

Mediating Role of Reflective Dialogue on Metacognitive Awareness and Student Engagement Among Elementary Teachers

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ABSTRACT

This study determined the mediating role of reflective dialogue in the relationship between metacognitive awareness and student engagement among elementary teachers in the San Roque District, Davao City. The study employed a quantitative non-experimental descriptive-correlational design with mediation analysis. A total of 108 elementary teachers from five public elementary schools participated through stratified random sampling. Data were gathered using validated survey instruments measuring metacognitive awareness in terms of metacognitive knowledge, metacognitive regulation, and task-specific metacognition; reflective dialogue in terms of critical self-reflection, peer feedback and interaction, and problem-solving through dialogue; and student engagement in terms of active participation, intrinsic

motivation, and behavioral persistence. Mean, standard deviation, Pearson product-moment correlation, and Sobel mediation test were used to analyze the data. Results showed that teachers had very high metacognitive awareness and very high reflective dialogue, while student engagement was high. Significant positive relationships were found among metacognitive awareness, reflective dialogue, and student engagement. Reflective dialogue significantly and partially mediated the relationship between metacognitive awareness and student engagement, with approximately 44% of the total effect operating through the mediator. The findings imply that teacher metacognitive awareness becomes more strongly connected to student engagement when it is supported by structured reflective dialogue. Schools may strengthen professional development programs that integrate metacognitive training, peer feedback, collaborative reflection, and problem-solving dialogue to improve student engagement, particularly behavioral persistence.

Keywords: *metacognitive awareness; reflective dialogue; student engagement; mediation analysis; elementary teachers; professional development*

INTRODUCTION

Metacognitive awareness is an important foundation of effective teaching because it enables teachers to recognize, regulate, and adjust their own thinking and instructional decisions. In the context of inclusive and quality education, teachers are expected not only to deliver content but also to create learning environments where pupils actively participate, remain motivated, and persist despite academic challenges. This expectation is aligned with the global emphasis on quality education and with the Philippine MATATAG Curriculum, which highlights learner-centered, responsive, and meaningful classroom instruction (Department of Education, 2023; United Nations, 2015).

International literature shows that reflective dialogue is a powerful mechanism for improving teacher practice. Through collaborative reflection, teachers examine their assumptions, receive peer feedback, and solve instructional problems with colleagues. Studies have linked reflective dialogue with professional growth, adaptive teaching, improved classroom management, and stronger engagement outcomes (Balikci & Celik, 2024; Chung, 2022; Perry & McGinn, 2021; Shin, 2022). However, reflective dialogue does not operate independently. It is shaped by teachers' metacognitive awareness, particularly their capacity to plan, monitor, evaluate, and adapt teaching strategies (Karlen et al., 2023).

In the Philippine setting, increasing student engagement remains a persistent instructional concern. Although teachers may observe active participation in classroom activities, deeper forms of engagement such as intrinsic motivation and behavioral persistence may still require support. Cultural, classroom, and systemic factors can influence pupils' willingness to participate, take intellectual risks, and maintain effort during difficult tasks (Bernardo, 2021; Orillosa & Magno, 2023). In San Roque District, Davao City, this concern is especially relevant because teachers work within diverse elementary classrooms where engagement must be sustained through reflective, adaptive, and collaborative teaching practices.

Despite growing studies on metacognitive awareness, reflective practice, and student engagement, limited research has examined reflective dialogue as a mediating mechanism between teachers' metacognitive awareness and student engagement in the local elementary school context. This study addressed that gap by determining whether reflective dialogue significantly mediates the relationship between metacognitive awareness and student engagement among elementary teachers in San Roque District. Specifically, it described the extent of the three major variables, examined their significant relationships, and tested the mediating role of reflective dialogue.

Literature Review

Metacognitive Awareness in Teaching

Metacognitive awareness refers to teachers' ability to understand and regulate their cognitive processes in teaching. It includes metacognitive knowledge, metacognitive regulation, and task-specific metacognition. Teachers with strong metacognitive awareness can identify effective strategies, monitor classroom responses, evaluate lesson effectiveness, and adjust instruction to meet learner needs. Karlen et al. (2023) emphasized that teachers' metacognitive competence is essential for promoting students' self-regulated learning. Branigan and Donaldson (2020) further argued that metacognitive thinking is strengthened through quality teacher-pupil interaction and dialogic teaching.

Metacognitive regulation is especially important because it involves the active processes of planning, monitoring, and evaluating instructional strategies. De Backer et al. (2022) described regulation as a process that becomes stronger when learning is planned, monitored, and evaluated. Task-specific metacognition also matters because teachers need to apply different strategies depending on subject content, learner needs, and classroom situations. Lin and Wang (2023) and Rovers et al. (2021) emphasized that metacognitive support becomes more effective when it is aligned with specific task demands rather than delivered as general strategy instruction.

Student Engagement

Student engagement is a multidimensional construct involving active participation, intrinsic motivation, and behavioral persistence. Active participation refers to observable involvement in classroom discussions, group work, and learning activities. Intrinsic motivation refers to pupils' internal interest and enjoyment in learning. Behavioral persistence refers to learners' ability to maintain effort and focus when tasks are difficult. Christenson et al. (2022) described engagement as a critical indicator of learning quality and school success.

Research suggests that engagement is influenced by instructional strategies, teacher support, classroom climate, and students' psychological needs. Ryan and Deci (2020) explained that intrinsic

motivation is strengthened when learners experience autonomy, competence, and relatedness. Froiland and Oros (2022) emphasized that persistence is supported when interest and conscientious effort are developed together. In local classrooms, however, participation and persistence may be affected by cultural and affective factors, including fear of mistakes, reluctance to stand out, and passive learning habits (Bernardo, 2021; Orillosa & Magno, 2023).

Reflective Dialogue as a Mediating Process

Reflective dialogue refers to structured professional conversations in which teachers engage in critical self-reflection, peer feedback and interaction, and problem-solving through dialogue. It transforms individual thinking into collaborative professional learning. Loughran (2021) distinguished critical reflection from simple reflection by emphasizing deeper inquiry into assumptions, values, and teaching decisions. Carless (2020) highlighted the value of peer feedback as a social learning process that develops evaluative judgment.

The mediating role of reflective dialogue can be understood through Metacognitive Theory, Social Constructivist Theory, Self-Regulated Learning Theory, and the Reflective Dialogue Framework. Flavell's (1979) theory explains how teachers' awareness and regulation of thinking influence their instructional decisions. Vygotsky's (1978) theory explains how professional learning develops through social interaction and scaffolding. Zimmerman's (2002) theory highlights self-regulated cycles of planning, performance, and reflection. Perry and McGinn's (2021) framework identifies reflective dialogue as a structured practice that supports teacher growth through self-reflection, peer interaction, and collaborative problem-solving.

Taken together, the literature suggests that metacognitive awareness can influence student engagement directly, but its impact may be strengthened when teachers externalize and refine their thinking through reflective dialogue. This study therefore tested reflective dialogue as a mediator between metacognitive awareness and student engagement.

METHODS

Research Design

The study employed a quantitative non-experimental descriptive-correlational research design with mediation analysis. The design was appropriate because the study examined naturally occurring relationships among metacognitive awareness, reflective dialogue, and student engagement without manipulating any variable. Descriptive statistics were used to determine the levels of the variables, Pearson correlation was used to examine significant relationships, and mediation analysis was used to test whether reflective dialogue served as an indirect pathway between metacognitive awareness and student engagement.

Research Locale

The study was conducted in the San Roque District, Davao City, involving five public elementary schools: Jose L. Porras Elementary School, Lapulapu Elementary School, San Juan Elementary School, Elpidio Quirino Elementary School, and Don Francisco Dizon Sr. Elementary School. The locale was selected because the study sought to understand the teacher-level mechanisms that support student engagement in this district context.

Participants and Sampling Technique

The respondents were 108 elementary teachers from a total population of 150 teachers in the San Roque District. The sample size was determined using G*Power with a 5% margin of error, 95% confidence level, medium effect size, and 89% statistical power. Stratified random sampling was used to ensure proportional representation across the five participating schools. Respondents were full-time elementary classroom teachers with at least three full academic years of teaching experience and direct instructional responsibilities.

Research Instrument

Three validated self-administered survey questionnaires were used. Metacognitive awareness was measured in terms of metacognitive knowledge, metacognitive regulation, and task-specific metacognition. Student engagement was measured in terms of active participation, intrinsic motivation, and behavioral persistence. Reflective dialogue was measured in terms of critical self-reflection, peer feedback and interaction, and problem-solving through dialogue. The instruments were adapted from established scales and underwent expert validation and pilot testing with 30 elementary teachers. The computed overall Cronbach alpha was 0.873, indicating acceptable internal consistency.

Data Gathering Procedure

The researcher secured instrument validation, obtained endorsement from the Graduate School of Rizal Memorial Colleges, Inc., and requested permission from the Schools Division Superintendent of Davao City, the Public Schools District Supervisor of San Roque District, and the principals of the five participating schools. After approval, the researcher oriented the respondents regarding the purpose, procedures, voluntary nature, and confidentiality of the study. Questionnaires were distributed and retrieved during the first grading period of School Year 2025-2026. Completed questionnaires were checked, coded, and prepared for statistical analysis.

Data Analysis

Mean and standard deviation were used to describe the levels of metacognitive awareness, reflective dialogue, and student engagement. Pearson product-moment correlation was used to determine the significance and strength of the relationships among the variables. The Sobel test was used to determine whether reflective dialogue significantly mediated the relationship between metacognitive awareness and student engagement. All statistical tests were evaluated at the 0.05 level of significance.

Ethical Consideration

The study observed ethical standards in educational research. Participation was voluntary, and written informed consent was obtained from all teacher respondents. Respondents were informed of the purpose of the study, the confidentiality of their responses, their right to withdraw, and the minimal risks involved. Data were anonymized using codes, stored securely, and reported only in aggregate form. The study also ensured fairness in respondent selection and transparency in communicating findings to the participating district.

RESULTS AND DISCUSSION

Levels of Metacognitive Awareness, Student Engagement, and Reflective Dialogue

The findings showed that elementary teachers in San Roque District had very high metacognitive awareness, with an overall mean of 4.31. Among its dimensions, metacognitive regulation obtained the highest mean of 4.33, followed by metacognitive knowledge with 4.31 and task-specific metacognition with 4.29. These results indicate that teachers consistently planned, monitored, evaluated, and adapted their teaching strategies. The high ratings support the view that teacher metacognition is an important foundation for responsive instructional practice (Karlen et al., 2023).

Student engagement, as perceived by teachers, was high overall with a mean of 4.11. Active participation had the highest mean of 4.15, followed by intrinsic motivation with 4.11 and behavioral persistence with 4.07. This pattern indicates that pupils were generally engaged, but maintaining focus and effort during complex or difficult tasks remained the weakest engagement area. This finding supports studies emphasizing the need to strengthen persistence and self-regulated learning among students (Froiland & Oros, 2022; Wang et al., 2021).

Reflective dialogue was also very high, with an overall mean of 4.31. Critical self-reflection obtained the highest mean of 4.35, followed by peer feedback and interaction with 4.30 and problem-

solving through dialogue with 4.28. These results show that teachers frequently reflected on their own practice and engaged in collaborative dialogue, although peer-based problem-solving could still be strengthened through more structured professional learning routines.

Table 1. *Summary of Metacognitive Awareness, Student Engagement, and Reflective Dialogue*

Variable/Dimension	Mean	SD	Descriptive Rating
Metacognitive Awareness	4.31	0.68	Very High
Metacognitive Knowledge	4.31	0.68	Very High
Metacognitive Regulation	4.33	0.66	Very High
Task-Specific Metacognition	4.29	0.70	Very High
Student Engagement	4.11	0.80	High
Active Participation	4.15	0.78	High
Intrinsic Motivation	4.11	0.80	High
Behavioral Persistence	4.07	0.82	High
Reflective Dialogue	4.31	0.67	Very High
Critical Self-Reflection	4.35	0.65	Very High
Peer Feedback and Interaction	4.30	0.68	Very High
Problem-Solving Through Dialogue	4.28	0.69	Very High

Significant Relationships Among the Variables

Pearson correlation results showed significant positive relationships among metacognitive awareness, reflective dialogue, and student engagement. Metacognitive awareness had a significant moderate relationship with student engagement ($r = 0.54$, $p < 0.001$). This indicates that higher teacher metacognitive awareness was associated with higher student engagement. The relationship between metacognitive awareness and reflective dialogue was significant and strong ($r = 0.67$, $p < 0.001$), suggesting that teachers with stronger metacognitive awareness tended to engage more in reflective professional conversations. Reflective dialogue also had a significant moderate relationship with student engagement ($r = 0.59$, $p < 0.001$), indicating that teachers who practiced reflective dialogue more extensively perceived higher engagement among their students.

Table 2. *Relationship Among Metacognitive Awareness, Reflective Dialogue, and Student Engagement*

Variables Correlated	r-value	p-value	Interpretation
Metacognitive Awareness and Student Engagement	0.54	<0.001	Significant, Moderate
Metacognitive Awareness and Reflective Dialogue	0.67	<0.001	Significant, Strong
Reflective Dialogue and Student Engagement	0.59	<0.001	Significant, Moderate

The findings affirm that teacher cognition and professional dialogue are connected to student engagement. However, the moderate strength of the relationship between metacognitive awareness and student engagement also suggests that metacognitive awareness alone may not be sufficient. It needs to be supported by reflective dialogue that allows teachers to examine instructional decisions, receive feedback, and transform awareness into concrete classroom strategies.

Mediating Effect of Reflective Dialogue

The mediation analysis revealed that reflective dialogue significantly and partially mediated the relationship between metacognitive awareness and student engagement. Path a, from metacognitive awareness to reflective dialogue, was significant (coefficient = 0.67, SE = 0.05, $p < 0.001$). Path b, from reflective dialogue to student engagement, was also significant (coefficient = 0.45, SE = 0.06, $p < 0.001$). The direct effect of metacognitive awareness on student engagement remained significant but was reduced when reflective dialogue was included in the model (coefficient = 0.31, SE = 0.07, $p < 0.001$). The Sobel test confirmed the significant indirect effect, with $z = 5.23$ and $p < 0.001$. Approximately 44% of the total effect was mediated by reflective dialogue.

Table 3. *Mediating Effect of Reflective Dialogue on the Relationship Between Metacognitive Awareness and Student Engagement*

Path/Effect	Coefficient	SE	z-value	p-value	Interpretation
Path a: MA -> RD	0.67	0.05	--	<0.001	Significant Direct Effect
Path b: RD -> SE	0.45	0.06	--	<0.001	Significant Direct Effect
Direct Effect: MA -> SE	0.31	0.07	--	<0.001	Significant, Reduced
Indirect Effect: MA -> RD -> SE	0.302	--	5.23	<0.001	Significant Partial Mediation
Proportion Mediated	44%	--	--	--	Substantial Indirect Pathway

This result means that reflective dialogue explains a substantial part of how metacognitive awareness contributes to student engagement. Teachers may possess strong metacognitive awareness, but such awareness becomes more useful when it is expressed, examined, and refined through critical self-reflection, peer feedback, and collaborative problem-solving. The finding supports Perry and McGinn's (2021) view that reflective dialogue helps translate teacher reflection into professional growth and validates the social constructivist assumption that learning and professional development are strengthened through dialogue (Vygotsky, 1978).

The mediation finding has practical importance for school-based professional development. Since behavioral persistence was the lowest dimension of student engagement, schools should not focus only on teacher self-awareness but also on structured professional conversations that help teachers design strategies for sustaining students' effort, attention, and motivation. Professional learning communities, peer observation, feedback sessions, and collaborative lesson reflection may help convert metacognitive awareness into observable engagement gains.

CONCLUSION

The study concluded that elementary teachers in San Roque District possessed very high metacognitive awareness, particularly in metacognitive regulation. This suggests that teachers were capable of planning, monitoring, evaluating, and improving their instructional strategies. However, accurately assessing students' thinking processes and applying strategies to specific classroom challenges remain areas for further strengthening.

Student engagement was high, with active participation as the strongest dimension and behavioral persistence as the weakest. This indicates that pupils were generally involved in classroom activities, but their ability to maintain focus and effort during difficult or complex tasks requires continued instructional support. Reflective dialogue was very high among the teacher respondents, especially in critical self-reflection. Nonetheless, peer feedback and problem-solving through dialogue should be strengthened through more structured and regular collaborative practices.

Reflective dialogue significantly and partially mediated the relationship between metacognitive awareness and student engagement. Therefore, metacognitive awareness influences student engagement not only directly but also indirectly through reflective dialogue. The study contributes evidence that reflective professional conversations serve as a critical mechanism for transforming teacher cognition into student engagement.

Recommendations

Teachers may strengthen task-specific metacognition by using structured self-reflection protocols after lessons, documenting instructional decisions, and identifying which strategies work best for specific learning tasks and student needs. They may also participate more actively in peer feedback, peer observation, and collaborative problem-solving sessions to translate metacognitive awareness into practical engagement strategies.

School administrators may institutionalize reflective dialogue by providing scheduled time for professional learning communities, lesson study, peer coaching, and reflective conferences. Professional development programs may integrate metacognitive awareness training with structured reflective dialogue protocols rather than treating them as separate initiatives.

Students may be supported through explicit instruction in self-regulated learning, goal-setting, monitoring of effort, and reflection on learning difficulties. Classroom activities may include low-stakes participation opportunities, group problem-solving, and tasks that normalize productive struggle to improve behavioral persistence.

Curriculum planners and instructional supervisors may develop localized professional development modules that focus on metacognitive teaching, reflective dialogue, and engagement strategies under the MATATAG Curriculum. Particular attention may be given to culturally responsive practices that encourage participation, reduce fear of mistakes, and strengthen learner confidence.

Future researchers may conduct longitudinal and mixed-method studies to examine how metacognitive awareness, reflective dialogue, and student engagement develop over time. Replication in other districts and regions may also be done to test the generalizability of the mediation model in different Philippine educational contexts.

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