



Self-Regulated Writing Strategy as a Moderator of Metacognitive Control in Improving Prospective Teachers' Writing Skills

^{1*}Haerazi, ²Mohammad Kazemian

¹English Language Education, FBMB, Universitas Pendidikan Mandalika, Jl. Pemuda No. 59A, Mataram 83125, Indonesia

²English Department, Guilan University of Medical Sciences, St: Parastar St., Rasht, Islamic Republic of Iran

*Corresponding Author e-mail: haerazi@ikipmataram.ac.id

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Abstract

This study was aimed at investigating the accuracy of self-regulated learning as a moderator of the metacognitive control to improve prospective teachers' writing skills. This study was a mixed-method with the concurrent embedded strategy. The experimental study was carried out to meet the effectiveness of self-regulated learning to improve prospective teachers' writing skills viewed from metacognitive skills. The research instruments used the observation sheet and writing test. The research findings showed that the self-regulated learning model was effective as a moderator of the metacognitive control in improving prospective teachers' writing skills. It was proven by the result of the analysis factor of variance (ANOVA) that indicated that the significant value was lower than the sig. level 0.05. This study can be concluded that the self-regulated learning model was effective to improve prospective teachers' writing skills viewed from metacognitive awareness.

Keywords: self-regulated learning, metacognition, writing skill

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INTRODUCTION

In the teaching of writing skills, lecturers' role is very essential to lead prospective teachers to practice writing. Lecturers should be able to find an appropriate instructional model for their learners in order to learn in the class. Learning to write can be conducted well if quality teaching is promising for prospective teachers. Therefore, quality teaching seems critical for learners and professional development is viewed as one the most promising intervention for addressing lecturers' quality (Desimone & Garet, 2015; Desimone & Stuckey, 2014; Ball & Forzani, 2009). Inadequate preparation for teaching writing skills is a key factor in the poor performance in the class (Brindle et al., 2016; Drew et al., 2017; McKeown, 2018).

Lecturers' preparation is not only dealing with the instructional tools but also it relates to proper instructional models meeting various writing needs in the class. Besides, the importance of lecturers' knowledge of and attitudes relating to what they are teaching (Dunst et al., 2015; Russ et al., 2016). In Indonesian higher universities, lecturers always refer to two kinds of writing approach, process-based and product-based approach (Haerazi & Irawan, 2019). The result reported by some writing studies is inadequate to solve the learners' writing problems because writing is regarded as one of the language

skills that seem difficult to be acquired through conventional learning strategies. It needs special treatment to handle the learners' difficulties to write.

Prospective teachers often consider writing as challenging activities which not only require their cognitive and metacognitive engagement but also demand self-regulation skills to regulate them to learn (Zimmerman, 2013). They are demanded to have an ample repertoire of learning strategies to regulate their writing process excellently in the class. However, many prospective teachers felt uneasy to utilize their cognitive and metacognitive engagement in their writing activities (Zimmerman, 1997; Teng & Zhang, 2015). Learning to write should activate the prospective teachers' linguistic competence, cognitive engagement, and intercultural dimension (Haerazi, et al., 2018; Doyle et al., 2017). Such learning aspects exacerbate for prospective teachers to write in English as a second or foreign language.

In higher education, prospective teachers are involved to empower their metacognitive awareness in writing. It is an essential aspect for them to improve their writing performance. Numerous studies reported that metacognition has two main components, namely "knowledge of cognition and regulation of cognition" in which the two have positive influence for learning (Schraw, Crippen, & Hartley, 2006; Gerghiades, 2006; Case & Gunstone, 2006; Wang, Spencer, & Xing, 2009; Kwitonda & Singhal, 2018). The "knowledge about cognition" provides the prospective teachers to conduct the reflective aspect of metacognition in learning processes, while the "regulation of cognition facilitates prospective teachers to control their aspects of learning (Schraw & Dennison, 1994; Schraw & Moshman, 1995).

The role of the metacognitive process in writing helps prospective teachers to regulate the way they carry out the writing process. Then, metacognition is understood as the learners' ability to reflect upon, understand, and control their cognitive process (Adler et al., 2019). Consistent with this concept, metacognition can occur when prospective teachers plan, monitor, and evaluate their own cognitive behavior during learning (Sandi-urena, 2011). In critical thinking studies, metacognition is often considered as the main component of critical thinking (Ku & Ho, 2010; Magno, 2010). Therefore, this study is oriented to improve prospective teachers' writing skills viewed from metacognitive skills.

The problem emerging in teaching writing skills is what learning strategies are appropriate for helping learners activate their metacognitive dimensions to improve their writing skills. This study proposes the self-regulated learning as a moderator of the metacognitive control. The self-regulated writing refers to the dynamic learning of using meta-strategies such as paying attention to, planning, orchestrating strategy use, monitoring, and evaluating (Oxford, 2011; Hu & Gao, 2017). It is a favorite of writing studies that report the self-regulated writing process leads learners to be more controlled over the writing process (Negretti, 2012). In addition, Pifarre and Fisher (2011) suggest that in the teaching of writing prospective teachers are directed to pay attention to specific strategic processes using particular meta-strategies engaged in self-regulated writing.

The novelty of this study lies in the use of self-regulated learning to activate metacognitive awareness to improve prospective teachers' writing skills in higher education. The targeted metacognitive awareness consists of declarative knowledge, procedural knowledge, and conditional knowledge. This aspect of knowledge encourages learners to develop their learning strategy and strategic thinking. The accuracy of a self-regulated writing strategy is expected to encourage prospective teachers to understand their own thinking and learning process.

Self-Regulated Writing Strategy

In the context of teaching writing, there are no good or bad learning strategies but that is how the learning strategies are implemented in the class (Lei, 2016; Gao, 2010). Many learning approaches, methods, strategies, and models are provided to facilitate

learners to practice writing. One learning and others fitted out each other. In writing activities, prospective teachers face various challenges when they are asked to write unfamiliar genres such as essays, writing assignments, and reports. Writing seems like one of the most notable challenges and difficulties (Campbell & Li, 2007; Harklau, 2012). To address the challenges, a self-regulated writing strategy becomes important for writing lecturers to understand how prospective teachers regulate their writing effectively and strategically.

Although the self-regulated learning models share a different basis, the Winne and Hadwin's model provides a precise description of the cognitive facets (Fernandez & Jamet, 2016; Winne & Hadwin, 2013; Green & Azevedo, 2007). This study applies the self-regulated learning model proposed by Winne and Hadwin for teaching writing skills. The stages of the self-regulated writing strategy consist of defining writing tasks, fixing writing goals and plans, enacting writing tactics and strategies, and adapting the learning activities. This self-regulated strategy plays an essential role in developing prospective teachers' active engagement in learning and increasing their writing performance (Teng and Zhang, 2016; Zhang et al., 2016).

The four stages of self-regulated writing strategy can inform the metacognitive monitoring and control of another stage (Winne and Nesbit, 2008). The strategy also highlights the prospective teachers' cognitive processes that underlie each stage during learning. The common cognitive facets that support the four stages include the condition, operation, product, evaluation, and standard (Green et al., 2015). These five different facets are essential components to activate prospective teachers' metacognitive monitoring (Poitras & Lajoie, 2013). Therefore, the use of the self-regulating strategy relies on the accuracy of metacognitive monitoring (Binbansaran-Tuysuzoglu & Greene, 2015; Koriati, 2012).

Metacognition

Metacognition is assumed as a prominent aspect of successful learning. It constitutes one of the learning aspects of content (Khosa & Volet, 2014). It is also a component of fruitful learning strategies (Thomas, Anderson, & Nashon, 2008). In addition, metacognition is often considered as a basic foundation to lead learners to critical thinking (Ku & Ho, 2010; Magno, 2010; Kuhn & Dean, 2004). Nevertheless, the long discussion among researchers still happens in terms of metacognition is to be a subordinate component of self-regulation or self-regulation is a concept superordinate to metacognition. For this research purpose, this study subscribes to the two components of metacognition; "knowledge of cognition and regulation of cognition" (Sandi-Urena, Cooper, & Steven, 2011). The knowledge of cognition is understood as metacognitive awareness covering "declarative knowledge, procedural knowledge, and conditional knowledge" (Schraw, Crippen, & Hartley, 2006; Schraw, Brooks, & Crippen, 2005). Being able to control cognition entails knowledge of different strategies and awareness about when to the best employ them (Ambrose et al., 2010).

METHOD

Research Design

This study was identified as a mixed-method using concurrent embedded strategy. This design was carried out in one data collection phase, during which both quantitative and qualitative data were attained simultaneously (Creswell, 2010). The quantitative data were collected with applying an experimental study to meet the effectiveness of the self-regulated writing strategy on improving prospective teachers' writing skills in relation to metacognitive awareness while the qualitative data were collected during the implementation of the self-regulated strategy in the class. The prospective teachers were divided into two groups; the experimental and control group. The experimental group was

treated using the self-regulated writing strategy, while the second group was subjected to the collaborative writing strategy. The sample of this study consisted of 58 prospective teachers of English language education. Those were allotted 29 prospective teachers for the experimental group and 29 prospective teachers for the control group. Both groups were given the pre-test and post-test.

The research instruments for collecting the data used the writing test and the observation sheet. Observation sheets are used to attain the prospective teachers' learning activities within the implementation of the self-regulated writing strategy and metacognition awareness to facilitate them to write while the writing test is aimed at finding out their writing achievement after giving treatments. The two instruments were distributed to the two groups. To find the prospective teachers' metacognitive awareness, the observation sheets were provided with some paper sheets containing indicators of metacognitive awareness. The lecturer was assisted by three observers to take notes dealing with the learning activities reflecting learners' metacognitive awareness.

Data Analysis Technique

This study used descriptive and inferential statistical analysis for computing the quantitative data. The descriptive analysis aims to seek prospective teachers' writing performance and metacognitive awareness from the experimental and control group. The analysis was focused on the mean, mode, median, and standard deviation. Meanwhile, the inferential analysis was carried out to attain the conclusion of this study based on the research hypotheses. In doing so, the IBM SPSS 21.0 was employed to know the significant differences between the two groups accurately. This study also paid attention to the normality and homogeneity of the data as the requirement for the inferential analysis.

The inferential analysis used in this study includes a parametric statistical analysis, the multifactor analysis of variance (ANOVA) with two-way ANOVA. It was used to attest to the proposed research hypotheses. The conclusion was decided in the sig. level 0.05. The alternative hypothesis is accepted if the significant value is lower than the sig. level 0.05. Conversely, the null hypothesis is accepted if the significant value is greater than the sig. level 0.05. The interpretation of the research data was done in line with the research findings.

The qualitative data of this study include the prospective teachers' learning activities within the implementation of the self-regulated writing strategy. It was collected during the treatments in the experimental group. The analysis technique of qualitative data used some stages, namely collecting, displaying, redacting, and concluding (Miles & Huberman, 1994). The targeted aspects include the prospective teachers' learning activities comprising defining writing tasks, fixing writing goals and plans, enacting writing tactics and strategies, and adapting the learning activities. The prospective teachers' metacognition was reflected in the learning activities of writing.

RESULTS AND DISCUSSION

Research Findings

The self-regulated writing strategy was designed to facilitate prospective teachers to practice writing. It was developed in accordance with their learning needs and target needs in the English language education of Mandalika University of Education, Indonesia. This strategy also was aimed at improving prospective teachers' writing skills in relation to metacognitive awareness. The developed self-regulated writing strategy can be presented in Table 1 as follows.

Table 1. The developed self-regulated writing strategy

No	Teaching Steps	Learners' Activities
1	Defining writing tasks	<ul style="list-style-type: none"> ○ Learners are asked to construct an idiosyncratic profile of writing tasks. ○ Learners are involved in developing their self-efficacy and background knowledge about the writing tasks. ○ At the end of this phase, learners have a perception of the writing tasks.
2	Fixing writing goals and plans	<ul style="list-style-type: none"> ○ Learners determine the learning goals and work-plans on the writing tasks set in stage one. ○ Learners are asked to set an exposition text being to write in line with its generic structure, and vocabulary knowledge. ○ Learners consider what they should be assigned to attain and weigh what they want to attain.
3	Enacting writing tactics and strategies	<ul style="list-style-type: none"> ○ Learners are asked to construct their metacognitive writing strategy to take steps towards writing exposition texts. ○ Learners are inquired to carry out the process writing such as drafting, revising, and editing towards their drafts.
4	Adapting the learning activities	<ul style="list-style-type: none"> ○ Learners are requested to change their learning activities for completing the complete exposition text. ○ Given a model text of the exposition text, learners are asked to adapt to the genre-based learning activities to complete the writing tasks.

The self-regulated writing strategy was applied in the experimental group. This study was assisted by three writing lecturers from three different private universities at West Nusa Tenggara, Indonesia. They were also played a role as raters for prospective teachers' writing performance and as observers as well. The complete writing achievement of prospective teachers can be seen in Table 2 as follows.

Table 2. The prospective teachers' writing performance

Groups		Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Writing Achievement at Pre-test	High	69.68	5.103	1.088	67.42	71.94
	Moderate	68.15	14.343	2.813	62.36	73.95
	Low	72.70	3.093	.978	70.49	74.91
	Total	69.52	10.197	1.339	66.84	72.20
Writing Achievement at Post-test	High	76.14	5.801	1.237	73.56	78.71
	Moderate	71.08	3.405	.668	69.70	72.45
	Low	63.80	7.115	2.250	58.71	68.89
	Total	71.74	6.648	.873	69.99	73.49

The prospective teachers' writing performance was assessed in accordance with the writing aspects including the "organization, content, vocabulary, grammar, and

mechanic” adapted from Haerazi et al. (2018). This study was involved three writing lecturers as raters to measure prospective teachers’ writing performance. The writing performance was reflected based on their metacognitive awareness level. The achievement of the metacognitive awareness can be seen in Table 3 while the summary of the analysis factor of variance can be presented in Table 4.

Table 3. The prospective teachers’ metacognitive awareness

Groups		Mean	Std. Error	95% Confidence Interval for Mean	
				Lower Bound	Upper Bound
Metacognitive Awareness at Pre-test	High	76.14	1.237	73.56	78.71
	Moderate	71.08	.668	69.70	72.45
	Low	63.80	2.250	58.71	68.89
	Total	71.74	.873	69.99	73.49
Metacognitive Awareness at Post-test	High	81.946	1.773	78.388	85.504
	Moderate	80.310	1.567	77.165	83.454
	Low	67.125	2.684	61.740	72.510

Table 4. Summary of two-way ANOVA test

Analysis Factor of Variance	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	2872.548 ^a	5	574.510	8.974	.000
Intercept	263131.812	1	263131.812	4110.152	.000
Group	266.972	1	266.972	4.170	.046
Metacognitive	1472.628	2	736.314	11.501	.000
Group * Metacognitive	518.036	2	259.018	4.046	.023

Table 5. Students’ feedback towards the self-regulated writing strategy

No	Aspect Assessed	Prospective teachers’ feedback			Criteria
		Observer 1	Observer 2	Observer 3	
1	Teaching steps	3	3	3.7	Appropriate
2	Classroom situation	3	3	3.7	Appropriate
3	Time allocation	3.3	3	3.7	Appropriate
4	Writing activities	3.3	3	3.7	Appropriate
5	Group discussion	4	3.7	3.3	Appropriate
6	Pair work	4	3.3	3	Appropriate
7	Individual work	3	3	3	Appropriate
8	Lecturer’s performance	3.7	3	3.3	Appropriate
9	Teaching materials	3	3	3.7	Appropriate
10	Writing topics	3	3	3	Appropriate

During the treatment, this study involved three lecturers to take field notes dealing with the prospective teachers’ responses or feedback towards the self-regulated writing strategy. Table 5 demonstrated ten aspects assessed by observers as students’ responses.

The prospective teachers' response was measured within the learning activities during treatments given. Those aspects were responded positively to the prospective teachers. The criterion of prospective teachers' feedback or response towards the self-regulated writing strategy was appropriate.

Discussion

This study was aimed at investigating the accuracy of self-regulated writing strategy as a moderator of the metacognitive control to improve prospective teachers' writing skills. The self-regulated writing strategy was viewed from metacognition to activate prospective teachers' strategies to write. It was different from some studies that examine the effect of motivational regulation strategies and self-regulated instructional models relating to metacognition, cognition, and social behavior (Teng and Zhang, 2017), relating to students' performance, persistence, and regulation of behavior (Wolters, 2003; Wolters and Benzon, 2013; Zimmerman and Schunk, 2008), and relating to contingent metacognitive behavior (Binbansaran-Tuysuzoglu and Greene, 2014). The similarity of those with this study was that the metacognition became a key aspect that influenced the students' learning outcome.

In this study, the teaching steps of the self-regulated writing strategy are comprised of defining writing tasks, fixing writing goals and plans, enacting writing tactics and strategies, and adapting the learning activities. This strategy is subjected to prospective teachers to improve their writing skills viewed from metacognitive awareness. Metacognitive awareness in this study is one of the self-regulation components that contribute greatly towards learners' skill, knowledge, and learning strategy across learning situations and contexts (Pitenoe, Modaberi, and Ardestani, 2017; Azevedo and Witherspoon, 2009). In practice, the prospective teachers are involved in writing activities in relation to what they want to write and how to achieve the text type targeted. The strategy leads them to be autonomous learners and more individual in writing activities. This finding was reinforced by Merc (2015) who found that the autonomous learners at the university level had better academic achievement. In addition, the self-regulated strategy places metacognitive awareness underpinning learners to trigger their self-monitoring and self-evaluation (Veenman et al. 2002).

In the step of defining writing tasks, prospective teachers are asked to construct an idiosyncratic profile of writing tasks. They examine a list of writing guidelines given by the lecturer. In this context, they are requested to write a complete exposition text. In a small group, they discuss the generic structures of the text. They also determine the model text that can be imitated in line with the exposition paragraphs. In addition, they are involved in developing their self-efficacy and background knowledge about the writing task, a complete exposition text. At the end of this phase, they have a perception of the exposition text targeted to write. This learning activity builds prospective teachers' background knowledge of the text as their writing tasks. This finding was in keeping with Worden (2018) and Haerazi and Irawan (2019) who found that building knowledge of the text or genre before writing regulated learners' metacognition to address their content knowledge of the genre. It was also reinforced by Tuan (2011) who depicted that developing knowledge of the text going to write helps learners to fulfill readers in regard to grammar, organization, and content of the text. This knowledge is useful for prospective teachers to arrange the writing goals and plans in the next phase later on.

In the phase of fixing the writing goals and plans, prospective teachers are asked to determine learning goals and work-plans on the writing tasks set in stage one. Before engaging in writing tasks, in pairs, they set goals for what they accomplish during the learning activities. Enacting goals determines each prospective teacher's aims for writing. It is in accordance with Spruce and Bol (2014) who state the types of goals set are affected by each learner's goal orientation and a learning orientation reflects striving for

competences. In practice, prospective teachers are asked to set an exposition text being to write in line with its generic structure and vocabulary knowledge. Afterward, they are requested to decide the strategic planning to attain the goals set. They consider what they should be assigned to attain and weigh what they want to attain. At the end of this phase, they have self-efficacy and self-control to achieve the writing goals through work-plans to write. It is corresponding to Wang et al. (2009) and Taub et al. (2018) who state learners need to develop their self-efficacy and self-control as a manifestation of the metacognitive process.

After prospective teachers determine the goals and work-plan, they continue to the next phase to enact writing tactics and strategies. In this phase, prospective teachers are asked to construct their metacognitive writing strategy to take steps towards a complete writing exposition text. It is aimed at fostering prospective teachers' metacognitive awareness and logical thinking (Paris & Winograd, 1990; Green et al., 2010). In pairs, they discuss a few minutes to find out a better way to write an exposition text. They determine how to find out and write down a topic sentence and supporting sentences to be a good paragraph. As they have done in the initial phase, this phase brings them to activate their procedural knowledge referring to know how to read and write the text targeted (Huff & Nietfeld, 2009; Haerazi et al., 2020). In the learning activities, prospective teachers also adjust their learning strategies according to their circumstances.

Prospective teachers decide the appropriate circumstances under which learning strategies are employed. In doing so, they search for some sources provided by the lecturer. They create some graphic-organizers to regulate them to write exposition paragraphs, they assemble information relating to the writing topic. Afterward, they are inquired to carry out the process writing such as drafting, revising, and editing towards their drafts. In addition, the lecturer explains each step in the strategy as clearly as possible like steps of addressing the main idea and supporting the idea. The limitation of this activity is that the duration was not long enough to lead them with much more explanation. However, they are able to apply their own writing knowledge and strategies in their writing tasks. Besides, they are asked to monitor their learning process for errors and mistakes. Also, they control and evaluate the strategy applied (Rhodes & Tauber, 2011; Koriati, 2012; Haerazi, Utama, & Hidayatullah, 2020). Therefore, this learning activity leads them to higher learning and better performance (D'Mello et al., 2014).

The self-regulated writing strategy plays an important role in academic learning and helps learners to develop their metacognitive awareness (Graham & Harris, 2000). After enacting the writing strategy, the prospective teachers are requested to adopt the writing strategies. The phase of adapting the writing strategy is oriented to help prospective teachers to evaluate whether the use of the strategy is helpful or not and what to do if it is not (Winne, 2005; Winne & Hadwin, 2013). The complete exposition text is done in this stage. If the prospective teachers do not accomplish the writing task yet, they are asked to evaluate and monitor their writing process and written draft. In this situation, they are requested to change their learning activities for completing the complete exposition text. This strategy leads prospective teachers to practice much more to write. Furthermore, given a model text of the exposition text, learners are asked to adapt to the genre-based learning activities to complete the writing task. This finding is in agreement with Lei (2016) and Yu and Lee (2016) who found that self-regulated writing strategy helps learners to conduct noticing and imitating activities relating to the model text provided.

This study also presents the prospective teachers' responses during the implementation of the self-regulated writing strategy. Their responses are focused on ten aspects, namely the teaching steps, classroom situation, time allocation, writing activities, group discussion, pair work, individual work, lecturer performance, teaching materials, and writing topics available. These aspects are distributed in three big questions that are

how prospective teachers feel when they join the writing class, how they follow each learning activity, and whether they have an interest or not to attend the continuous class employing the self-regulated writing strategy. Based on the research findings, the quality of the self-regulated strategy viewed from those aspects was appropriate for teaching writing skills. The strategy is effective to enhance learners' writing performance viewed from metacognitive awareness. It is in line with Hu and Gao (2017) who find out that self-regulated strategy to improve learners' writing proficiency among learners' low writing achievement and high writing achievement. It is also the same finding as Teng and Zhang (2017) who report that the writing strategy mediates learners to improve writing performance viewed from motivation and metacognition.

CONCLUSION

The research finding indicated that the implementation of the self-regulated writing strategy was accurate to improve prospective teachers' writing performance in relation to the level of metacognition awareness. The metacognition awareness plays an essential role to lead prospective teachers in putting their ideas into writing complete exposition texts. The accuracy of this writing strategy can be compared with the conventional writing strategy in which the conventional strategy emphasizes learners to compose their writing based on the lecturers' guidelines. Because of this, learners tend to rely on the lecturer's role in writing activities. It is different from the self-regulated writing strategy in which learners involved in the team, pair, and individual work to compose their writing products. The prospective teachers who have higher metacognition awareness address their ideas into writing smoothly. They also employ the teaching steps of the strategy easier than those who have low metacognitive awareness. The stages of the self-regulated writing strategy consist of defining writing tasks, fixing the writing goals and plans, enacting writing tactics and strategies, and adapting the learning activities.

The development of prospective teachers' metacognitive awareness was also effective for a process of discovery that leads them to prefer their learning styles and activities to write. It also helps them to raise their critical awareness and develop their vocabulary acquisition process (Lew and Schmidt, 2011; Dubiner, 2018). Finally, the findings offer additional support to the favorable role of metacognitive activities in learning to learn and learning to teach. This is corresponding to previous studies scrutinizing the effect of metacognitive activities on making progress in each learning phase modeled as an acquired system of self-regulated instructions (see Winne and Hadwin, 2008; Winne, 2010; Veenam, 2011, 2012; Teng and Zhang, 2017). Prospective teachers can regulate their own learning styles through cognitive and metacognitive activities. The cognitive process is done in terms of conditions, standards, outcomes, goals, and strategies while the metacognitive process is carried out in terms of monitoring, goal-setting, and controlling activities. These processes occur in an iterative and adaptive way.

RECOMMENDATION

The efficacy of self-regulated metacognitive strategy as a moderator of the metacognitive process is necessary to see other aspects such as prospective teachers' linguistic awareness and non-linguistic awareness in improving their writing skills. Besides, further studies should pay attention to the prospective teachers' intercultural competences on how English native speakers express their ideas in papers because sociolinguistics relates to cultures and the target language in societies. Lastly, the practitioners need to explore other language learning models to underpin the self-regulated metacognitive strategy in teaching other language skills (speaking, reading, and listening skills).

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