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Exploring the mediating effect of academic self-efficacy on metacognitive awareness and students' academic writing skill in Islamic higher education

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Abstract: This study examined the mediating role of self-efficacy in the relationship between metacognitive awareness and academic writing skill in Islamic higher education institution. Particularly in the Malaysia and Thailand, where scholarly works in relation to these constructs, has yet to be documented. Anchored in a quantitative, cross-sectional and predictive design, this study employed Partial Least Squares-Structural Equation Modeling to analyze responses from 1.655 undergraduate students enrolled in Islamic studies towards Islamic education. Results indicate that metacognitive awareness has a direct and significant effect on academic writing skill and self-efficacy. Additionally, self-efficacy positively influences academic writing skill and serves as a partial mediator in the relationship between metacognitive awareness and academic writing skill. These findings underscore the importance of metacognitive awareness learning practices in Islamic education to cultivate students' confidence in their abilities, leading to writing academic cognitive engagement. Despite the established literature on these constructs, existing research has largely focused on primary and secondary education, with minimal studies examining this in Islamic studies in Islamic higher education settings. This study bridges that gap by offering empirical evidence from a Malaysia and Thailand Islamic higher education institution, contributing to both local and global discussions on effective Islamic education pedagogy. Future research should explore similar relationships in varied educational contexts to further validate the findings. These insights have implications for curriculum development, emphasizing the role of metacognitive awareness learning in fostering both cognitive and writing skill engagement in Islamic education.

Keywords: academic writing skill, metacognitive awareness, self-efficacy, Islamic higher education, Islamic education

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1. Introduction

Academic writing is a fundamental component of higher education, forming the basis for scholarly communication, critical thinking development, and the dissemination of knowledge. In Islamic higher education—comprising Islamic universities, faculties of Islamic studies, and teacher-training institutions—academic writing carries additional significance (Tambak, Sukenti, & Firdaus, 2024; Tambak, & Sukenti, 2024). According to Qi Li et al. (2022) students are required not only to meet general academic writing standards but also to integrate Islamic epistemology, reference classical texts, and articulate ideas within both religious and contemporary academic frameworks. However, systematic evidence across various studies indicates that students in Islamic higher education often face persistent challenges in academic writing, including difficulty in organizing arguments, limited proficiency in academic language, weak critical analysis, and limited exposure to academic writing instruction tool (Martin-Alguacil et al., 2024; Tambak, & Sukenti, 2024).

Among the various determinants of academic performance, metacognitive awareness has emerged as a significant predictor of students' writing proficiency. Metacognition—defined as one's ability to plan, monitor, and evaluate learning processes—enables students to strategically approach writing tasks, revise drafts effectively, and regulate their cognitive resources throughout the writing process (Namora et al., 2025; Guo, 2022; Hancock & Karakok, 2021). Research has shown that students with higher levels of metacognitive awareness are more capable of selecting appropriate writing strategies, identifying weaknesses in their drafts, and making meaningful revisions that improve the quality of their academic work (Dirrigl & Noe, 2019; Keith et al., 2020; Anwar et al., 2024). Yet, the existence of metacognitive knowledge alone does not guarantee its effective application.

Recent educational research emphasizes the role of academic self-efficacy, or students' belief in their ability to accomplish academic tasks successfully. Self-efficacy influences students' motivation, persistence, emotional responses to challenges, and willingness to apply cognitive and metacognitive strategies. In the domain of academic writing, students with strong self-efficacy are more likely to engage deeply in the writing process, persevere through difficulties, and employ regulatory strategies effectively (Han et al., 2022; Murfay et al., 2024; Muhajir et al., 2025). Conversely, students with low writing self-efficacy may avoid complex writing tasks, experience writing anxiety, and fail to utilize metacognitive strategies—even when they possess them. Given these dynamics, academic self-efficacy may serve as a mediating mechanism that explains how metacognitive awareness translates into improved writing performance (Bao et al., 2024; Tambak at al., 2025). However, despite an expanding body of literature on metacognition, self-efficacy, and writing in general higher education, research examining these relationships within Islamic higher education remains limited. The learning context in Islamic institutions is uniquely characterized by multilingual environments (e.g., Arabic, English, and local languages), integration of classical Islamic studies with modern academic disciplines, and diverse student backgrounds shaped by various educational traditions. These contextual elements may influence how metacognitive awareness and self-efficacy develop and how they interact to shape students' academic writing skills.

Even though there have been various studies that have examined academic writing skills, this problem still occurs in the world of education. It was found that some students were less able to write clearly such as making backgrounds, material analysis, and operational concepts, while the lecturer had given the correct scientific writing procedures (Zhao & Qin, 2021; Tambak, Sukenti, & Firdaus, 2024). Another thing was found that students were less able to use good spelling and punctuation according to the rules of writing. This was found at the time of writing the paper where it was found that students were lacking in placing punctuation marks. There are some students who are lacking in utilizing sentence structure and grammar. It was found that some students were less able to make sentences that were good and correct, and not varied. There are some students who are less able to explain the main ideas of writing. This should not be the case, because the lecturer has provided steps or ways to write good and correct main ideas. It is assumed that the problem of low academic writing skills in students can be overcome by using the inquiry-based learning method by lecturers in learning. According to Tambak, Sukenti, & Firdaus (2024) one of the factors that influence writing skills is realizing the maximum role of the teacher through the metacogntie awareness to encourage students to have good scientific writing. In addition, according to Murfay et al. (2024) academic writing skills are influenced by interesting teaching media including the use of learning methods.

To address this gap, this study aims to explore the mediating effect of academic self-efficacy on the relationship between metacognitive awareness and students' academic writing skills in Islamic higher education. By examining these relationships, the study seeks to contribute to a more comprehensive understanding of the cognitive and affective factors that shape writing competencies in Islamic universities and to provide insights that can inform curriculum design, instructional strategies, and student support services aimed at enhancing academic writing performance. Thus, this study examines to exploring the mediating effect of academic self-efficacy on metacognitive awareness and students' academic writing skill in Islamic higher education in the Malaysia and Thailand. Based on this, this research focuses on; Metacognitive awareness directly affects academic writing skills in Islamic higher education; Self-efficacy directly influences academic writing skills in Islamic higher education; Self-efficacy mediates the relationship between metacognitive awareness and academic writing skills in Islamic higher education.

2. Literature Review

2.1. Metacognitive awareness and academic writing skill

Metacognitive awareness support has been consistently linked to improved student motivation, engagement, and academic writing skills (Domen et al., 2020). However, it does not operate in isolation. Internal factors such as prior knowledge, interest orientation, and emotional regulation (Lin & Gao, 2023), along with external influences like peer interaction, instructional design, and classroom climate, also contribute meaningfully to these outcomes (Eccles & Roeser, 2011; Schunk & DiBenedetto, 2021). Despite this, metacognitive awareness is especially critical in physical education, where fostering student agency and initiative can significantly enhance learning ownership and persistence. Its grounding in Self-Determination Theory [SDT] reinforces its relevance as a foundational element in academic writing skill, self-directed learning in this context. Research shows that when students feel that their teachers encourage writing skill, they develop greater intrinsic motivation, which in turn fosters a deeper approach to learning (Ahn et al., 2021; Evans & Boucher, 2015). In Islamic higher education, metacognitive awareness teaching fosters students' sense of ownership over their learning process (Leyton-Román et al., 2020), enhancing their ability to think critically (Ennis, 2017), understand movement concepts (Carriedo et al., 2023) and apply learned skills in practical settings (Jankauskiene et al., 2022). Additionally, students who metacognitive awareness in Islamic higher education settings are more likely to engage in goal-setting (Cronin et al., 2019), problem- solving (Hagger et al., 2007), and self-reflective practices (Taylor & MacLeod, 2024), all of which contribute to academic writing skills. Studies in Islamic higher education further highlight that metacognitive awareness teaching methods, lead to higher levels of cognitive engagement and academic persistence (Ariati et al., 2025). These evidences suggest that fostering creativity in class, like Islamic education, can significantly enhance students' capacity for academic writing skill and long- term knowledge retention. Despite the relevant literature supporting these findings, most studies have been conducted among elementary and secondary students. Meanwhile, those in Islamic higher education often focus on Islamic education disciplines. There remains a limited understanding of how metacognitive awareness influences academic writing skills specifically within Islamic course in Malaysia and Thailand Islamic higher education. Therefore, this study aims to bridge this gap by examining the relationship between metacognitive awareness and academic writing skills in Islamic course at the Islamic higher education level by testing the following hypothesis:

H$_1$: Metacognitive awareness directly affects academic writing skills in Islamic higher education.

2.2. Self-efficacy and academic writing skill in Islamic Higher Education

Self-efficacy plays a crucial role in student learning outcomes (Basileo et al., 2024), particularly in skill-based subjects like Islamic higher education (Bertills et al., 2021). Students with high self-efficacy are more likely to take on challenges, persist through difficulties, and adopt effective learning strategies

that contribute to academic writing skills (Han et al., 2022; Murfay et al., 2024). According to Ke et al. (2025), students with higher self-efficacy exhibit greater confidence in their creativity writing abilities. This enables them to engage more meaningfully in class activities and achieve higher skill mastery. Additionally, studies indicate that self-efficacy influences students' metacognitive strategies which are essential components of academic writing skill (Bao et al., 2024). According to (Shi & Qu, 2022), when students believe in their ability to succeed, they invest greater cognitive effort in understanding the material. Furthermore, research in Islamic higher education suggests that self-efficacy not only influences academic achievement but also plays a role in fostering resilience (Hitches et al., 2022), reducing anxiety (Hinduja et al., 2024), and enhancing overall well-being in students (Honicke et al., 2023). Despite these established connections, most studies on self-efficacy and academic writing skills have been conducted among primary and secondary students. On the other hand, those in Islamic higher education often focus on other disciplines. Therefore, published scholarly works specifically examining this relationship within academic writing skills in Islamic higher education in the Malaysia and Thailand remains insufficient. In this regard, the study tested the following hypothesis:

H_2: Self-efficacy directly influences academic writing skills in Islamic higher education.

2.3. The mediating function of self-efficacy between metacognitive awareness and students' academic writing skill

Based from previously conducted studies, it was observed that metacognitive awareness and academic writing skills can be mediated by self-efficacy (e.g., Zhao & Qin, 2021). According to Ito et al. (2024), it can be construed that students with higher level of self-efficacy can be explained by metacognitive awareness that they receive from their teachers. Furthermore, this can enhance students' motivation and deep learning strategies (Zhao & Liu, 2022). In Islamic higher education, this can be manifested by taking their own initiative in their learning, while demonstrating higher level of efforts despite academic obstacles (Maldonado et al., 2019). Recent studies suggest that self-efficacy acts as a crucial link between metacognitive awareness and student academic writing skills (Zhao & Qin, 2021). According to (Mih & Mih, 2013), when students metacognitive awareness, they develop greater self-efficacy. Added by (Qi Li et al., 2022), this can enhance their motivation, engagement, and students' academic writing skills. Self-efficacy plays a significant role in enabling students to take control of their learning experiences. This allows them to engage in critical thinking, problem-solving, and the application of learned skills in real-world settings. In Islamic higher education, students with strong self-efficacy beliefs are more likely to take initiative in their learning, demonstrate higher levels of effort, and persist despite obstacles, reinforcing the idea that self-efficacy serves as a bridge between metacognitive awareness and students' academic writing skills (Zimmerman, 2000).

Studies have also highlighted that self-efficacy enhances the ability of students to regulate their learning behaviors (Duivenvoorden et al., 2021; Han et al., 2022), a key component of academic writing skills. Students who believe in their capability to succeed are more likely to adopt self-regulatory strategies to refine their learning approach. Moreover, as emphasized by Ramos- Vallecillo et al. (2024), it fosters higher-order cognitive skills, allowing students to move beyond rote memorization. Niemiec and Ryan (2009) also observed that student may also engage in meaningful learning experiences that enhance their academic performance. Furthermore, self-efficacy plays a mediating role in students' long-term academic engagement and persistence. Research indicates that students with high self-efficacy are more likely to embrace challenges and view failures as opportunities for growth rather than setbacks (Zhao et al., 2021). Resilience fosters a deeper commitment to learning, which is essential in Islamic higher education contexts where students must continually refine their skills and adapt to new challenges. Additionally, students with higher self-efficacy tend to exhibit increased intrinsic motivation (Komarraju & Nadler, 2013). This contributes to sustained academic success and academic writing skill engagement across various subjects. Moreover, empirical studies have found that students with strong self-efficacy are more likely to actively participate in cooperative learning activities and social

interactions (Ahola et al., 2023), further enhancing their academic writing skill experience. These students engage in meaningful discourse, share insights with peers, and develop a collaborative mindset that enhances their ability to integrate knowledge from different learning domains. This collaborative approach to learning aligns with the principles of academic writing skill, where students construct knowledge through engagement, reflection, and real-world application. On the other hand, despite the well- documented role of self-efficacy, no studies have yet been conducted to examine its mediating effect between metacognitive awareness and academic writing skills within in Islamic higher education in the Malaysia and Thailand. Existing research has primarily focused on primary and secondary students, with Zhao and Qin (2021) specifically investigating middle school populations. Using Zhao and Qin's (2021) findings as a foundation, this study tested the hypothesis:

H_3: Self-efficacy mediates the relationship between metacognitive awareness and academic writing skills in Islamic higher education.

2.4. Research objectives and conceptual framework

This study seeks addressed the existing research gap on the mediating role of self-efficacy between metacognitive awareness and academic writing skills in tertiary-level Islamic higher education in the Malaysia and Thailand. Specifically, the objectives of this study are: (1) to determine the direct effect of metacognitive awareness on academic writing skills in Islamic higher education, (2) examine the direct effect of metacognitive awareness on students' self-efficacy; (3) analyze the direct relationship between self-efficacy and academic writing skills in Islamic higher education; and (4) assess the mediating role of self-efficacy in the relationship between metacognitive awareness and academic writing skills. The objectives of the study employed a quantitative, predictive design using Partial Least Squares-Structural Equation Modeling [PLS-SEM] to test the hypothesized paths and validate the proposed conceptual framework.

Furthermore, the conceptual framework presented in Figure 1 is grounded in Self-Determination Theory, which emphasizes the importance of metacognitive awareness in fostering optimal learning academic writing skills. The model illustrates the hypothesized relationships in this study, wherein metacognitive awareness is expected to influence academic writing skills both directly and indirectly through the mediating role of self-efficacy. This framework provided the theoretical and structural basis for formulating the research hypotheses and guided the application of Partial Least Squares Structural Equation Modeling for data analysis.
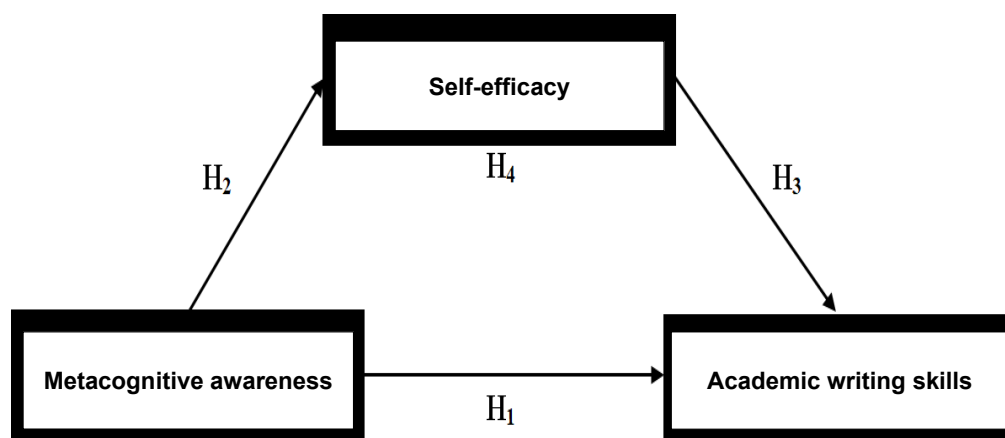
Figure 1. Conceptual framework the hypothesized direct and mediating relationships among perceived metacognitive awareness, self-efficacy, and academic writing skills

3. Method

3.1. Research design

This research uses a non-experimental quantitative design with a cross-sectional survey (Mahande et al., 2025). Cross-sectional is conducted with the aim of collecting data from a specific population at one time. The Structural Equation Modeling [SEM] approach (Hair et al., 2019) is capable of analyzing the complex relationships between self-efficacy, learning attitudes, and learning independence variables and metacognitive awareness and skills variables simultaneously, while also allowing for the simultaneous testing of measurement and structural models.

3.2. Participant

Participants are students of Universiti Islam Antarabangsa Tuanku Syed Sirajuddin, Perlis, Malaysia, and Fatony University, Pattani, Thailand. The research sample must come from the science classes and fill out the online instrument voluntarily without coercion. Thus, out of 2713 students from two Islamic universities, only 1560 qualified and collected data. Furthermore, gender as a moderating variable has significant utility in identifying differences in the influence of independent variables on the dependent variable between male and female groups. Evaluating the interaction between gender and other variables, researchers can understand how student characteristics or learning responses may differ based on gender. The selection of the research sample also considers the analysis of partial least square structural equation modeling [PLS-SEM], with the number of samples chosen being five to ten times the number of existing indicators (Hair et al., 2019). The students who participated in this study have agreed to take part in the research and fill out the instruments used during the study. Furthermore, *Raosoft Sample Size Calculator* was utilized to determine the recommended sample size from the target population. The approximate number of enrolled students in these courses is 2713, and the recommended sample size is 1560 using 95% confidence level and 5% margin of error.

3.3. Instruments and Data Collection for Research

The present study utilized a survey approach through online technology using Google Forms. Online survey offers the advantage of efficient data collection to gather responses quickly, reach a broader audience, and minimize costs versus the traditional pen and pencil method. The data collection commenced from March-April 2025. The online survey was disseminated through the Learning Management Systems of PATH-Fit instructors. From the 1560 original responses received during the data collection phase, 1552 retained as valid after performing data cleansing procedures. As have mentioned, the total number of respondents is 1552 (99% CL and 1% MOE) which far exceeded the target sample size. This corresponds to 83.35% response rate and 215.15% distribution rate. This ensures a higher likelihood of reaching the required sample size, accounting for non-responses, incomplete answers and potential data exclusions.

Additionally, the online survey form is divided into four parts. The first part obtained the sex/gender identity of the respondents. Second, the 15-item Learning Climate Questionnaire [LCQ] by Williams et al. (1996) was utilized. It measured students' perception of their physical education instructors' autonomy-supportive teaching practices. The LCQ items capture multiple dimensions of autonomy-supportive teaching, including the provision of meaningful choices, acknowledgment of student feelings and perspectives, encouragement of open communication, and emotional support (Williams et al., 1996). These indicators reflect the extent to which students perceive their instructor as fostering a learning climate aligned with the core principles of Self- Determination Theory (Williams et al., 1996). A 7-point Likert scale was used to record the responses ranging from 1 (strongly disagree) to 7 (strongly agree). Slight modifications were performed to tailor fit the instrument to the current context of the study.

Third, the 20-item Revised Study Process Questionnaire [R-SPQ2-2F] by Biggs et al. (2001) was also used. In this particular instrument, questions pertaining to deep learning were only selected to be used for the study. The indicators selected from the R-SPQ-2F reflect two key dimensions of academic writing skill: deep motive, which assesses students' intrinsic interest and commitment to understanding content (Biggs et al., 2001); and deep strategy, which evaluates their use of critical thinking, integration of ideas, and personal engagement with learning tasks (Biggs et al., 2001). These indicators are specifically suited for capturing meaningful learning behaviors in the context of Islamic education (Biggs et al., 2001). The responses are then encoded using 5-point Likert scale ranging from 1 (this item is never or only rarely true of me) to 5 (this item is always or almost always true of me).

3.4. Data Analysis Techniques

Descriptive statistics such as frequency and percentage were used to describe the distribution of the respondents in terms of sex/gender identity. These were performed using IBM Statistical Package for the Social Sciences version 29 of MacOS. Lastly, inferential statistics specifically the Partial Least Squares-Structural Equation Modelling was conducted to determine the relationship between perceived teacher autonomy support and deep learning, and the mediating role of self- efficacy in this relationship. Data analysis using SEM software SmartPLS 3. The validity of the measurement model is assessed through construct validity (convergent and discriminant) (Hair et al., 2021). The structural model is assessed through path coefficients and hypothesis testing. The evaluation of the reflective measurement model for validity assessment is evaluated through outer loading (> 0.70) (Hair et al., 2019). Meanwhile, for reliability consistency, it is evaluated through Cronbach's alpha (> .70), rho A (> .70), and Composite Reliability [CR] (> .70) (Mahande et al., 2025; Syamsiah et al., 2024). The benchmark value for internal consistency ranges from 0 to 1. The higher the internal consistency value, the higher the level of reliability. Convergent validity is measured through average variance extracted [AVE] (> 0.50). Discriminant validity is assessed through the Fornell- Larcker criterion at the construct level and cross-loading analysis at the indicator level (Barclay & Thomson, 1995). According to the Fornell-Larcker criterion, the square root of AVE (in the diagonal) for each variable must be greater than the correlation with other variables (Fornell & Larcker, 1981; Henseler et al., 2015).

In addition, the cross-loading value must have the highest value among all other cross-loading values (Hair et al., 2019). The T and F bootstrapping statistical tests were conducted to determine the path coefficient levels using a structural model ($t > 1.96$, and $p < .05$) at a 95% confidence interval with 5,000 subsamples (Henseler, 2012). To test the hypothesis on the gender variable, Multi-Group Analysis (MGA) PLS was used. In addition, the categories of the coefficient of determination (R^2) are also measured with weak (0.25), moderate (0.50), and strong (0.75) categories (Hair et al., 2021).

4. Result

4.1. Model explanatory power

The models' explanatory power was evaluated by measuring the variance explained (R^2) in the dependent variables. Hair et al. (2021) noted that R^2 values and path coefficients are essential for assessing the structural model. As shown in Figure 1, the model has an R^2 value of 0.234 (23.4%) for SE and 0.457 (45.7%) for AWS. According to Hair et al. (2021), These R^2 values are considered weak, moderate, and substantial, respectively. Based on this criterion, the model demonstrates weak explanatory power for SE and moderate explanatory power for AWS in Islamic higher education.

4.2. Direct effect of metacognitive awareness on academic writing skills in Islamic higher education

As can be seen in Table 1, the positive and significant relationship between MCA and AWS (β = 0.317, p < .001) suggests that student metacognitive awareness is more likely to adopt academic writing skills in Islamic higher education learning processes. This implies that when student provide opportunities to make choices, encourage independent thinking, foster a sense of ownership and writing skill in their learning, students become more engaged in processing and applying information critically in Islamic higher education. Metacognitive awareness promotes a learning environment that goes beyond rote memorization, leading students to develop a deeper understanding of concepts and apply knowledge in meaningful ways.
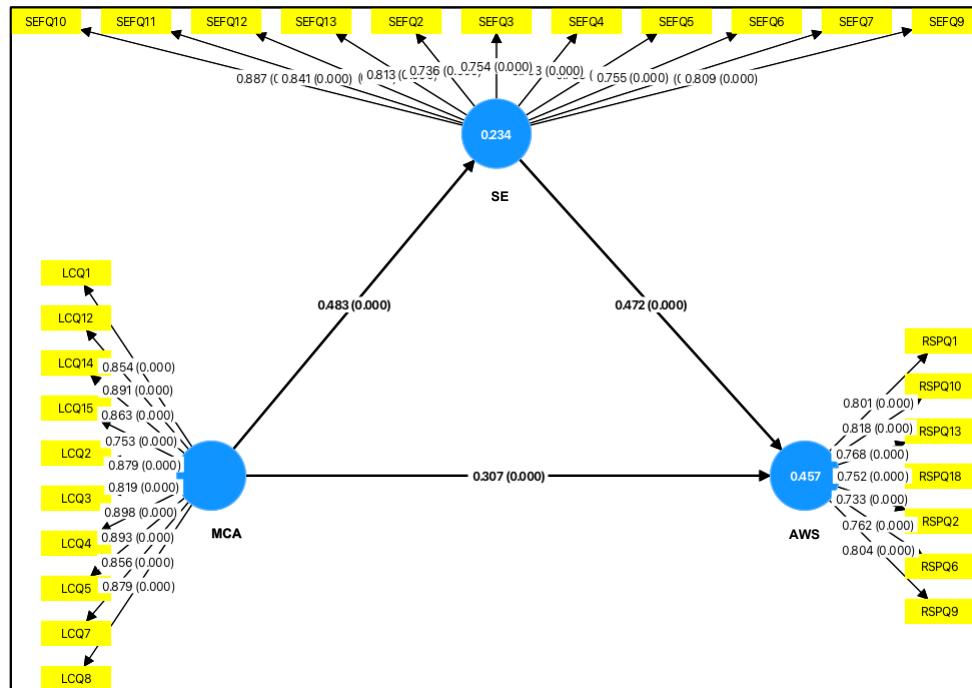
Figure 1. PLS-SEM Model of the mediating effect of self-efficacy between metacognitive awareness and academic writing skill in Islamic higher education

4.3. Direct effect of metacognitive awareness on self-efficacy in Islamic higher education

The strongest effect in the model was observed in the path from MCA to SE (β = 0.453, p < .001) as illustrated in Table 1. This indicates that metacognitive awareness significantly boosts students' confidence in their ability to succeed academically. When students feel that their metacognitive awareness and provide meaningful support, they are more likely to develop a sense of competence and belief in their ability to manage academic challenges. This result aligns with self-determination theory, which highlights the role of academic in fostering intrinsic motivation and self-efficacy.

4.4. Direct effect of self-efficacy on academic writing skills in Islamic higher education

A strong positive relationship was also found between SE and AWS (β = 0.462, p < .001) as indicated in Table 1, suggesting that students who believe in their capabilities are more likely to engage in academic writing skill processes. High self-efficacy enables students to persist in challenging academic tasks, employ critical thinking skills, and regulate their learning strategies effectively. This finding reinforces the idea that confidence in one's ability plays a crucial role in determining the extent to which students engage in meaningful learning experiences. This pattern indicates that students with higher self-efficacy are more likely to adopt academic

writing skills in learning for Islamic higher education settings, where cognitive and creativity demands often require greater persistence and regulation.

4.5. The mediating effect of self-efficacy between metacognitive awareness and academic writing skills in Islamic higher education

Finally, the results in Table 1 indicate that SE partially mediates the relationship between MA and AWS (β = 0.218, p < .001). This suggests that metacognitive awareness support academic writing skill not only directly but also indirectly through the enhancement of self-efficacy. While metacognitive awareness supportive academic writing skill students' learning engagement, its effects are further amplified when students develop strong beliefs in their academic abilities in Islamic higher education.

Table 1. Direct and indirect path analyses and hypotheses testing

Hypothesis	Path	Path Coefficient	p-value	Decision
H$_1$	MCA → AWS	0.317	< .001	Accepted
H$_2$	MCA → SE	0.453	< .001	Accepted
H$_3$	SE → AWS	0.462	< .001	Accepted
H$_4$	MCA → SE → AWS	0.218	< .001	Accepted

5. Discussion

The findings suggest that when students have the metacognitive awareness, they are significantly more likely to engage in academic writing skills, as supported by various studies (Brandisauskiene et al., 2023; Zhao & Qin, 2021). According to Wang et al. (2025), metacognitive awareness creates an environment where learners feel personally invested in their educational experiences. Furthermore, Smith and Darvas (2017) also observed that when students experience metacognitive awareness in their learning process, they develop an intrinsic motivation to go beyond surface-level understanding. Additionally, Darling-Hammond et al. (2020) also found out that students will engage in higher-order cognitive processes. These can be in the form of critical analysis, synthesis of information, and creative application of knowledge (Lee et al., 2024). Unlike rigid, controlled learning environments that often lead to passive memorization (Martin-Alguacil et al., 2024) metacognitive awareness empowers students to take ownership of their learning (Lobo, Masagca, Serrano, Reyes, et al., 2024; Firdaus et al., 2025). As Johansen et al. (2023) have mentioned, this can lead students to explore content with curiosity, persistence, and a genuine desire to understand. This highlights the critical role that teachers play in shaping students' engagement with learning. It is not just by delivering information but by fostering an academic climate where students feel responsible for and interested in their intellectual development (Lobo, Masagca, Serrano, Evangelista, et al., 2024). The ability of metacognitive awareness to enhance academic writing skill suggests that instructional methods should move away from rigid structures that emphasize compliance. Instead, focus on cultivating students' capacity for independent thought and self-directed learning. On the one hand, regardless of the relevant literature supporting these findings, scholarly works on metacognitive awareness and academic learning in Islamic course within Malaysia dan Thailand Islamic higher education system is still inadequate. Given the teacher-centered approach still common in Islamic higher education, exploring metacognitive awareness could provide insights into how it enhances student engagement, motivation, and long-term commitment to learning activity. Conducting similar research in this context would clarify its impact on critical thinking and self-directed learning in learning Islamic course, contributing to both local educational research and the global discourse on effective Islamic course pedagogy.

Another key finding is that metacognitive awareness plays a significant role in enhancing students' self-efficacy. This suggests that when students create environments where students have the freedom to make choices students develop a greater sense of confidence in their own abilities (Han, 2021; Tambak et al., 2022).

The metacognitive awareness of self-efficacy is built upon experiences of competence and mastery (Bandura, 2012), both of which are fostered in autonomy-supportive settings. In contrast, overly controlling or directive teaching approaches may inadvertently undermine students' belief in themselves by limiting their opportunities to take responsibility for their learning (Golann, 2015). By allowing students to navigate challenges on their own, providing meaningful feedback, and offering encouragement that focuses on effort rather than fixed ability, teachers can cultivate an enduring sense of self-efficacy in their students (Zhang et al., 2024). This increase in self-efficacy has broader implications beyond academic performance. It influences students' willingness to take risks, engage in problem-solving and persist through setbacks (Abercrombie et al., 2022; Rasyidi et al., 2025). These are essential qualities for success in both education and life.

Therefore, metacognitive awareness should not be viewed solely as a means to promote engagement but as a fundamental approach. In this regard, Islamic higher education student should strengthen students' self-belief, helping them develop the resilience and confidence needed to thrive in academic and real-world settings. While existing literature highlights the role of metacognitive awareness learning in fostering self-efficacy, investigations within Islamic course in Malaysia and Thailand Islamic higher education is still insufficient. Given the unique nature of Islamic course, further investigation is needed in this setting. Understanding this relationship could provide insights into how Islamic higher education students can create environments that encourage students to take ownership of their learning, persist through challenges, and develop a stronger belief in their capabilities. Conducting studies in this context would contribute to discussions on effective pedagogical approaches that support student confidence and long-term learning Islamic course activity engagement.

Furthermore, the findings also emphasize the powerful role of self-efficacy in fostering academic writing skills. This further solidifies its importance in the academic experience. According to Dolmans et al. (2016), when students believe in their ability to understand complex concepts and successfully complete learning tasks, they are far more likely to adopt academic writing skills strategies rather than resorting to superficial memorization. Self-efficacy influences how students perceive challenges. According to Benlahcene et al. (2024), those with high self-efficacy approach difficulties as opportunities for growth, demonstrating persistence and adaptive problem-solving skills. On the other hand, Ford et al. (2023) mentioned that those with low self-efficacy may avoid complex tasks due to fear of failure or self-doubt. This suggests that students' cognitive engagement with material is not merely a function of their ability but also their mindset toward learning (Kuhlmann et al., 2024). If students doubt their capabilities, they may disengage from the deeper cognitive processes required for meaningful understanding, despite having the potential to succeed. Therefore, as Zhang et al. (2024) have stated, physical educators must prioritize strategies that enhance self-efficacy. Additionally, Wu et al. (2021) also stressed that that Islamic course learning must also provide constructive feedback that reinforces growth, and encouraging a mastery-oriented perspective rather than one focused solely on performance outcomes. Therefore, as Coutts (2019) have emphasized, fostering a strong sense of self-efficacy empower students to take ownership of their learning. Also, students may persist through intellectual challenges, and actively engage with content in a way that leads to genuine comprehension and critical thinking. However, despite the established link between self-efficacy and academic writing skills, published works in this construct within Islamic learning in the higher education system is still limited. Given the unique environment in Islamic learning, further investigation is needed to determine how self-efficacy fosters academic writing skills in this context. Academic writing skill the relationship between these constructs would provide deeper insights into how Islamic course learning can foster an environment enhancing students' confidence, resilience and engagement in learning. This will further contribute to a more inclusive discussion on effective pedagogical strategies in Islamic education.

Moreover, self-efficacy as a mediating factor in the relationship between metacognitive awareness and academic writing skills reveals an important insight. The present study further solidified Zhao and Qin (2021) findings that metacognitive awareness not only directly enhances academic writing skill but does so even more effectively when students develop a strong sense of self-belief. Furthermore, it suggests that metacognitive alone, while beneficial, is not always sufficient in guaranteeing academic writing skill engagement. Students must also feel capable of succeeding in their academic tasks. Metacognitive creates the conditions for motivation and engagement (Hofferber et al., 2014), but self-efficacy provides the Islamic learning foundation that allows students to act on this motivation (Hafizoglu & Yerdelen, 2019). According to various authors, when students feel

both empowered and confident, they are more likely to challenge themselves academically, take intellectual risks, and persist in the face of difficulties (Soutter & Clark, 2023). This highlights the interconnected nature of metacognitive awareness and self-efficacy in shaping academic Islamic behavior. Metacognitive awareness-supportive learning encourages students to take an active role in their learning (Albashtawi & Al Bataineh, 2020), while self-efficacy ensures that they feel capable of handling the challenges that come with writing engagement (Chen, 2024; Yasin et al., 2025).

Lastly, the mediation effect underscores the importance of a balanced instructional approach where metacognitive awareness in learning is reinforced with intentional efforts to build self-efficacy. Based on the study of Cronqvist (2022) on teacher education students, simply providing students with freedom in learning is not enough if they lack the confidence to navigate academic challenges. Therefore, Islamic course learnings must ensure that metacognitive awareness is coupled with structured support (Albashtawi & Al Bataineh, 2020), targeted skill-building and opportunities for students to experience mastery in their learning. For example, allowing students to make choices in their assignments, while also equipping them with strategies to manage complex tasks, creates a dual impact where metacognitive fosters motivation and self-efficacy strengthen the capacity to engage in academic writing skill. By integrating metacognitive awareness with approaches that reinforce self- efficacy, writing skill student can maximize the impact of their learning (Chang et al., 2016). Moreover, this ensures that students not only feel empowered but also fully capable of engaging with content at a writing skill level (Tambak, & Sukenti, 2025; Franklin & Harrington, 2019).

In summary, the findings provide strong support for the role of student metacognitive awareness and self-efficacy in promoting academic writing skill. While metacognitive awareness learning directly fosters academic writing skill, its impact is further enhanced when students develop confidence in their ability to succeed. The mediation effect of self-efficacy highlights that metacognitive is not just about giving students control but also about helping them build the skills and confidence to take charge of their learning. This reinforces the idea that effective learning is not simply about receiving knowledge but about creating conditions where students feel both empowered and capable of engaging writing with academic material. Moving forward, students should recognize the importance of metacognitive awareness and self-efficacy in their learning practices. This ensures that students not only develop intrinsic motivation but also the belief in their ability to succeed in complex and meaningful learning tasks.

On the one hand, the findings on the mediating effect of self-efficacy between metacognitive awareness and academic writing skill in the Malaysia and Thailand, specifically in Islamic learning in the Islamic higher education, remain poorly documented. Performing similar studies across multiple universities, with varied student populations and instructional approaches, would provide writing skill insights into how self-efficacy strengthens the link between the constructs studied. Additionally, expanding this research to different Islamic higher education institutions, including both public and private universities, and integrating alternative assessment methods such as observational data and performance-based evaluations, would help validate or refine these findings. This would contribute to a more comprehensive understanding of how metacognitive awareness learning can enhance both cognitive and Islamic education engagement in learning processes at the Islamic higher education level.

6. Conclusion

This study underscores the pivotal role of metacognitive awareness support in fostering academic writing skill in Islamic higher education, both directly and through the enhancement of self-efficacy. The findings reinforce the importance of shifting from compliance-driven instruction to student-centered pedagogies that cultivate cognitive and creativity engagement. Additionally, the results have practical implications for Islamic course education in Islamic higher education. Metacognitive awareness, such as academic concept, reflective learning, and problem-solving, can strengthen students' self-efficacy and academic writing skills in their learning experience. Student training academic writing skills should focus on equipping students with strategies that build student agency and support lifelong participation in Islamic learning activity. Despite these contributions, several limitations must be acknowledged. This study was conducted at a two university in the Malaysia and Thailand,

which may limit generalizability. The cross-sectional design restricts causal inference, and the use of self-report instruments may introduce bias. Additionally, gender was not analyzed as a factor. Future studies should involve multiple institutions, adopt longitudinal designs, incorporate objective measures, and consider gender- related effects. In conclusion, this study provides empirical support for the importance of metacognitive awareness and self-efficacy in fostering academic writing skills in Islamic higher education. These findings inform ongoing efforts to enhance Islamic higher education learning through learner-centered approaches that promote engagement, motivation, and sustained learning. Ultimately, cultivating student agency and confidence in Islamic higher education may lead to broader educational benefits, including stronger commitment to lifelong Islamic course activity and greater academic resilience across disciplines.

Author Contribution Statement

Contributions of the authors in this article: Mohammad Roshimi Abdullah contributed as concepts and drafters of the article; Fatimah Noni Muhamad contributed as data analyzers and interpreters; Zaimah Hj Abdullah as the drafter of the manuscript; Barot Amonov and Mohd Aizul Yaakob contributed in collecting data and critically revising the article. All authors agree to take responsibility for all aspects of this work.

Disclosure of Interests

The authors declare that no competing interests exist.

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