

Implementing Metacognitive Instruction in a Japanese Junior High School

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This study examined the implementation of metacognitive instruction (MI) in a Japanese junior high school (JHS) English classroom, focusing on changes in students' metacognitive strategy use. MI was embedded into Japanese-to-English translation tasks and implemented over a four-month period. The participants were 51 third-year (Grade 9) Japanese JHS students. A mixed-method approach was adopted, combining questionnaire data from all participants with semi-structured interviews conducted with eight students. Quantitative results showed significant changes over time in students' reported use of planning, monitoring, and evaluating strategies. Qualitative findings indicated students' perceived benefits of MI, alongside indications of the importance of foundational knowledge and sustained instructional duration. The findings suggest that MI can be feasibly embedded into familiar classroom tasks, but sustained implementation is important for supporting students' metacognitive development over time in lower secondary EFL classrooms in Japan.

本研究は、日本の中学校英語授業におけるメタ認知指導の実施について、生徒のメタ認知的ストラテジー使用の変化に焦点を当てて検討した。対象は中学3年生51名で、約4か月間、和文英訳課題にメタ認知的指導を統合した授業を行った。質問紙、振り返り調査、半構造化インタビューによる分析の結果、計画・モニタリング・評価に関するメタ認知的ストラテジー使用に有意な変化が認められた。質的分析からは、生徒の肯定的な認識とともに、基礎知識や継続的な指導の重要性が示された。

Metacognition, often defined as thinking about one's own thinking, has been identified as a key factor in successful language learning. Recent meta-analyses have demonstrated that explicit metacognitive instruction (MI) significantly enhances

learners' metacognitive achievement in L2 and EFL contexts (In'nami et al., 2023; Wongdaeng & Higgins, 2023). Despite a growing body of evidence, research on MI in Japanese junior high school (JHS) settings remains limited.

One practical consideration for JHS teachers is how to implement reflective practices within limited instructional time and prescribed curricula. Veenman et al. (2006) address this by identifying embedding MI in content matter as one of three core principles for effective MI, specifically to ensure connectivity between metacognitive strategies and the subject matter in which they are applied. Accordingly, the author embedded MI on planning, monitoring, and evaluating directly into Japanese-to-English translation activities drawn from the school's textbook. By focusing on a fixed textbook-based instructional context, this study provides practical insights into how MI can be implemented in lower secondary EFL classrooms in Japan.

Literature Review

Metacognition

Flavell (1976) defined metacognition as “one's knowledge concerning one's own cognitive processes and products or anything related to them” (p. 232). Of the three components typically identified—metacognitive knowledge, metacognitive experiences, and metacognitive strategies—this study focuses on metacognitive strategies: the actions learners use to control their cognition, including planning (e.g., setting goals before a task), monitoring (e.g., checking comprehension during a task), and evaluating (e.g., reflecting on performance afterward). From a developmental perspective, Veenman & Spaans (2005) suggested that while metacognitive knowledge begins to develop in early childhood, the effective regulation of learning tends to emerge around early adolescence. This suggests that JHS represents a particularly suitable stage for explicit MI.

MI in Language Learning and Teaching

MI has emerged as a key factor in enhancing language learning and teaching. Unlike relatively stable cognitive traits such as aptitude or working memory, metacognitive knowledge is learnable and can be developed through explicit instruction and guided practice (Loewen, 2025). Furthermore, Veenman et al. (2006) identified three principles for successful MI: embedding it in subject content to ensure connectivity between metacognitive strategies and the content in which they are applied; highlighting its value to learners; and providing sustained training.

This pedagogical rationale is grounded in Anderson's (2002) model of metacognition in second language learning, which identifies five interrelated processes including planning, monitoring, and evaluating, and argues that teachers should explicitly model these strategies for learners. Empirical support for this framework comes from a study of junior secondary EFL learners in China. Teng et al. (2022) found that self-regulatory writing strategies, including writing planning, goal-oriented monitoring, and goal-oriented evaluation, significantly predicted students' writing performance. Despite this evidence, the implementation of MI in actual classrooms remains limited. To help address this gap, the present study was guided by the following two research questions.

- RQ1. To what extent do students' planning, monitoring, and evaluating strategies change after MI?
- RQ2. What instructional conditions are required to effectively implement MI in Japanese English classrooms, as perceived by students?

Methodology

MI

Task Design

The metacognitive instruction was implemented within a 45-minute English lesson across Sessions 2-4, held at two- to three-week intervals over approximately five weeks. In this study, MI refers to embedding metacognitive guidance—through explicit prompts and reflection activities—into a single translation-based lesson, as shown below.

1. Translation Task

Students worked individually to complete Japanese-to-English translation exercises taken from the textbook. Students were instructed to translate the sentences using the vocabulary and grammatical structures covered in the target lesson.

2. Answer Sheet Comparison

In this stage, students compared their own translations against the answer sheet, which included textbook-based model answers, alternative translations generated by an AI tool (ChatGPT), and brief metacognitive prompts highlighting key points to consider when translating (e.g., word order).

3. Cooperative Learning

Students then engaged in cooperative learning activities in small groups. They were encouraged to ask and answer questions about the translation task, compare their answers with the model translations, and discuss difficulties or strategies used during the task. The teacher circulated among groups during this stage to monitor student engagement, and any questions that groups were unable to resolve on their own were subsequently shared and clarified with the whole class, with correct answers confirmed collectively.

4. Self-Evaluation and Reflection

Finally, students completed a self-evaluation and reflection activity. They were asked to write what they noticed during the lesson and the translation task, as well as what they intended to focus on or improve in future tasks. The Metacognitive Strategy Use (MSU) questionnaire was administered at the end of each of these sessions.

Materials

The teaching materials used in this study were taken from the English textbook *Progress in English 21 Revised Book 3*, which is officially adopted by the target school. Three types of materials were used in this study:

- **Worksheet**

The worksheet consisted of Japanese-to-English translation questions selected from the textbook. Similar worksheets, based on the corresponding textbook lesson, were used in each of the three sessions (Sessions 2–4). Instructions were provided in English and Japanese, such as: “*Translate into English. Try to use the words and grammar you learned in Lesson 4 of the textbook (covered during Session 2). Write about the points you were aware of while translating.*”. The purpose was to encourage both planning, by directing students' attention to specific vocabulary and grammar points before starting the task, and monitoring, by prompting them to track their own thinking process while translating.

• Answer Sheet

The answer sheet included model translations based on the textbook, sample translations generated by ChatGPT, and brief metacognitive notes indicating important points for translation (e.g., grammatical accuracy, word order, and meaning).

• Self-Evaluation Sheet

The self-evaluation sheet was used as part of the post-task evaluation activities. It included checklist items focusing on (1) grammar, (2) word order, (3) accurate vocabulary selection, and (4) overall sentence meaning. After completing the checklist, students were asked to respond to two open-ended reflection prompts: (5) what they learned during the lesson, and (6) what they needed to work on in future translation tasks. Using the same format across sessions was intended to encourage evaluating by habituating students to consistently check their performance and identify their own learning needs.

Data Collection

Participants

The participants were 51 Japanese JHS students (Year 9), aged 14 and 15, enrolled in three English classes at a private JHS in Japan. The researcher was also the English teacher responsible for these three classes and delivered all instructional sessions described below. Prior to the implementation of the study (Session 1), both institutional approval from the school and informed consent from students and their parents were obtained. To gain deeper insights into learners' metacognitive experiences, separate semi-structured interviews were conducted with eight students who voluntarily agreed to participate in the interview phase.

Instruments

1. Questionnaire on MSU

A self-report questionnaire focusing on MSU during Japanese-to-English translation tasks (see Appendix) was developed and implemented to examine learners' use of metacognitive strategies. The questionnaire consisted of 15 items categorized into three subscales: planning (before-task), monitoring (during-task), and evaluating (after-task) stages of metacognitive strategy use, with five items in each category. Of the 15 items, six were adapted from (Schraw & Dennison, 1994)

and revised into a five-point applicability scale, and nine were newly developed to reflect the translation-task context of this study. Participants were asked to rate each item using a five-point Likert scale ranging from 1 (Does not apply at all) to 5 (Applies very much). The MSU was administered four times: at the end of Sessions 2, 3, and 4 (conducted at approximately two- to three-week intervals), and again in Session 6, approximately two months after the instructional phase, as a delayed measure of the sustainability of students' metacognitive strategy use.

2. Interview on Conditions for MI Implementation

An interview was conducted to explore students' broader perceptions of MI and the conditions affecting its implementation. Semi-structured interviews were conducted individually, in Japanese (to allow full expression without L2 constraints), with eight consenting students in Session 5. All interviews were guided by the same core question—participants viewed their own MSU responses over time and explained whether and why their metacognitive strategy use had changed—though follow-up questions varied by student. Interview data were translated into English for reporting.

Data Analysis

Quantitative data from the MSU were analyzed using IBM SPSS Statistics (Version 29.0.2). Internal consistency (Cronbach's alpha) ranged from .48 to .79 across administrations (see Table 1), indicating acceptable to good reliability overall; the exception was Monitoring at Time 1 ($\alpha = .48$), which fell below acceptable thresholds, so results for this subscale at that time point should be interpreted with caution. After confirming scale reliability, descriptive statistics (means and standard deviations) were calculated for planning, monitoring, and evaluating. Changes over time were examined using repeated-measures ANOVAs for each subscale. Interviews were transcribed verbatim and coded using Braun & Clarke's (2006) six-phase thematic analysis framework, with the support of MAXQDA (Version 24).

Results

1. MSU

Descriptive statistics for the three MSU subscales (planning, monitoring and evaluating) are presented in Table 1.

Table 1
Descriptive Statistics for the Three MSU Subscales Across Four Administrations

Administration	Planning M (SD)	Monitoring M (SD)	Evaluating M (SD)
1st	3.33 (0.74)	3.22 (0.57)	3.90 (0.58)
2nd	3.17 (0.75)	3.50 (0.68)	3.67 (0.71)
3rd	3.53 (0.66)	3.69 (0.67)	4.00 (0.73)
4th	3.31 (0.67)	3.56 (0.75)	3.62 (0.76)

Note. *SD* = standard deviation; *n* = 50–51 across administrations. Cronbach's α ranged from .65–.75 (Planning), .48–.79 (Monitoring), and .62–.75 (Evaluating).

At the beginning of the semester, all mean scores were above 3.17. To examine whether students reported MSU differed across the questionnaire administrations, repeated-measures ANOVAs were conducted for each subscale. They revealed statistically significant changes over time for all three components: planning, $F(3, 150) = 4.73$, $p = .003$, $\eta^2 = .09$; monitoring, $F(3, 147) = 8.58$, $p < .001$, $\eta^2 = .15$; and evaluating, $F(3, 147) = 8.70$, $p < .001$, $\eta^2 = .15$. Bonferroni-adjusted pairwise comparisons (Time 1 vs. Time 4) showed a significant increase for monitoring ($p = .003$) and a significant decrease for evaluating ($p = .005$), with no significant difference for planning ($p = 1.00$).

2. Interview

The interview analysis identified two major themes aligned with the research questions regarding students' perceived benefits of MI, as well as instructional considerations regarding the implementation of MI in English classes. The results are summarized in Table 2 below.

Table 2
Summary of Themes and Subthemes from Interview Survey

Main Theme	Subthemes	Description
Students' perceived benefits of MI	Enhancement of metacognitive awareness	Students became more conscious of how they learn and think
	Usefulness of knowing terminology	Learning terms helped students reflect more
Educational considerations on incorporating metacognition	Application of metacognition	Students realized the potential to apply metacognition to other fields
	Short duration of instruction	Students felt the instruction period was too short
	Elements other than metacognition	Students felt the necessity of elements other than metacognition

With regard to the first theme, students identified several perceived benefits of incorporating metacognition into English learning. Six students reported that reflecting on how they learn increased their awareness of their own learning processes. One student noted, "I used to write answers without thinking about how I was solving them. Through this activity, I learned to think about my own problem-solving process to improve accuracy and find the best answer."

Three students also commented that learning the terminology related to metacognition helped them better understand how learning occurs and encouraged more conscious reflection. For example, one student explained, "I didn't really know the word 'metacognition' before. I first learned about metacognition in your class, and because that new word, metacognition, came into my vocabulary, I think it's really connected to my awareness." Regarding the application of metacognition, another student noted that using it in a leadership role helped consider "both how the people around me are feeling and how I'm feeling."

The second theme focused on instructional conditions related to the implementation of MI. Several students referred to the limited duration of the instructional period. Comments related to this theme included references to the length of the intervention and the need for continued engagement with learning strategies. One student remarked, “The period was rather short, so if I don’t really keep metacognition in mind, I end up forgetting about it.”

In addition, some students mentioned factors beyond metacognitive strategies. For example, one student stated, “Even if I can reduce careless mistakes to some extent through metacognition, if I haven’t studied and learned beforehand, it still won’t show up in my score.” Another student commented, “I guess unless I truly believe that I need to change myself, no matter what others say, I won’t change unless I think it myself”.

Discussion

Regarding RQ1, the questionnaire results indicated statistically significant changes over time in all three metacognitive strategy categories: planning, monitoring, and evaluating (repeated-measures ANOVA, $p < .05$). In particular, the relatively higher use of evaluating strategies at the end of the instructional session ($M = 4.00$, $SD = 0.73$; see Table 1) aligns with the instructional emphasis on reflection and self-evaluation embedded in the task design.

The interview data further illustrate how students perceive changes in their awareness of learning processes. Students report that reflecting on how they approached translation tasks helped them become more conscious of their own learning behaviors. In addition, several students note that learning the terminology associated with metacognition clarified abstract aspects of learning, making reflection more concrete and accessible. Some students also perceived the applicability of metacognitive awareness beyond the immediate learning task, suggesting the potential for broader transfer of metacognitive skills. Interestingly, the delayed administration of the questionnaire—conducted two months after the instructional phase to assess the sustainability of strategy use—revealed lower reported strategy use compared to the final instructional session. These results indicate the importance of continuous MI, rather than temporary implementation, in order to promote students’ metacognition.

In addressing RQ2, the qualitative findings from the interviews provide insights into the instructional conditions that facilitate the effective implementation of MI. One key issue in this approach concerns instructional duration. Three students commented on the limited length of the intervention, indicating that short-term exposure may not

be sufficient for establishing stable and habitual use of metacognitive strategies. This observation is consistent with the framework proposed by (Veenman et al., 2006), who identified sustained training as one of the three core principles for effective MI. Another important consideration relates to the relationship between metacognition and other aspects of learning. It was likewise noted that metacognitive strategies alone were insufficient without adequate content knowledge; meaningful change required a genuine belief in the need to change. Since this belief cannot be instructed directly, framing MI as personally meaningful—rather than as an external checklist—may be key to fostering it.

Taken together, these findings suggest that the effective implementation of MI in JHS EFL is facilitated by conditions such as sufficient instructional time, integration with core language content, and opportunities for learners to develop awareness of their learning processes.

Limitations and Future Directions

Several limitations of this study should be acknowledged. First, the small sample size and single-school setting limit generalizability; future research should include larger, more diverse samples to strengthen external validity. Second, the intervention was relatively short; although changes were observed during instruction, delayed questionnaire results showed these were not fully sustained, highlighting the need for longer-term, longitudinal designs. Third, this study relied primarily on self-report measures; future studies could incorporate additional data sources, such as classroom observations, study logs, or performance-based measures, for a more comprehensive picture. More importantly, without a control group, a spurious relationship cannot be ruled out, limiting causal attribution to MI.

Pedagogical Implications

The findings of this study suggest two key pedagogical implications for implementing MI in Japanese JHS EFL classrooms. First, MI can be effectively incorporated into English lessons when it is embedded in familiar classroom tasks. In this study, MI was embedded into Japanese-to-English translation activities that were already part of the existing curriculum. Furthermore, the instructional materials and research instruments were specifically designed to align with these translation activities. Unlike general inventories such as the Metacognitive Awareness Inventory (Schraw & Dennison, 1994), this alignment enhanced the practicality of both instruction and data collection, supporting the feasibility of implementing MI in lower secondary EFL contexts.

Second, sustained implementation is essential for maintaining students' metacognitive strategy use over time. While short-term interventions may raise learners' awareness, continued MI appears necessary for more stable and long-term development. In Japanese school settings, where teachers are often reassigned annually, continuity can be supported through systematic sharing of instructional practices and materials among teachers. By maintaining common instructional frameworks and shared resources—such as common worksheets, reflection and self-evaluation sheets, and brief instructional notes—MI can be implemented in a sustained way even when teachers change, enabling long-term application across school years.

Conclusion

This study demonstrated that MI can be meaningfully embedded into existing English lessons in a Japanese JHS context when it is closely aligned with familiar classroom tasks. Rather than treating metacognition as an abstract or additional component, embedding it into everyday translation activities enabled students to engage in planning, monitoring, and evaluating within the constraints of ordinary classroom practice. The findings suggest that metacognitive development is closely tied to instructional design that is explicitly structured and embedded in existing classroom tasks, while also highlighting the limitations of short-term instructional exposure.

In the Japanese EFL context, where metacognition may not yet be a familiar concept for many English teachers, this study highlights the importance of viewing MI as a shared pedagogical understanding rather than an individual teaching technique. Encouraging collective awareness of metacognitive perspectives among teachers may help create more consistent learning experiences for students across classes and school years.

Finally, introducing metacognitive strategies at an early educational stage has the potential to support students' subsequent learning beyond English. Developing an awareness of how to plan, monitor, and evaluate learning processes may provide a foundation that can be carried forward into later stages of schooling and applied across subject areas. In this way, MI in JHS English classrooms can be understood not only as a language teaching approach, but as part of a broader contribution to students' long-term learning development.

Bio Data

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Appendix

Questionnaire of Metacognitive Strategy Use (MSU)

The items below were translated into English from the original Japanese for reporting purposes.

For each statement below, select the number (1–5) that best applies to you. This is not related to your grades—please answer honestly. 1. Does not apply at all 2. Does not really apply 3. Somewhat applies 4. Mostly applies 5. Applies very much

1. Before solving the problem, I set specific goals.
2. Before solving the problem, I thought about what steps to follow.
3. Before solving the problem, I carefully read the instructions and questions.
4. Before solving the problem, I paid attention to specific aspects of the language (e.g., spelling or grammar).
5. Before solving the problem, I was conscious of managing my time.
6. While solving the problem, I identified key words (e.g., underlining or writing them down).
7. While solving the problem, I considered several options for solving it (e.g., using different words).
8. While solving the problem, I focused on the overall meaning rather than specific parts.
9. While solving the problem, I reflected on points I had learned from the textbook or in class.
10. While solving the problem, I was conscious of using natural English expressions rather than literal translations.
11. After finishing the problem, I consciously checked whether my translation accurately reflected the meaning of the original sentence.
12. After finishing the problem, I understood which strategies were effective to use.
13. After finishing the problem, I understood what I was able to do.
14. After finishing the problem, I understood what I was not able to do.
15. After finishing the problem, I understood what my future tasks were.

Note. 1-5: Planning, 6-10: Monitoring, 11-15: Evaluating