.	55%	45%
4	Always evaluating the writing to ensure alignment with writing goals.	73%	27%
5	Constantly thinking about which strategies are most effective for improving writing.	66%	34%
6	Tending to view writing errors as opportunities to learn rather than as failures.	94%	6%
7	Having strong confidence in the ability to complete writing well, especially when facing difficulties.	80%	20%
8	Believing that writing skills can continue to develop through effort and practice.	89%	11%
9	Viewing failure as an opportunity to learn and improve rather than a sign that writing skills have plateaued.	15%	85%
10	Confident in being able to improve writing skills with the right strategies.	84%	16%

Based on the tables above, it can be observed that the highest percentages among all questionnaire statements are found in statements 2 and 6. Statement 2 achieved a percentage of 94%, with the assertion of being capable of producing high-quality academic writing despite difficulties. The presence of strong writing skills encourages students to express themselves, think critically, and communicate effectively. It also assists them in problem-solving, career preparation, supporting research activities, and facilitating collaboration. Overall, writing skills play a vital role in the personal and professional development of students. Similarly, statement 6 also reached a 94% agreement rate, regarding the tendency to view writing errors as opportunities to learn rather than failures. Viewing writing failure as a learning opportunity can be achieved by adopting a growth mindset, reflecting on feedback, performing revisions, creating a supportive environment, and realizing that mistakes are a natural part of the learning process for all writers.

Regarding its role, the mediating effect on student writing skills suggests that the presence of self-efficacy and metacognition significantly influences the improvement of

student writing proficiency. This is evidenced by the data in statement 1, which shows that the majority of respondents agree that writing skills are improved through effort and practice, with 88% in agreement and 12% in disagreement. These results are supported by the active participation of 30 respondents in this study.

Furthermore, this study examines whether the mediating effects on student writing are well-structured and systematic. Results for statement 2 show that 94% of respondents agree that the mediating effects on student writing are well-organized, with only 6% disagreeing. In statement 3, 55% of respondents agree while 45% disagree regarding the habit of planning before starting to write. On average, respondents agree that writing skills can be enhanced through proper pre-writing planning. Despite differing opinions, the majority indicates that advanced planning is a crucial step for producing structured and systematic writing.

The mediating effect on student writing skills provides an understanding that certain factors, such as planning and organization, can influence writing ability. Through this mediating effect, it can be identified that a structured and systematic process prior to writing contributes to improved writing quality. This underscores the importance of strategy and support in developing effective writing skills, as shown by statement 4, where 73% of respondents agree and 27% disagree. Additionally, the mediating effect has shown positive impacts including improved quality through clearer structure, independence and confidence in constructing arguments, and better critical thinking skills. Good planning also helps students manage time more effectively, increases creativity, and provides higher motivation for continuous learning. Overall, this supports the academic and personal growth of students. Survey results for statement 5 show that 66% of students agree, while 34% disagree, indicating that the mediating effect has been successful for students in the Arabic and English Education programs.

In statement 6, concerning writing errors as a learning opportunity rather than failure, the results show that the majority of students are satisfied with the guidance provided, with 94% agreement. Only 8% disagree, meaning only a small fraction of students struggle to adopt the view that mistakes are a learning opportunity. This high satisfaction suggests that the majority of students view errors as a positive part of the learning process.

Statement 7 indicates a high level of confidence in the ability to complete writing successfully, especially when facing difficulties. 80% of respondents agree because they feel confident that with the right support, such as guidance and available resources, they can overcome writing obstacles. This confidence reflects the understanding that writing ability can be improved through practice, effective strategies, and systematic approaches. Only 20% disagree, suggesting that a small portion of students may still doubt their abilities, possibly due to a lack of experience, uncertainty regarding strategies, or lack of support. This uncertainty highlights the need for more guidance and resources.

Furthermore, statement 8 shows that writing skills can continue to develop through effort and practice. 89% of respondents agree, believing that consistent practice and applying the right strategies will improve their abilities. Only 11% disagree, indicating some doubt regarding the effectiveness of consistent practice. This suggests a need for additional support for students lacking confidence.

The mediating effect on student writing is highly beneficial in helping them develop ideas, improve writing techniques, and build self-confidence. As found in statement 9, regarding viewing failure as an opportunity to learn rather than a plateau, 15% of respondents agree that this perspective is essential. This positive attitude motivates students to continue improving instead of feeling discouraged. Conversely, 85% disagree, perhaps seeing failure as a sign of deficiency, which reduces motivation and confidence. This negative attitude can cause students to avoid challenges and criticism, hindering their development.

Finally, statement 10 shows that students are confident they can improve their writing with the right strategies. 84% of respondents agree, as this belief encourages them to seek and

apply effective approaches. Only 16% strongly disagree. Thus, most students believe that effective approaches can help them develop their writing skills, reflecting a positive potential in the learning process.

Self-efficacy and metacognition are innovative approaches in education designed to enhance learning outcomes, particularly in the writing skills of students in Arabic and English Language Education programs. This approach emphasizes tailoring teaching methods to the needs and characteristics of each student to create a more effective and interactive learning environment. Differentiated learning is an instructional strategy that accommodates individual differences in student abilities, interests, and learning styles.

The mediating effect on student writing involves several interrelated components aimed at creating a more effective and interactive learning environment. First, the development of metacognitive skills allows students to evaluate and regulate their own thinking processes. This is vital as students become more aware of the strategies they use while writing, which in turn improves writing quality. Next, increasing self-efficacy plays a crucial role in building students' confidence in their writing abilities. When students believe they can write well, they tend to be more motivated to persevere and face challenges. Tailoring learning to individual characteristics is also essential. Through various approaches, students can learn in the way that best suits them, thereby increasing their understanding and writing skills. This differentiated learning strategy accommodates variations in ability, interest, and learning style, allowing every student to develop optimally.

To increase the effectiveness of teaching writing through mediating effects, methods suited to their learning styles include cooperative learning, which encourages collaboration, and project-based writing, which increases engagement with relevant topics. Differentiated learning tailors material to individual abilities and interests, while exploratory models provide opportunities to discover new ideas before writing. The use of technology, such as digital tools and writing platforms, can assist students who are more comfortable with modern media. Continuous feedback from both lecturers and peers supports reflection and improvement, while metacognitive learning teaches students to reflect on their writing process. Class discussions and debates also stimulate critical thinking and broaden perspectives. By integrating these methods, students can engage more actively and develop their writing skills effectively.

Table 4. Statements and Percentages Obtained Based on Respondent Answers

No.	Statement	Agree (S)	Disagree (ST)
1	Mediating effects are relevant to the writing skills of Arabic and English Education students.	95%	5%
2	Mediating effects provide feedback that helps me correct errors.	90%	10%
3	Mediating effects support my learning style effectively.	87%	13%
4	Mediating effects improve my ability to write in Arabic and English.	66%	34%
5	I feel more confident after understanding self-efficacy and metacognition.	89%	11%
6	Writing skills improve my learning outcomes in Arabic and English courses.	85%	15%
7	Learning allows for better interaction with lecturers in developing writing skills.	72%	28%
8	Mediating effects on writing skills provide a variety of learning methods suited to my needs.	96%	4%
9	I feel more comfortable writing with modern methods than traditional methods.	90%	10%
10	Writing skills give me the freedom to learn anytime and	96%	4%

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anywhere according to my needs.

The research results reveal several identical percentages across the highest-ranking categories. The highest agreement rate was 96%, found in statements 8 and 10. The second-highest agreement rate was 95% for statement 1. The third-highest was 90%, shared by statements 2 and 9. Other agreement percentages included 89% for statement 5, 87% for statement 3, 85% for statement 6, and 72% for statement 7. Statement 4 received the lowest agreement rate at 66%.

Regarding the first statement on the relevance of the mediating effect to the writing skills of Arabic and English Education students, the survey showed that 95% of respondents felt the mediation positively influenced their writing abilities. Conversely, 5% disagreed, feeling the mediation methods were ineffective or mismatched with their learning styles. This relevance is evidenced by increased learning motivation, better interaction with lecturers, broader material accessibility, and direct feedback opportunities.

For the second statement, which addresses the mediating effect in providing feedback to correct errors, 90% of respondents agreed, indicating that feedback received through mediation is highly beneficial. The 10% who disagreed felt the feedback was not specific or detailed enough to identify areas for improvement. In statement 3, regarding the effective support of learning styles, 87% of respondents agreed that the mediation aligned with their learning methods. However, 13% disagreed due to a mismatch with their preferences, such as a need for more direct interaction or varied teaching approaches.

The discussion of statement 4 showed that 66% of respondents agreed that the mediating effect improves their Arabic and English writing abilities. However, a significant portion disagreed, indicating doubts about the effectiveness of mediation, possibly due to a lack of direct practice or additional learning support. Regarding statement 5, 89% of respondents felt more confident after understanding self-efficacy and metacognition. Meanwhile, 11% disagreed, suggesting uncertainty or a lack of understanding of these concepts. This highlights the need for deeper support to help all students apply these concepts in writing.

Statement 6 showed that 85% of respondents agreed that writing skills improve their learning outcomes in Arabic and English courses, affirming its importance for academic success. The 15% who disagreed may prioritize other factors, such as speaking skills or theoretical depth. Statement 7, regarding better interaction with lecturers, showed 72% agreement, reflecting the perceived benefit of intensive lecturer-student interaction. The 28% disagreement indicates a need to evaluate teaching methods so all students experience similar benefits.

For statement 8, 96% of respondents agreed that the mediating effect provides a variety of learning methods suited to their needs, allowing for more effective, individualized learning. Only a small percentage disagreed, suggesting that mediation successfully meets most individual learning needs. Statement 9 showed that 90% of respondents feel more comfortable with modern writing methods than traditional ones. The 10% who disagreed indicate that institutions should consider a combination of both approaches to accommodate all preferences.

Finally, for statement 10, 96% of respondents agreed that writing skills provide the freedom to learn anytime and anywhere. This suggests that proficiency allows for greater flexibility in the learning process. Overall, while the majority of respondents experienced positive benefits from mediation, the minor disagreements across various points underscore the necessity for a flexible and diverse approach to meet every student's unique needs.

## One-Way ANOVA

### One-Way ANOVA (Welch's)

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F	df1	df2	p
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<b>S</b>	0.00435	1	18.0	0.948
<b>TS</b>	0.00435	1	18.0	0.948

Based on the results of the One-Way ANOVA (Welch's) analysis above, it can be concluded that there is no statistically significant difference between the means of the compared groups. This indicates that these groups possess similar means or do not differ significantly from one another. The One-Way ANOVA (Welch's) test is utilized to compare the means of three or more groups, particularly when the assumption of equal variances (homogeneity of variance) is not met.

In the aforementioned analysis, the p-values obtained for all comparisons (Agree and Disagree) are greater than the common significance level of 0.05. This p-value represents the probability of obtaining results at least as extreme as those observed, assuming no real difference exists between the groups. Since the p-value exceeds 0.05, we fail to reject the null hypothesis, which states that there is no difference in means between the groups.

These results indicate that the factors or variables distinguishing the groups do not exert a significant influence on the dependent variable being measured. In other words, variations in the independent variable (the factor distinguishing the groups) do not cause a meaningful difference in the dependent variable.

### Post Hoc Tests

Games-Howell Post-Hoc Test – S

	A	B
<b>A</b> <b>Mean difference</b>	—	-0.542
<b>p-value</b>	—	0.948
<b>B</b> <b>Mean difference</b>	—	—
<b>p-value</b>	—	—

Games-Howell Post-Hoc Test – TS

	A	B
<b>A</b> <b>Mean difference</b>	—	0.542
<b>p-value</b>	—	0.948
<b>B</b> <b>Mean difference</b>	—	—
<b>p-value</b>	—	—

After establishing through the ANOVA test that there were significant overall differences among the groups, the Games-Howell post-hoc test was employed to identify specifically which groups differed from one another. However, in this instance, the post-hoc results indicated that no pair of groups exhibited a statistically significant difference in means. It can be concluded that there is no meaningful difference; although we initially hypothesized differences between the groups, further testing revealed no strong evidence to support this assumption. The average scores of each group tended to be uniform.

The p-values obtained for every group comparison were all greater than the common significance level of 0.05. A p-value exceeding 0.05 suggests that the observed differences may have occurred by chance rather than due to actual differences between the groups. Consequently, based on the Games-Howell post-hoc results, there is no statistically significant difference between the compared groups. In other words, the factors or variables distinguishing the groups do not exert a significant influence on the variable being measured.

In comparing the research results regarding the mediating effects on the writing skills of Arabic and English Language Education students, it is evident that no significant difference exists between these two groups. This aligns with the Games-Howell post-hoc results, indicating that the mean differences are not robust enough to be considered statistically significant. While other contexts might suggest clearer distinctions, the results of this study suggest that the measured variables do not have a significant impact on writing skills, which may be influenced by similar teaching methods, curricula, or approaches used in both programs.

Because the p-values were greater than 0.05, we conclude that any observed differences may be coincidental. Therefore, it is crucial to consider the context and other potential influencing factors, as well as to reflect on the research methodology. This also opens opportunities for further research to delve deeper into variables that potentially influence student writing skills.

One of the primary limitations of this study is the small sample size. A limited sample may not represent the entire population, making it difficult to detect significant differences between groups. Furthermore, the research design may be less than ideal, such as the absence of randomization, which could affect the accuracy of the results. Variability in writing skill measurements and external factors—such as differing instructional methods and student backgrounds—may also influence the findings. Additionally, the limited timeframe for data collection may have reduced the ability to observe comprehensive changes in writing skills. Understanding these limitations is essential for providing context to the research results and for planning improved studies in the future.

Self-efficacy is an individual's belief in their ability to perform the actions required to achieve specific goals (He & Shi, 2025). This concept focuses on how much one believes they can control and influence the outcomes of their behavior. High self-efficacy can enhance motivation, persistence, and the ability to face challenges, while low self-efficacy may hinder performance. In education, students with high self-efficacy tend to be more motivated, active, and capable of overcoming academic difficulties.

Furthermore, self-efficacy is closely related to self-regulation and metacognition. Students who are aware of how they learn and can assess their progress are more likely to adapt effective strategies (Cuong, 2025). Metacognition is the process of thinking about one's own thinking, encompassing an individual's awareness and control over cognitive processes during learning and problem-solving.

Self-efficacy and metacognition share a close relationship in the learning process. High self-efficacy motivates students to face challenges, while metacognition helps them regulate their learning. Students with high self-efficacy are more likely to apply metacognitive strategies because they believe their efforts will yield results. Conversely, strong metacognitive abilities can increase self-efficacy (Wang et al., 2025). When students can plan, monitor, and evaluate their learning effectively, they feel more confident. Thus, the two are mutually supportive: self-efficacy drives the use of metacognitive strategies, while metacognition strengthens self-efficacy.

In the context of student writing skills, self-efficacy and metacognition are critical. Students who believe in their writing abilities are more motivated to practice and seek feedback. When trained in metacognition, they learn to identify strengths and weaknesses in

their work (Fu et al., 2025). Additionally, high self-efficacy encourages students to take risks in writing, such as experimenting with different styles and structures.

Effective mediation, such as positive feedback and the use of learning tools, can increase student confidence (Huang, 2025). Mediation strategies that encourage self-reflection help students plan, monitor, and revise their writing more effectively. Strengthening self-efficacy and metacognitive abilities through mediation not only improves skills but also helps students feel more confident as writers.

The mediating effect on the writing skills of Arabic and English Education students is vital for improving proficiency through self-efficacy and metacognition (P. Li et al., 2025). Constructive feedback helps students feel more confident and motivated. Moreover, mediation supports student-lecturer interaction, which strengthens understanding and provides clarification.

An evaluation system for these mediating effects can be designed to measure improvements in skills and self-belief. Data can be collected through surveys and observations to assess interactions. Additionally, the quality of academic information systems influences student satisfaction; when these systems function well, students can easily access grades, schedules, and materials, which boosts motivation (Q. Li et al., 2025). Easy access to resources and feedback through these systems directly aids in developing writing skills.

Overall, mediating effects have become an essential tool for improving learning outcomes in higher education (Fan & Wang, 2025). The use of technology and interactive platforms fosters collaboration and strengthens conceptual understanding. However, some negative views exist; some respondents felt that certain mediation methods were ineffective or mismatched with their learning styles (Huangfu et al., 2025). A lack of direct interaction can also reduce the quality of feedback, and some students may feel frustrated when struggling to adapt to new techniques.

## CONCLUSION

The conclusion of this research regarding self-efficacy and metacognition as mediating effects on the writing skills of students in Arabic and English Language Education programs indicates that the implementation of these mediating effects significantly enhances student learning outcomes. The mediating effects, which have been validated by experts, demonstrate that increased self-efficacy helps students feel more confident in their writing, while metacognition enables them to better plan, monitor, and evaluate their work. With the support of appropriate mediation strategies, students can access relevant feedback and learning resources, all of which contribute to the improvement of their writing skills.

Overall, these results provide valuable insights for educators and educational institutions in designing learning approaches that are more effective and responsive to student needs. By increasing self-confidence, students feel more motivated to engage in writing practice. This study also emphasizes the importance of professional development for lecturers so they can be more effective in providing feedback and creating a supportive learning environment. Ultimately, the combination of developing self-confidence, understanding the learning process, and applying proper mediation can make the student learning experience more beneficial, improve writing skills, and prepare students for future success.

## AUTHOR CONTRIBUTIONS

Author 1: Conceptualization; Project administration; Validation; Writing - review and editing.

Author 2: Conceptualization; Data curation; In-vestigation.

Author 3: Data curation; Investigation.

**CONFLICTS OF INTEREST**

The authors declare no conflict of interest.

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