Teacher's belief of metacognitive reading strategies and awareness in reading classrooms

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ABSTRACT

While studies on students' application of reading strategies have gained prominence, there is a paucity of research on teachers. The study aims to investigate how teachers' beliefs about metacognitive reading strategies impact their metacognitive awareness in reading classrooms. The samples involved 82 teachers from public secondary schools. This study used a quantitative research design. Research findings demonstrated that teachers significantly believed in and used metacognitive reading strategies, whereas a small number of teachers believed in them but did not implement them. The result of this study indicated that teachers possessed high metacognitive awareness levels while teaching reading comprehension. Analysis underscored the significance of implementing metacognitive reading strategies through a series of implications and suggestions. While some teachers believed in metacognitive reading strategies but did not use them, this study found that teachers believed in and employed them. Additionally, the study indicated that teachers exhibited high levels of metacognitive awareness during reading comprehension instruction, suggesting a strong understanding of their cognitive processes. Based on these results, the study suggests that reading classrooms should gradually use metacognitive reading strategies while taking into account the Malaysian English as a Second Language (ESL) context and traditional teaching methods. The implications of this research underscore the importance of fostering teachers' metacognitive awareness and strategically applying reading strategies to enhance student learning outcomes.

Keywords: *ESL reading classrooms, Metacognitive reading strategies, Reading comprehension, Teachers' beliefs, Teachers' metacognitive awareness.*

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Highlights of this paper

- This paper highlights how teachers' beliefs about metacognitive reading strategies affect their awareness in reading classrooms.
- The findings indicate that most teachers believe in and use these strategies, while some do not implement them despite their beliefs.
- The study recommends systematically integrating metacognitive reading strategies in the context of Malaysian English as a Second Language to improve teaching effectiveness and students' reading skills.

1. INTRODUCTION

The reading process does not focus solely on a series of kinesthetic skills to pronounce the words accurately but ultimately develops readers' metacognitive skills to process text content through critical thinking and problem-solving skills (Bouknify, 2023; Pratt & Martin, 2017; Rivas, Saiz, & Ossa, 2022). In a similar vein, teachers do not simply facilitate students in reading; the integral part is to develop students' ability to reflect on their learning process. Language teachers' beliefs and comprehension of teaching and learning are crucial to creating effective reading practices and teachers' continuous professional development, as their beliefs affect their goals, teaching processes, classroom materials, classroom interaction approaches, teachers' roles, students' roles, and the school's environment (Bouknify, 2023; Kuzborska, 2011). Teachers' beliefs are presented in three forms, which are 'professed beliefs (spoken words), intended beliefs (planning actions), and enacted beliefs (actions in practice)' (Bernardo & Mante-Estacio, 2023; Pratt & Martin, 2017). The thinking process about how one performs a particular skill, known as metacognitive awareness, plays a crucial role in learning, as mastering this knowledge helps students take control of their learning (Flavell, 1979). The four main components, as described in the metacognition model by the same author, were metacognitive knowledge, metacognitive experience, goals, and actions. While teaching, teachers who possess metacognitive awareness are able to monitor the content area, determine relevant strategies, and give instructions to enhance students' learning and apply differentiated instructions to students of multiple levels (Bouknify, 2023; Ghonsooly, Khajavy, & Mahjoobi, 2014). The present study will only investigate teachers' metacognitive awareness, which includes their declarative knowledge, procedural knowledge, conditional knowledge, lesson planning, monitoring of their teaching process, and performance evaluation.

Metacognitive reading strategies refer to "think about thinking" steps in pre-reading, while reading, and post-reading stages. Teachers who believe in metacognitive reading strategies can effectively teach students higher-order thinking during reading lessons. Students will have more control over the planning, arranging, and monitoring of their reading process as they construct reading strategies for reading comprehension. Having metacognitive awareness also enhances learners' motivation and academic success (Ghonsooly et al., 2014; Rivas et al., 2022). The metacognitive reading strategies adopted in the current study include prior knowledge, visualization, thinking aloud, questioning, making connections, summarizing, and prediction.

Despite the ministry's effort to provide teachers' training courses for continuous professional development (Azizi, 2019) and revamp the exam questions' structure to promote higher-order thinking in high-stakes exams (Seman, Yusoff, & Embong, 2017) teaching problems can still be found through learners' feedback and responses:

1 Students inclined to use lower-level thinking skills.

2 Students lack the awareness to enhance reading effectiveness.

3 Students have low interest in reading.

4 There is a lack of a creative, engaging, and reflective-thinking learning environment.

Teachers face pressure from a tight classroom schedule and curriculum, which hinders their ability to teach higher-order thinking (Seman et al., 2017). The findings indicated that teachers had basic knowledge of higher-

order thinking. As a result, teachers encountered difficulties when planning lessons that included elements of higher-order thinking in mixed-ability classrooms. The findings suggest that teachers frequently employ lower-order thinking strategies like remembering or understanding, and they lack the metacognitive knowledge necessary to foster higher-order thinking in teaching reading comprehension.

Metacognitive awareness exists in reading lessons, and young learners should set comprehension when the reading goal as the reading process begins. Teachers also need to set specific goals before teaching (Balcikanli, 2011). However, there have been no studies examining teachers' beliefs in metacognitive reading strategies or investigating the levels of metacognitive awareness among secondary school teachers when teaching reading comprehension (Mante-Estacio & Tupas, 2022; Rivas et al., 2022). Conversely, there is a wealth of research on students' metacognitive learning strategies, suggesting that we need to address the gaps in understanding teachers' beliefs about metacognitive reading strategies and metacognitive awareness, taking into account the practicality and teaching methods in reading lessons. According to Pratt and Martin (2017) beliefs are one of the biggest hindrances in practicing new pedagogies because teachers make classroom decisions. The lack of studies on teachers' beliefs in metacognition, given their pivotal role in facilitating students' learning and contributing to their reading success, motivated the current study.

Language Teachers' beliefs and comprehension of teaching and learning are crucial to creating effective classroom practices and teachers' professional development, as their beliefs affect their goals, processes, materials, classroom interaction modes, teachers' roles, students' roles, and the school they work in (Kuzborska, 2011; Mofreh, Salem, & Napeah, 2022). However, no related study has examined teachers' metacognitive awareness during reading comprehension instruction, indicating a need for further research in the ESL reading area. There is a wealth of research on students' metacognitive learning strategies, but not on teachers'. Therefore, it is crucial to investigate teachers' beliefs about these strategies, taking into account the practicality and teaching methods in reading lessons (Bouknify, 2023; Mante-Estacio & Tupas, 2022). This study aims to examine the metacognitive awareness level among teachers and the influence of their beliefs on utilizing metacognitive reading strategies to enhance teachers' metacognitive knowledge and regulation.

2. LITERATURE REVIEW

2.1. Teacher's Beliefs about Metacognitive Reading Strategies

There are three different kinds of metacognitive theories that impact teachers' beliefs: 1) tacit, 2) explicit but informal, and 3) explicit and formal (Schraw & Moshman, 1995). Tacit knowledge indicates the implicit knowledge that one acquires without explicit awareness. Tactic theories influence teachers' instructional choices. We conceptualize informal theories as those we are aware of but lack solid theoretical evidence to substantiate our beliefs. Forming informal theories initiates the explicit shaping of metacognition. Children at the age of six start to develop awareness of knowledge and are able to distinguish between false and true beliefs. This helps them shape formal theories and practices cognitively.

Despite the paucity of research on teachers' beliefs about metacognitive reading strategies, the theory of beliefs about choice provides a comprehensive overview of how these beliefs influence the implementation of strategies. According to Flowerday and Schraw (2000) the type of choice (topic and related materials of study), criteria of choice (student and teaching context), and rationale of choice (affective, behavioral, and cognitive aspects) are the primary factors that change teachers' attitudes and engagement in pedagogical practices. Although strategies can assist unmotivated students in reducing task difficulty, teachers believe that using too many can overwhelm students and potentially lead to negative outcomes.

According to Nichols, Zellner, Willson, Mergen, and Young (2005) teachers applied reading strategies and methods by considering 1) training and workshops, 2) the district curriculum policy, 3) teacher implementation of targeted reading strategies, 4) teachers' perceptions of their own instructional efficacy, and 5) teachers' perceptions of students' academic needs and performance. These above elements show that teachers are major factors in ensuring reading instruction effectiveness. The successful implementation of reading strategies depends on meaningful experiences and effectiveness among primary-grade teachers.

However, teachers' beliefs about literacy practices are not always consistent with the actual instructional practices (Fine, 2015). Through the qualitative (open-ended interview and observation) in-depth study of two middle-level English teachers, the results showed that they had difficulty describing and differentiating their belief systems from the referenced instructional practices in their classrooms. The findings suggested that teachers should receive more training to enhance their metacognitive knowledge, thereby enhancing their teaching beliefs.

2.2. Metacognitive Awareness of Teaching Reading Comprehension

Carrell, Pharis, and Liberto (1989) developed a five-step instruction reading comprehension strategy based on the three metacognitive knowledge concepts. Firstly, the teacher explains the characteristics of the strategy. The second step explains the rationale behind the strategy, emphasizing how understanding the lesson's purpose transfers control from the teacher to the students. The third step demonstrates the utilization of each subcomponent of the strategy. The fourth step demonstrates the application of a strategy in various contexts and its intended purpose. The last step is to evaluate the strategy application and provide a remedial strategy to solve the remaining problems. Steps one and two demonstrate declarative knowledge. Step three encompasses procedural knowledge, while steps four and five showcase conditional knowledge. The five pieces of metacognitive knowledge mentioned in the study had positive effects on metacognitive strategy training.

The literature on metacognition divides metacognitive awareness into two categories: metacognitive knowledge (declarative, procedural, and conditional knowledge) and regulation of cognition (planning, monitoring, testing, revising, and evaluating strategies) (Brown, 1987; Flavell, 1979). According to Schraw and Moshman (1995) declarative knowledge means "knowing about things", procedural knowledge means "knowing how to do things" and conditional knowledge indicates "understanding why and when to apply a strategy". In this study, only declarative, procedural, and conditional knowledge will be discussed as the subcomponents of metacognitive knowledge. As many regulatory functions are coined with metacognitive awareness, only three prominent subcomponents are explained: planning, monitoring, and evaluating.

This study utilizes traditional metacognitive theories, which categorize metacognitive knowledge and metacognitive regulatory skills separately. The knowledge of cognition is what individuals are aware of in their cognition (Schraw & Moshman, 1995). Schraw and Moshman (1995) stated that there are three types of metacognitive awareness–declarative, procedural, and conditional knowledge (as cited in Brown (1987) and Jacobs and Paris (1987)). Declarative knowledge describes knowledge about what to know, procedural knowledge is about how to do things, while conditional knowledge tells about why and when to do things.

In the literature on the concept of metacognition, metacognitive awareness is categorized into two main components: metacognitive knowledge and regulation of cognition. Metacognitive knowledge includes three subtypes—declarative, procedural, and conditional knowledge. In contrast, regulation of cognition encompasses planning, monitoring, and evaluating strategies (Brown, 1987; Flavell, 1979). According to Schraw and Moshman (1995) declarative knowledge refers to "knowing about things," procedural knowledge means "knowing how to do things," and conditional knowledge involves "understanding why and when to apply a strategy." This study will

focus on these three subcomponents of metacognitive knowledge. While metacognitive awareness encompasses many regulatory functions, this study will specifically focus on planning, monitoring, and evaluating.

Declarative knowledge refers to learners' self-awareness about the elements that contribute to their learning process (Schraw & Moshman, 1995). In other words, when applied to teaching, it indicates the teachers' knowledge of the subject area to be taught to learners, such as the factors to diagnose the advantages and disadvantages of certain reading strategies. Procedural knowledge, the next type of knowledge, is directly applicable to tasks like educational interventions (Taherdoost, 2016). Conditional knowledge refers to information about declarative knowledge and its optimal use. For instance, teachers who understand the students' backgrounds are able to use differentiation strategies in language classrooms. It requires educators' critical thinking skills and problem-solving skills, which display their "theoretical knowledge and professional practices across content, knowledge, skills, and insights" (Amolloh, Lilian, & Wanjiru, 2018). The next aspect is the regulation of cognition, which helps regulate one's thinking or learning. Schraw and Moshman (1995) mentioned that the three important elements are planning, monitoring, and evaluation (Jacobs & Paris, 1987). Planning includes choosing strategies and allocating resources to achieve the best performance (Schraw & Moshman, 1995). Monitoring provides a detailed analysis of a task. Monitoring involves a personal conscious awareness of reading comprehension and the practice of interval self-regulation while reading (Gilani, Ismail, & Gilakjani, 2012). The monitoring of teaching reading comprehension follows a similar metacognitive path, where teachers should practice periodic control to ensure learners use appropriate strategies. Evaluation refers to reflecting on one's goals and results. In teaching reading comprehension, teachers reflect on the teaching goals, what they have accomplished, and how they achieved them and consider using the same strategies for the next lessons.

Planning refers to "the selection of appropriate strategies and the allocation of resources" that impact performance (Schraw & Moshman, 1995). Several skills, such as setting reading goals, allocating suitable strategies, and setting time before a reading task, are important in lesson plans. As suggested by Xu (2015) the use of a K-W-H-L chart can be helpful to show teachers' declarative, procedural, and conditional knowledge as well as regulate their teaching. The activation of knowledge is divided as K (What I know about the strategy), W (What I want to know about the strategy), H (How do I apply the strategy), and L (What have I learnt about applying the strategy in the reading process). By doing so, teachers can identify the metacognitive reading strategies they use in the classroom and improve their instructional practices to enhance learners' performance.

Monitoring is another important aspect of cognition regulation. It tests one's ability to understand and complete tasks. There is a connection between metacognitive knowledge and monitoring accuracy, as adults who had higher self-assessed comprehension levels before reading had higher monitoring accuracy in post-reading comprehension tests (Schraw & Moshman, 1995). In the study of monitoring the accuracy of text in sixth-grade students and their teachers, the monitoring strategy was equally challenging for children and teachers (Engelen, Camp, Van De Pol, & De Bruin, 2018). The study applied a summarizing strategy as the monitoring strategy, but teachers displayed low monitoring accuracy with summaries written by their students in two experiments. The first experiment used keywords and cue prompts, while the second experiment did not. The second experiment demonstrated that teachers failed to monitor "intra-individual differences in students' learning," despite the absence of prior knowledge such as the students' names to provide an impression. Therefore, teachers' judgment still requires training to ensure they are sensitive to learners' differences and can contribute to differentiation in teaching reading comprehension by using metacognitive reading strategies.

Evaluation is the process of "appraising products and regulatory processes of one's learning," and it closely correlates with the planning and application of strategies (Schraw & Moshman, 1995). Reading comprehension

involves giving feedback to students and helping them discover their errors (Xu, 2015). Having metacognitive awareness allows teachers to assess their ability to achieve their teaching goals. Teachers may be able to assess their teaching and plan it more effectively.

2.3. Research Theoretical Framework

Teachers employ constructivism as a factor in their theoretical concepts, believing that students acquire knowledge through their cultural and social backgrounds. The Teacher Beliefs Framework encompasses the personal interpretive framework (teacher factors) and subjective educational theory (contextual factors) that shape teachers' beliefs about their selection of strategy in the reading context. In this study, the theories form the theoretical framework, which constructs teachers' ideas, perceptions, and knowledge to express their preferences and the suitability of certain strategies for implementation. Flavell (1979) model focuses on the metacognition concept, especially on how to construct metacognitive knowledge, set reading goals, and use strategies. The Comprehension Hypothesis Theory emphasizes that language learning occurs subconsciously and that the best way to master reading strategies is to read. The Constructively Responsive Reading Model provides details about reading stages and strategies more comprehensively, highlighting the thinking processes of readers (Pressley & Gaskins, 2006). These theories form the metacognitive reading strategies' theoretical framework that helps teachers to identify the cognitive reading strategies that are used in teaching reading comprehension at different stages, such as pre-reading, while reading, and post-reading stages.

The integration of these two variables shapes the theoretical framework of the study, with the independent variable being teachers' beliefs about metacognitive reading strategies. The independent variable then affects the dependent variable, teachers' metacognitive awareness, which includes different teachers' knowledge, such as declarative knowledge, procedural knowledge, and conditional knowledge. It improves their planning, monitoring, and evaluation processes in teaching reading comprehension. The final aim of the study is to ensure teachers teach well so that students understand texts more effectively and become independent in problem-solving. Figure 1 illustrates the theoretical framework of the study.

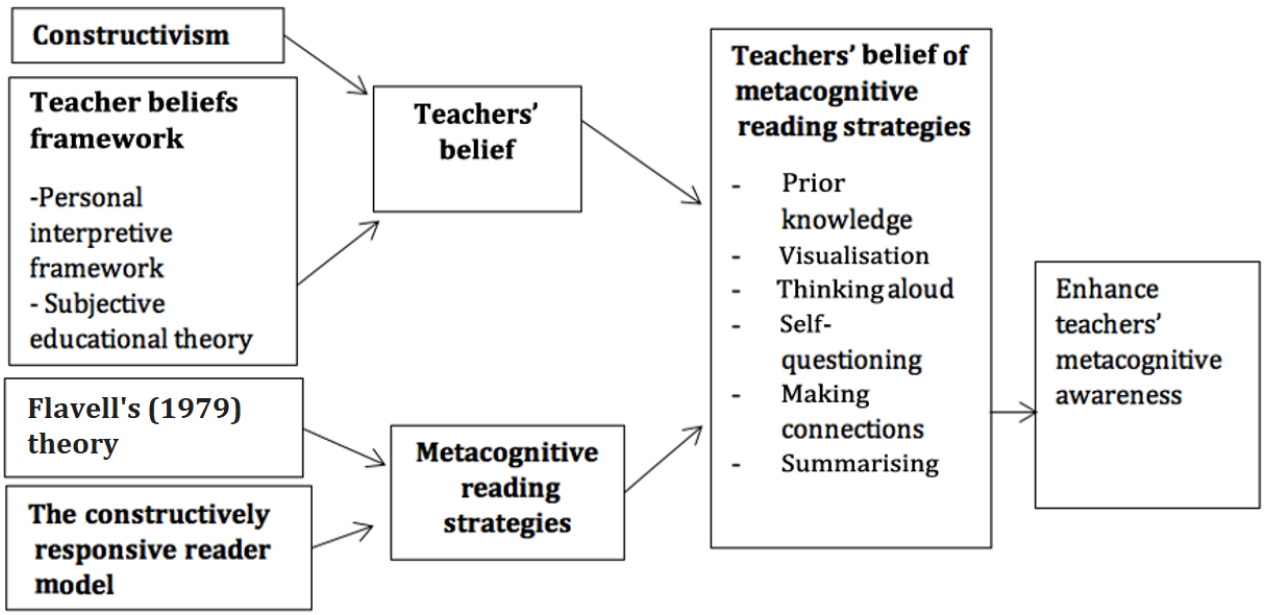

Figure 1. Theoretical framework.

Source: Flavell (1979).

2.4. Research Questions

The current study aims to answer the following two questions:

1. What is the relationship between secondary school teachers' beliefs about metacognitive reading strategies and their metacognitive awareness level of teaching reading comprehension?
2. Do the teachers' beliefs about metacognitive reading strategies influence their metacognitive awareness and teaching reading comprehension?

3. METHODS

3.1. Research Design

The research employed quantitative research. According to Gay, Mills, and Airasian (2012) quantitative methods describe the specific statistical information about the variables and crucial criteria of the participants through the narrowed topic. Correlation design was used to answer the research's questions as it displays the statistics and logic to describe a single causal inference (Thompson, Diamond, McWilliam, Snyder, & Snyder, 2005). Findings from the quantitative results also reveal the group's behaviors and trends (Goertzen, 2017). By examining the details, we can provide more statistical information about why the samples do not favor certain measures through thinking, feeling, or actions.

3.2. Sample

The sample consisted of 82 English language teachers from 30 public secondary schools in Penang, Malaysia. This study will employ a simple random sampling technique to select ESL teachers. Zikmund (2002) previously selected ESL teachers as samples using random numbers generated from the software application within the sampling frame. The samples are the public school English language teachers, purposely selected from 30 public secondary schools in Northeast Penang Island District, Malaysia. The number is selected based on the estimation of sample size (Refer to Table 1). The sample sizes also expect that the characteristics that will be measured are nearly or normally distributed. Given a population of 120, the sample size should be approximately 75, measured at a precision level of less than 7%, with a confidence level of 95% and a significance level of p =.5. We estimate that the study will select 75 teachers from the total number.

Table 1. The estimation of sample size.

N	S
	± 7%
100	67
125	78
150	86
175	94
200	101
225	107
250	112

Note: N is population size.
S is sample size for ± 7% precision level.

3.3. Instruments

This study gathered data using the two instruments outlined in the Appendix: a standardized questionnaire named "The Impact of Using Metacognitive Reading Strategies on Students' Reading Comprehension" and the Metacognitive Awareness Inventory for Teachers (MAIT) (Balcikanli, 2011). We administered both questionnaires to the samples to investigate the potential impact of teachers' beliefs in metacognitive reading strategies on

metacognitive awareness during reading comprehension instruction. The Likert scale presented each questionnaire, requiring the samples to numerically express their preferences (Gay et al., 2012). Four quadrants specifically guide the selection of key teachers' metacognitive reading strategies. All items are pertinent to teachers' beliefs, their years of teaching experience, their perceptions, and their understanding of the application of metacognitive reading strategies in classroom settings. This design applies a 4-point Likert scale to encourage teachers to express their beliefs. Applying 4-point scales makes comprehension easier, making it less effortful for respondents with low motivation to answer the questionnaires.

3.4. Validity and Reliability of the Instruments

According to Gay et al. (2012) validity is the degree to which a test measures what it is supposed to measure; it is a crucial step in developing and evaluating tests and realizing the purposes of the study. A panel of experts validated the face validity and the content validity of the instruments of the pilot study. Two senior lecturers from the English Language field were invited to examine the suitability of the questionnaire. A few items were amended. In the demographic details section, the highest academic qualification of the respondents should be made specific. The year of experience "Years of English language teaching experience" should be changed to "Years of experience teaching reading". Several changes were also made to the original questionnaire to suit the Malaysian context.

The evidence for reliability analysis of the Teachers' Beliefs in Using Metacognitive Reading Strategies (TB) and Teachers' Metacognitive Awareness (MAIT) was assessed by using the internal consistency Cronbach's Alpha coefficient. The reliability coefficients of the TB and MAIT are displayed in Table 2. The teachers upheld two items in the TB. The Cronbach Alpha's value was .87 for the first group of teachers who believed in and used the metacognitive reading strategies. The items in the first group (TB1) had Cronbach Alpha values ranging from -.6 to .76. The second group of teachers (TB2), who believed in metacognitive awareness but did not use it, had a Cronbach's Alpha value of .07; the items' values ranged from -.77 to .4. The questionnaire's design, which elicited different reasons for teachers' refusal to use the strategies despite their faith in the metacognitive reading strategies, could explain these differences. The pilot study did not include the data from the remaining two groups (TB3, TB4).

Table 2. The internal consistency reliability coefficients of pilot study in cronbach's alpha.

Items	Reliability
I believe in metacognitive reading strategies that can increase my students' comprehension, but I do not use these strategies (TB2).	0.07

3.5. Data Analysis

The samples who answered the questionnaires were divided into four groups: TB Group 1 (teachers who believed and used metacognitive reading strategies), TB Group 2 (teachers who believed but did not use metacognitive reading strategies, TB Group 3 (teachers who did not believe but used metacognitive reading strategies), and TB Group 4 (teachers who did not believe and did not use metacognitive reading strategies). Teachers' metacognitive awareness was categorized and labelled as MAIT 1 (Declarative Knowledge), MAIT 2 (Procedural Knowledge), MAIT 3 (Conditional knowledge), MAIT 4 (Planning), MAIT 5 (Monitoring) and MAIT 6 (Evaluating).

A correlational design was adopted to display the relationship between teachers' beliefs in metacognitive reading strategies and metacognitive awareness while teaching reading comprehension. After the required data was collected, the data was assessed using the Pearson correlation coefficient (Pearson r) to seek any significant relation

between variables (Gay et al., 2012). The number is between -1.00 and 1.00, in which the significance shows that if the decimal number is close to 0.00, the variables are not correlated (Gay et al., 2012).

Therefore, Rencher and Schaalje (2008) employed the simple linear regression model to form the relationship, forecast the value of the dependent variable for a specific value of the independent variable, and determine the effect of factors (error) beyond their control.

3.6. Ethical Consideration

Before conducting the study in local schools, the researcher sent it to the Education Research Application System for permission. The researcher sent letters to the principals of selected secondary public schools, seeking their approval to gain access to teachers.

4. RESULTS

There were 82 participants who answered the survey (Male 11%, Female 89%). Among the samples who were surveyed, teachers with 0 to 5 years of experience (37.8%) and over 20 years of experience (32.9%) were the majority, followed by teachers with 16 to 20 years of experience (14.6%), 5 to 10 years of experience (11%), and the least were teachers with 11 to 15 years of experience (3.7%). This composition allowed one way to analyze the responses of teachers regarding their beliefs about metacognitive reading strategies in students' reading comprehension. After gaining the samples' responses, it was found that TB Group 3 and Group 4's data could not be analyzed due to too limited responses. A total of 82 participants completed the survey (11% male and 89% female). Most respondents were teachers with 0 to 5 years (37.8%) or over 20 years of experience (32.9%), followed by those with 16 to 20 years (14.6%), 5 to 10 years (11%), and the least represented group with 11 to 15 years (3.7%). This distribution enabled a thorough analysis of teachers' beliefs about metacognitive reading strategies in enhancing students' reading comprehension. However, insufficient responses prevented the analysis of data from TB Group 3 and Group 4.

Is there a relationship between a teacher's belief in metacognitive reading strategies and metacognitive awareness when teaching reading comprehension?

The present study aimed to investigate the relationship between teachers' beliefs of metacognitive reading strategies and metacognitive awareness while teaching reading comprehension. Therefore, the hypothesis (H01) is listed below.

H0₁: There is no significant relationship between the beliefs of secondary school teachers about metacognitive reading strategies and their level of metacognitive awareness when teaching reading comprehension.

Table 3 shows a moderate correlation between teachers' beliefs about metacognitive reading strategies and their metacognitive awareness in teaching reading comprehension. TB Group 1 teachers believed in and used the metacognitive reading strategies. Hence, their metacognitive awareness increased accordingly ($r = .51$, $p < .05$, $N = 59$). Therefore, H01 was rejected.

Out of the seven metacognitive reading strategies, the top three strategies were the prior knowledge strategy, making connection strategy, and summarizing strategy.

Table 3. Pearson correlation between TB group 1 and teachers' metacognitive awareness (MAIT).

Item		MAIT
TB group 1	Pearson correlation	0.506**
(Teachers who believed in and used metacognitive reading strategies)	p	0.000

Note: **. Correlation is significant at the 0.01 level (2-tailed).

As there were six factors in the dependent variable, each factor was tested and the results were analyzed. According to Table 4, each factor was positively and moderately correlated with teacher's beliefs about metacognitive reading strategies. The noteworthy point was that teachers who believed in and used metacognitive reading strategies had the highest procedural knowledge (MAIT 2), indicating that they believed they knew how to implement these strategies in specific reading contexts. However, they had the least metacognitive awareness when it came to monitoring their reading lessons through reflection or obtaining feedback from the learners (MAIT 5).

Table 4. Pearson correlation between TB group 1 and factors in teachers' metacognitive awareness (MAIT).

Item		MAIT F1	MAIT F2	MAIT F3	MAIT F4	MAIT F5	MAIT F6
TB group 1 (Teachers who believed in and used metacognitive reading strategies) p=significance level, *N*= 59	Pearson correlation	0.476**	0.497**	0.431**	0.442**	0.419**	0.430**
	p	0.000	0.000	0.001	0.000	0.001	0.001

Note: **. Correlation is significant at the 0.01 level (2-tailed).

In contrast, the second group of teachers found different results. The Pearson correlation coefficient revealed a negative correlation between teachers' beliefs about metacognitive reading strategies and metacognitive awareness level ($r = -0.34$, $p > 0.05$, $N = 20$). Table 5 presented the analysis. The nature of the questionnaire for the second group of teachers explained why they did not use the sample and did not focus on the effectiveness of metacognitive reading strategies. Consequently, the relationship between teachers' beliefs about metacognitive reading strategies and metacognitive awareness was generally insignificant. Therefore, we were unable to reject H01. The results were similar to Pratt and Martin (2017) study, which indicated teachers had high metacognitive awareness in reading, but their understanding towards the scaffolding methods was still vague. Therefore, due to their limited understanding of metacognitive reading strategies, the teachers did not incorporate them into the planning, monitoring, and evaluation of their reading lessons.

Table 5. Pearson correlations between TB group 2 and teachers' metacognitive awareness (MAIT).

Item		MAIT
TB group 2 (Teachers who believed but did not use metacognitive reading strategies)	Pearson correlation	-0.340
	p	0.142
	N	20

Similarly, the breakdown of each factor in metacognitive awareness is described below. Only Conditional Knowledge (MAIT 3) was presented to have a significant correlation with teacher's beliefs of metacognitive reading strategies ($r = -0.467$, $p < .05$, $N = 20$), as shown in Table 6. In other words, teachers knew why they believed in metacognitive reading strategies, but they did not use them in reading lessons because they believed they were inappropriate for the classroom and reading context.

Table 6. Pearson correlation between TB group 2 and factors in teachers' metacognitive awareness (MAIT).

Item		MAIT F1	MAIT F2	MAIT F3	MAIT F4	MAIT F5	MAIT F6
TB group 2 (Teachers who believed but did not use metacognitive reading strategies) p=significance level, *N* = 20	Pearson correlation	-0.232	-0.415	-0.467*	-0.335	-0.294	-0.092
	p	0.326	0.069	0.038	0.148	0.209	0.700

Note: *. Correlation is significant at the 0.05 level (2-tailed).

In short, the findings showed that teachers who believed in and used metacognitive reading strategies had a higher and more positive correlation with their metacognitive awareness. On the other hand, teachers who believed but did not use the strategies showed a negative and weaker correlation in their metacognitive awareness. We can conclude that the implementation of metacognitive reading strategies will not affect a teacher's metacognitive awareness.

Does the Teacher's Belief of Metacognitive Reading Strategies Influence the Metacognitive Awareness of Teaching Reading Comprehension?

The present study also intends to investigate the impact of teachers' beliefs about metacognitive reading strategies on metacognitive awareness while teaching reading comprehension. The second hypothesis (H02) was formulated as follows.

$H0_2$: There is no significant impact of secondary school teachers' beliefs of metacognitive reading strategies on the metacognitive awareness level of teaching reading comprehension.

This simple linear regression revealed which teachers' beliefs in metacognitive reading strategies had the most significant impact on metacognitive awareness during reading comprehension instruction. Table 5 shows the results for the first group. It showed that teachers' beliefs about metacognitive reading strategies were a good predictor of students' level of metacognitive awareness when teaching reading comprehension ($F(1, 57) = 19.97$, $p < .05$.

According to Table 7, the unstandardized coefficients, teacher's belief in metacognitive reading strategies is a significant predictor of metacognitive awareness in the population, $\beta = .509$, $t(59) = 4.469$, $p < .05$, $R2 = 25.9$. About 25.9% of the variance in metacognitive awareness while teaching reading comprehension can be explained by the teacher's belief in the population. The regression equation of the regression line is $Y' = 0.992X + 38.955$. Hence, the increase in the first group's teachers' beliefs in metacognitive reading strategies' value is followed by a 0.992 unit increase in teachers' metacognitive awareness level among the teachers who believed and used metacognitive reading strategies. It is inferred that there was a significant impact of secondary school teachers' beliefs of metacognitive reading strategies on the metacognitive awareness level of teaching reading comprehension. Hence, H02 was rejected for TB Group 1 teachers. The result also correlated with the study done by Thompson et al. (2021) which reported that there was a positive relationship between teachers' beliefs and instructional uses of writing in STEM (Science, Technology, Engineering, and Mathematics) undergraduate courses. As teachers had metacognitive reading strategies' beliefs and used them while teaching reading comprehension, they were more aware of their knowledge, instructions, and overall lesson planning.

Table 7. Summary of simple regression analysis for predictor of teacher's metacognitive awareness in TB group 1.

Independent variable	R	R^2_{adj}	β	t	df	F	p	Unstandardized coefficient (B)
Constant				2.812			0.007	38.955
TB group 1 (Teachers who believed in and used metacognitive strategies)	0.509	0.259	0.509	4.469		19.969	0.000	0.992
Regression					1			
Residual					57			

Note: R^2_{adj} =Adjusted R-squared, β= Standard beta coefficient, t=t-test statistics, df = Degrees of freedom, F=F-distribution, p=significance level.

In the second group, the result was that the teachers' beliefs about metacognitive reading strategies did not significantly predict the metacognitive awareness level when teaching reading comprehension, $F(1, 18) = 2.356$, $p > 0.05$.

Table 8 presented that the regression coefficient for the predictor variable was -1.344. This indicated that the increase in the value of teacher's beliefs in metacognitive reading strategies was followed by the decrease in metacognitive awareness level by 1.344 units. Therefore, it was found that a teacher's belief in metacognitive reading strategies did not significantly predict their metacognitive awareness level during reading comprehension instruction, with a coefficient of .34, a t-value of -1.535, a p-value of >.05, and an R2 adj of 6.7. The belief in metacognitive reading strategies among teachers in the second group only explained 6.7% of the variance in metacognitive awareness level while teaching reading. The regression equation for the regression line is Y' = -1.344 X + 145.411. Therefore, the predicted metacognitive awareness level is equal to -1.344 (teacher's belief in metacognitive reading strategies) + 145.411. Therefore, H02 failed to be rejected for teachers in the second group.

Table 8. Summary of simple regression analysis for predictor of teacher's metacognitive awareness in TB group 2.

Independent variable	R	R^2 adj	β	t	df	F	p	Unstandardized coefficient (B)
Constant				4.584			0.000	145.411
TB group 2 (Teachers who believed but did not use metacognitive reading strategies)	0 .340	0.067	-0.340	-1.535		2.356	0.142	-1.344
Regression					1			
Residual					18			

Note: R^2 adj =Adjusted R-squared, β= Standard beta coefficient, t=t-Test statistics, df = Degrees of freedom, F=F-distribution, p=Significance level.

Table 9 presented the regression coefficient for the predictor variable of teachers' conditional knowledge as -.311. The regression equation of the regression line was Y' = -.311X + 27.474. This result suggested that as a teacher's beliefs about metacognitive reading strategies increased by a unit, the conditional knowledge of the metacognitive awareness level decreased by 3.11 units. Hence, the independent variable of the second group's teachers negatively predicted teachers' conditional knowledge while teaching reading comprehension significantly, β = -.467, t (20) = -2.239, p <.05, R2 adj = 17.4. The second group's teachers' belief in metacognitive reading strategies explained a 17.4% variance in their conditional knowledge of metacognitive awareness levels while teaching reading. The findings explained that, although teachers believed in the effectiveness of metacognitive reading strategies, they were unable to implement them. Thus, there was no significant difference in the impact of teachers' metacognitive reading strategies' beliefs on metacognitive awareness.

Table 9. Summary of simple regression analysis for predictor of teacher's conditional knowledge (Metacognitive awareness).

Independent variable	R	R^2 adj	β	t	df	F	p	Unstandardized coefficient (B)
Constant				5.461			0.000	27.474
TB group 2 (Teachers who believed but did not use metacognitive reading strategies)	0.467	0.174	-0.467	-2.239		5.015	0.038	-0.311
Regression					1			
Residual					18			

Note: R^2 adj =Adjusted R-squared, β= Standard beta coefficient, t=t-test statistics, df = Degrees of freedom, F=F-distribution, p=Significance level.

Because MAIT 3 (conditional knowledge) had a strong connection with teachers' beliefs about metacognitive reading strategies, the regression result was looked at, and it was confirmed that teachers' beliefs about metacognitive reading strategies statistically significantly predicted the conditional knowledge of teachers who believed in metacognitive reading strategies but did not use them when teaching reading comprehension (F (1, 18)

= 5.015, p <.05. This indicates that the teachers in TB Group 2 lacked sufficient awareness and understanding of other instructional methods. The results indicated that teachers were aware of various metacognitive reading strategies at a surface level, leading them to opt for existing reading strategies to achieve the lesson's objectives.

MAIT 3 (conditional knowledge) significantly correlated with teachers' beliefs about metacognitive reading strategies. Regression analysis indicated that these beliefs significantly predicted the conditional knowledge of teachers in TB Group 2, F (1, 18) = 5.015, p < .05. This suggests that while these teachers acknowledged various metacognitive strategies, they lacked sufficient awareness and understanding of alternative instructional methods, relying instead on familiar reading strategies to achieve lesson objectives.

5. DISCUSSION

Research Question 3, which examines the relationship between teachers' beliefs about metacognitive reading strategies and their level of metacognitive awareness when teaching reading comprehension, yielded contrasting results. The relationship is significantly positive for most teachers who believed in and used metacognitive reading strategies. Hence, H01 is rejected. We also observed a significant correlation between teachers' beliefs about metacognitive reading strategies and their understanding of cognition, specifically declarative and procedural knowledge, during the teaching of reading comprehension. Therefore, teachers know what their beliefs are and understand how and when to apply metacognitive reading strategies. This has the opposite result as in Mohamed, Chew, and Kabilan (2006) study that teachers rarely employed metacognitive reading strategies in the classroom.

However, the second group of teachers, who believed in metacognitive reading strategies but did not implement them, demonstrated an insignificant and negative correlation in metacognitive awareness. There is no significant relationship between secondary school teachers' beliefs of metacognitive reading strategies and metacognitive awareness level of teaching reading comprehension, so $H_0 1$ failed to be rejected. This condition may be due to the uncommon use of strategies that was mentioned in Mohamed et al. (2006) study. Therefore, teachers have a limited understanding of metacognitive reading strategies. Thus, they do not think that possessing metacognitive reading strategies is related to their metacognitive knowledge as well as reading lessons' planning, monitoring, and evaluation. This may also be due to teachers' consideration, as too many reading strategies might overwhelm students and hinder learning progress (Flowerday & Schraw, 2000; Kuzborska, 2011; Pratt & Martin, 2017). This finding aligned with the results obtained in the previous study in which teachers did not pose questions related to the development of students' metacognition (Caravaca, 2019). In a similar vein, a study conducted among pre-service teachers to examine their beliefs in the Self-Regulated Learning (SRL) theory showed that most students displayed a high level of belief towards the SRL theory's instruments (Darmawan, Agusvina, Lusa, & Sensuse, 2023). However, the samples also expressed significant belief in other theories that were not aligned with SRL theory. The result suggested the integration of different beliefs, including metacognitive strategies and traditional pedagogical approaches in education.

According to the simple linear regression analysis, the result was different in the first and second groups of teachers. Metacognitive reading strategies' belief has become the significant predictor of metacognitive awareness among most teachers who believed and used the metacognitive reading strategies; hence $H_0 2$ is rejected. It is because metacognitive reading strategies overcame students' reading difficulties, promoted students' self-learning ability, and motivated teachers and students in teaching and learning. The reason for the use of metacognitive reading strategies may be because of the positive effect between students' problem-solving abilities and metacognitive awareness (Alindra, Fauzan, & Asmar, 2019; Mofreh, Ghafar, Hamid, & Mydin, 2020; Rivas et al., 2022). The result also correlates with the study done by Mofreh, Ghafar, and Omar (2018) which reported that

there is a positive relationship between beliefs and their practices in implementing teaching techniques in teaching. Teachers who held beliefs in metacognitive reading strategies and utilized them in their teaching of reading comprehension demonstrated heightened awareness of their knowledge and metacognitive lesson planning (Bouknify, 2023; Mante-Estacio & Tupas, 2022). His research analysis revealed that the belief in metacognitive reading strategies did not significantly predict the metacognitive awareness of teachers in the second group. Although teachers believed in the effectiveness of metacognitive reading strategies, they were unable to implement them. Thus, there is no significant difference in the effect of teachers' metacognitive reading strategies' beliefs on metacognitive awareness; H02 failed to be rejected. An interesting point was that the second group's teachers had a relatively high level of conditional knowledge in their metacognitive awareness, which means they knew specific strategies should be applied under certain conditions. This result suggested that they believed that there was no positive correlation between metacognitive reading strategies and reading success (Meniado, 2016). Therefore, teachers were aware of the strategies but opted for others to achieve the lesson's objective.

6. IMPLICATIONS

The major finding of the present study suggested that the curriculum should implement metacognitive reading strategies and transmissive learning instructions, which aim to raise teachers' metacognitive awareness while teaching reading comprehension. As most teachers believe in teaching reading with metacognitive reading strategies, there should be a concentrated effort to train in-service and pre-service teachers with explicit instructions on a variety of metacognitive reading strategies with supplementary tasks to enhance their teaching skills. The increase of metacognitive awareness among teachers can eventually encourage learners to self-regulate their reading processes.

The absence of metacognitive reading strategies in reading lessons is primarily due to a lack of discussion or reading preparation in the classroom, as well as an excessive focus on skill-based reading strategies such as vocabulary and read-aloud (Kuzborska, 2011). There should also be a "Metacognitive Reading Strategies Kit for English Language Teachers" in the future curriculum, targeting specific metacognitive reading strategies that focus on raising learner's metacognitive awareness in academic reading on a large scale.

7. RECOMMENDATIONS

Future research in this field should explore a larger scale with participants from different social backgrounds, as this could serve as a valuable reference for policymakers in designing a suitable reading curriculum for various demographic settings. We should conduct more comprehensive studies to evaluate the accuracy of teachers' use of metacognitive reading strategies in reading lessons. There is a dire need to conduct quasi-experimental research, longitudinal research, and qualitative research to test the actual impact of metacognitive reading strategy instruction on learners' reading performance. In addition, researchers can conduct future studies using a new instrument, adding new factors and applying different statistical analyses to recommend a hypothetical model, such as Structural Equation Modelling (SEM). SEM, which combines confirmatory factor analysis to assess psychological characteristics and path analysis to reveal the causal relationship among variables, is a suitable tool for exploring teachers' metacognitive awareness (Ghonsooly et al., 2014).

8. CONCLUSION

In the present study, most teachers perceived themselves as the advocates of metacognitive reading strategies. Their beliefs and use of metacognitive reading strategies significantly positively impacted their metacognitive

awareness while teaching reading. On the other hand, teachers who believed but did not use metacognitive reading strategies had an insignificant negative impact on their metacognitive awareness while teaching reading comprehension. However, their conditional knowledge showed that teachers upheld different teaching beliefs in order to achieve the lesson goals.

Given that the majority of samples in the study used teachers' beliefs as a predictor for their metacognition, planning, monitoring, and evaluation, a systemic review of metacognitive reading strategy instruction at the national educational level is imperative. The finding is helpful in addressing the trend of reading comprehension in English to other researchers, educators, and policymakers.

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APPENDIX

Metacognitive reading strategies are methods that help the reading process in pre-reading 'planning', during-reading 'monitoring' and post-reading 'evaluation of the reading process' (Al-Alwan, 2012). Methods include visualisation, thinking aloud, prediction, author questioning, self-monitoring, prior knowledge, making connection and summarising.

Please choose only one of the following items:

No.	Items
1	I believe that metacognitive reading strategies can improve the students‟ level of comprehension, therefore, I use them.
2	I believe metacognitive reading strategies can increase my students‟ comprehension, but I do not use these strategies.
3	I do not believe metacognitive reading strategies can increase my students‟ comprehension, but I use these strategies.
4	I use traditional strategies because they have more benefits more than metacognitive reading strategies.

1. Teachers believe and use the metacognitive reading strategies:

Read every statement carefully and choose the one that best describes you.

1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree

No.	Items	1	2	3	4	5
1	I continuously use metacognitive reading strategies to help students to overcome their reading problems, then they learn independently.					
2	I use the prior knowledge strategy when I teach a reading class.					
3	I use the visualization strategy when I teach a reading class.					
4	I use the think-aloud strategy when I teach a reading class.					
5	I use self-questioning strategy when I teach a reading class.					
6	I use the making connections strategy when I teach a reading class.					
7	I use the summarizing strategy when I teach a reading class.					

8	I use the projector and videos to interact my students and make the text easier for understanding.					
9	I use metacognitive reading strategies that I learned in the past or from other sources like the teacher edition.					
10	I integrate metacognitive reading strategies into classroom activities to help me achieve learning objectives during reading classes					
11	I believe in using metacognitive reading strategies to help my students ask self-monitoring questions as they learn.					
12	I believe in using critical questions explicitly when applying metacognitive reading strategies to boost my students‟ understanding.					
13	Since I began to use metacognitive reading strategies, my students are more willing to study reading and eager to learn.					
14	I believe that the use of metacognitive reading strategies is the key to improved reading comprehension of students.					
15	I believe in using metacognitive reading strategies encourages my students to do reflection before, during and after the reading process					
16	I use metacognitive reading strategies to guide my students to review their understanding and evaluate their own success.					
17	I can realize the intellectual differentiation of my students when I use metacognitive reading strategies.					
18	My students were able to score higher on reading comprehension when using metacognitive reading strategies.					
19	Teaching reading comprehension using metacognitive reading strategies made me more confident as a teacher.					
20	I believe that other teachers should use metacognitive reading strategies because of their impacts on students‟ comprehension.					

2. Teachers believe, but do not use the strategies:

Read every statement carefully and choose the one that best describes you.

1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree

Item	**Items**	**1**	**2**	**3**	**4**	**5**
1	I believe in the impacts of these kinds of strategies on comprehension, but I have never heard of the terms and used them in class before.					
2	I understand the importance of metacognitive reading strategies for my students' understanding, but I do not apply them in my reading class.					
3	Metacognitive reading strategies are beneficial for comprehension, but I do not have enough experience in implementing them with my students.					
4	I believe that teaching by using metacognitive reading strategies help in attaining the set					

	learning objectives, but it is hard to me applying them.					
5	Metacognitive reading strategies are better than other strategies because these strategies focus on the outcomes of improving students‟ comprehension; however, I need to learn how to use them.					
6	I have learned metacognitive reading strategies, but have not applied it in my classroom yet.					
8	I believe that metacognitive reading strategies are important strategies for students‟ comprehension, but I do not integrate them in my teaching because of the school environment.					
9	I believe that using metacognitive reading strategies are helpful because these strategies use different resources to support my students‟ understanding, but I do not implement them during my teaching.					
10	I do not use these strategies because I observed other teachers who believed in these strategies were unwilling to use it.					
11	Teachers should learn these strategies for reference but it can be hard to apply.					
12	I believe metacognitive reading strategies are applicable to a certain subject of reading not in all reading texts, therefore, I do not use them.					
13	I think that metacognitive reading strategies are only applicable for some schools that is why I do not use it.					

3. Teachers do not believe, but use these strategies:

Read every statement carefully and choose the one that best describes you.

1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree

	Items	**1**	**2**	**3**	**4**	**5**
1	I do not believe metacognitive reading strategies, but I have to use it because the students interact and interested more when applying it.					
2	I do not believe that metacognitive reading strategies improve comprehension, but I use some of these strategies in my classroom.					
3	I used metacognitive reading strategies but do not believe in its effectiveness on students‟ comprehension.					
4	Metacognitive reading strategies are like any other comprehension strategies and are not that important for the development of the students‟ comprehension, but I use them in my classes.					
6	Since I began to use metacognitive reading strategies, my students were not ready to study reading because these strategies are difficult for students.					
7	I have noticed that the students‟ reading and understanding remain the same when using metacognitive reading strategies.					
8	I use metacognitive reading strategies once a week because using these strategies is a waste of reading time.					
9	I use metacognitive reading strategies twice a week because I think these strategies do not help my students‟ comprehension.					
10	I use metacognitive reading strategies a few times a week, but I do not believe its impact on my students‟					

	comprehension.	
11	My teaching has been more difficult when I use metacognitive reading strategies.	
12	I believe I teach best when I do not use metacognitive reading strategies in order to attract my student in the reading class.	
13	Other teachers who believe and use metacognitive reading strategies did not encourage me to believe in its effectiveness.	

4. Teachers do not believe, and do not use the strategies:

Read every statement carefully and choose the one that best describes you.

1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree

	Items	1	2	3	4	5
1	I do not use metacognitive reading strategies because they are just the same other strategies used in teaching reading comprehension.					
2	I know that the traditional strategies that are more effective and appropriate for me than these metacognitive reading strategies.					
3	I do not believe that metacognitive reading strategies are effective and therefore I do not use it in my classroom.					
4	I discuss and share in class to teach students more in reading without using any reading strategy.					
5	I do not believe that metacognitive reading strategies are good with our students and should not apply to reading subjects and comprehension					
6	Metacognitive reading strategies are not really significant for comprehension, therefore, I and some teachers are not using it widely.					
7	Metacognitive reading strategies should not be used by teachers because their use decreases understanding.					
8	I know that when I use metacognitive reading strategies, they make the reading ineffective in terms of understanding by students.					
9	I do not use metacognitive reading strategies, and I can organize and control the class time more without using these strategies.					
10	Metacognitive reading strategies are not recommended in our classrooms.					

Metacognitive Awareness Inventory for Teachers (M A I T)

The MAIT is a list of 24 statements. There are no right or wrong answers in this list of statements.

It is simply a matter of what is true for you. Read every statement carefully and choose

the one that best describes you.

1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree

1. I am aware of the strengths and weaknesses in my teaching.	1 2 3 4 5
2. I try to use teaching techniques that worked in the past.	1 2 3 4 5
3. I use my strengths to compensate for my weaknesses in my teaching.	1 2 3 4 5
4. I pace myself while I am teaching in order to have enough time.	1 2 3 4 5
5. I ask myself periodically if I meet my teaching goals while I am teaching.	1 2 3 4 5
6. I ask myself how well I have accomplished my teaching goals once I am finished with the reading classes.	1 2 3 4 5
7. I know what skills are most important in order to be a good teacher.	1 2 3 4 5

8. I have a specific reason for choosing each teaching technique I use in class.	1 2 3 4 5
9. I can motivate myself to teach when I really need to teach.	1 2 3 4 5
10. I set my specific teaching goals before I start teaching.	1 2 3 4 5
11. I find myself assessing how useful my teaching techniques are while I am teaching.	1 2 3 4 5
12. I ask myself if I could have used different techniques after each teaching experience.	1 2 3 4 5
13. I have control over how well I teach.	1 2 3 4 5
14. I am aware of what teaching techniques I use while I am teaching.	1 2 3 4 5
15. I use different teaching techniques depending on the situation.	1 2 3 4 5
16. I ask myself questions about the teaching materials I am going to use.	1 2 3 4 5
17. I check regularly to what extent my students comprehend the topic while I am teaching.	1 2 3 4 5
18. After teaching a point, I ask myself if I'd teach it more effectively next time.	1 2 3 4 5
19. I know what I am expected to teach.	1 2 3 4 5
20. I use helpful teaching techniques automatically.	1 2 3 4 5
21. I know when each teaching technique I use will be most effective.	1 2 3 4 5
22. I organize my time to best accomplish my teaching goals.	1 2 3 4 5
23. I ask myself questions about how well I am doing while I am teaching.	1 2 3 4 5
24. I ask myself if I have considered all possible techniques after teaching a point.	1 2 3 4 5