

BETWEEN THEORY AND PRACTICE: AN ANALYSIS OF THE GAP IN THEMATIC MODELS IN ELEMENTARY EDUCATION

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ABSTRACT

This study aims to analyze the gap between the planned and actual implementation of an integrated thematic learning model in science instruction and its implications for students' metacognitive abilities. The study was conducted at MI Mambaul Ulum involving teachers and students participating in integrated thematic science learning. A qualitative descriptive approach was employed, with data collected through classroom observations, interviews, and document analysis. The findings reveal that teachers planned instruction using the Shared Model, which regularly integrates related concepts. However, classroom implementation tends to shift toward the Networked Model, allowing greater flexibility and collaboration. This discrepancy was influenced by time constraints, variations in students' learning abilities, and the demands of differentiated instruction. As a result, students demonstrated limited metacognitive abilities, particularly in regulating and reflecting on their own learning processes. Unlike previous studies that primarily focus on the effectiveness of integrated thematic learning models, this study highlights the discrepancy between instructional planning and classroom implementation and demonstrates its implications for students' metacognitive development. These findings underscore the importance of aligning instructional design with classroom practice and consistently integrating metacognitive strategies to foster students' reflective, critical, and independent thinking.

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INTRODUCTION

Ability metacognitive is one of the aspect important in learning at school base because help student planning, monitoring, and evaluating the learning process in a way independent (Andayani et al. 2025). This ability plays a role in developing independent learning and supporting higher-order thinking skills through the management of learning strategies that are appropriate to the learning objectives and context. Muthmainnah et al. (2024) explain that metacognition consists of on two interrelated dimensions related, namely knowledge metacognitive and regulation metacognitive. Second dimensions the help student No only understand what is learned, but also understand how and why a learning strategy used in situation certain. In addition, Prafitia and Ulia (2025) stated that that ability metacognitive can identified

through ability student in plan steps learning, monitoring level his understanding during the learning process, as well as evaluate the effectiveness of the strategy used. With Thus, students who have ability good metacognitive will more capable manage the learning process in a way independent, recognizing difficulties faced, as well as determine the right strategy for reach objective learning.

Development ability metacognitive own broad implications to improvement ability thinkercritical, Solving problems and learning reflective. Students with ability good metacognitive tend more independent in Study Because capable evaluate level his understanding as well as adapt learning strategies in accordance with needs. However, various study show that ability metacognitive student school base Still classified as low. According to Prasetyo (2024) partly big student still used to Study in a way procedural and solution oriented task without do reflection towards the learning process. Conditions the cause student not yet used to planning learning strategies, monitoring his understanding during the learning process, as well as evaluate effectiveness of the strategies that have been used. This is show that the learning process in class still not yet in a way consistent give room for student for develop awareness metacognitive through activity reflection and structured guidance from the teacher.

For overcome problem mentioned, learning thematic integrated viewed as one of the potential approaches develop ability metacognitive students. Approach This integrate various eye lesson to in one theme so that student get experience learn more holistic, contextual, and meaningful (Wahyuni 2017). Through the interconnection of concepts and experiences that are close to everyday life, students are encouraged to actively build their understanding, connect their existing knowledge with new information, and develop higher order thinking skills. Thus, learning thematic no only mastery oriented material, but also supports development ability metacognitive through the process of thinking, monitoring, and reflection during learning.

In addition to providing experience contextual learning, learning thematic integrated also encourages involvement active student through activity discussion, collaboration, exploration, and giving bait sustainable feedback. Firmansyah et al. (2025) show that interaction in discussion group can increase awareness metacognitive student through exchange of ideas and reflection together. In line with that, Khairani et al. (2025) confirm that learning accompanied by bait come back constructive and activities reflection in a way sustainable capable strengthen regulations metacognitive students. Therefore that, effectiveness learning thematic in develop ability metacognitive No only determined by the characteristics of the learning model That itself, but also by consistency its implementation in accordance with principles student centered learning.

Despite its great potential, the implementation of thematic learning in the field does not always go according to plan. There is often a gap between learning design and classroom practice. Teachers often face various obstacles, such as limited time, heterogeneity in student abilities, and demands to adapt learning to individual student needs. This situation causes a shift from pre-planned learning models to more flexible practices, which do not always align with the goal of developing metacognition. As a result, learning becomes less structured and provides a consistent reflective experience for students. This mismatch between learning planning and practice impacts students' low metacognitive abilities (Wahyu Lestari 2025). Students become less accustomed to planning learning strategies, monitoring understanding, and reflecting on their learning process.

Although various previous studies have shown that integrated thematic learning is effective in increasing students' learning engagement, conceptual understanding, and metacognitive abilities, most of these studies still focus on the effectiveness of learning models and improving learning outcomes. the not yet lots study how implementation classroom learning ongoing compared to with planning that has been compiled by teachers, especially when the teacher has to adapt learning with dynamics class, limitations time, and characteristics diverse students. As a result, there are still there is limitations understanding about how far the gap between planning and implementation learning influence development ability metacognitive student (Yasin et al. 2020). Therefore that, consistency between design learning and its implementation in the classroom become gap important research gap for reviewed more carry on.

Based on gap study said, research This give contribution with analyze gap between planning and implementation learning thematic integrated into science learning in schools base as well as the implications to ability metacognitive students. Different with research previously more lots focus on the effectiveness of learning models thematic integrated to results study students, research this emphasize importance harmony between design teacher designed learning and its implementation in the classroom as influencing factors development ability metacognitive students. With thus, research this expected can enrich study about implementation learning thematic integrated at a time give greater understanding

comprehensive about connection between planning learning, implementation learning and development ability metacognitive student.

In line with shift paradigm learning that emphasizes importance contextual, adaptive, and development oriented learning competence student in a way comprehensive (Agus Mukti Wibowo 2022) required capable study explain how implementation classroom learning influence achievement objective learning. Therefore that, research this aim for analyze gap between planning and implementation of learning models thematic integrated into science learning in schools basic, identify factors that influence occurrence gap mentioned, as well as study the implications to development ability metacognitive student.

METHOD

Study this use approach descriptive qualitative with design studies case for understand in a way deep phenomenon gap between planning and implementation of learning models thematic integrated in science learning and the implications to ability metacognitive student class V at MI Mambaul Ulum. Approach qualitative allows researchers understand phenomenon learning in a way contextual based on condition real things that happen inside class (Annasthasya et al. 2025). Subject study consists of on 1 fifth grade teacher and 26 students class V involved in a way direct in the learning process thematic integrated. Selection subject done in a way purposive, with consider that teachers are designer at a time implementer learning, whereas student is the party experiencing in a way direct learning process so that capable give appropriate information with focus study.

Data collection in study this done through observation, interviews, and documentation as mutually reinforcing techniques complete for obtain comprehensive data about the phenomenon being studied (Vebrianto et al. 2020). Third technique the allows researchers get information from various source so that the data obtained can each other confirmed and provided a clearer picture intact about gap between planning and implementation learning thematic integrated. Observation implemented during three meetings for obtain data regarding implementation learning thematic integrated, teacher activitie, and involvement student during the learning process ongoing. Interview done to 1 fifth grade teacher use guidelines interview semi structured for dig information in a way more deep about planning learning, implementation learning, obstacles faced, and strategies implemented in learning. Meanwhile that, documentation done with analyze teaching modules as supporting data for compare planning learning with its implementation in class.

Data analysis in study this using analysis models Miles and Huberman's interactive which includes data reduction, data presentation, and withdrawal and verification conclusion (Ash-shiddiqi et al., 2025). This model used because enable the analysis process done in a way systematic since the data was collected until obtained credible conclusions. Data reduction is carried out with selecting and grouping the resulting data observation, interviews, and documentation based on focus research, namely planning learning, implementation learning, factors that influence implementation, and capabilities metacognitive students. The data that has been reduced Then served in a way descriptive for make it easier identification patterns, relationships intertheme, and interpretation findings research. Next, the conclusion withdrawn and verified through comparison results from every technique data collection so that obtained consistent and appropriate findings with conditions in the field.

RESULT AND DISCUSSIONS

RESULT

Based on the results of observations carried out during the IPAS lessons for Year 5 at MI Mambaul Ulum, during the lesson planning stage, the teacher designed integrated thematic lessons using the shared model. The model is designed to integrate various cross-curricular concepts into a single learning theme in a systematic and structured manner (M. K. Putri, Kurniaman, and Mulyani 2023). The lesson plans that have been drawn up include learning objectives, a sequence of activities and the integration of relevant concepts, so that pupils are expected to be able to understand the connections between the subject matter in a comprehensive and contextual manner.

However, the implementation of teaching in the classroom revealed a shift from the lesson plans that had been drawn up beforehand. In practice, teachers tended to apply the networked model which places greater emphasis on collaborative activities, group discussions and independent exploration by learners. This shift is clearly evident in learning activities dominated by group work, independent information-seeking, and the presentation of discussion outcomes to the class. These conditions result in a less systematic learning structure compared to the initial lesson plan, as the learning process focuses more on the active involvement of learners in completing learning activities. This phenomenon indicates

that the implementation of learning does not fully proceed in accordance with the planned learning design. Changes in learning strategies are influenced by classroom dynamics, which require teachers to make flexible adjustments in line with the learners' circumstances and the ongoing learning situation (Sibley et al. 2025). Consequently, the implementation of learning is adaptable to the various conditions that arise during the learning process.

Based on interviews with teachers, there are several factors that cause a gap between lesson planning and implementation. The first factor is the limited amount of teaching time. Teachers reported that the time allocated is often insufficient to carry out all stages of the lesson in accordance with the original plan (Pagampa et al. 2023). This situation has led teachers to adapt their teaching strategies by focusing more on activities deemed to be more effective and which enable all pupils to remain engaged in the learning process.

In addition to time constraints, variations in pupils' readiness and abilities also influence the implementation of classroom teaching. Differences in pupils' levels of understanding mean that teachers need to adapt their teaching strategies more flexibly. Pupils with lower learning abilities require more intensive support than others, so teaching that has been systematically designed is adjusted to meet pupils' learning needs (Nanang, Budi, and Baydhowi 2022). The demand for differentiated learning presents a particular challenge for teachers in managing classroom instruction. Teachers are required to accommodate differences in pupils' abilities, interests and learning styles within a single class simultaneously. This situation means that teaching is increasingly focused on task-based activities and group discussions, so that all pupils can continue to participate in the learning process.

The predominance of task-based activities in learning has resulted in the suboptimal development of learners' thinking processes. Learning tends to be oriented towards task completion rather than the development of learners' reflective abilities. Consequently, the aspects of reflection and self-evaluation in the learning process have not received sufficient attention. These learning conditions have led to learners' metacognitive abilities remaining relatively low. Learners are not yet able to plan learning strategies independently, monitor their understanding during the learning process, or evaluate the learning outcomes achieved. The majority of learners tend to tackle tasks immediately without first understanding the learning objectives or determining learning strategies appropriate to the task at hand.

Students are not yet able to assess how well they understand the material they have studied during the learning process. When they encounter difficulties in understanding the material, students tend to continue with the task without reflecting on the mistakes they have made or the obstacles they face. This indicates that students' ability to monitor and evaluate their own thinking processes has not yet fully developed.

Students' low metacognitive abilities are also evident in their minimal reflection on the learning process and outcomes. Students rarely evaluate the learning strategies they have used or the mistakes they have made during the learning process. Learning activities are more focused on completing tasks than on understanding the learning process, so students have few opportunities to improve the learning strategies they use. Students tend to be passive during the learning process. They mostly follow the teacher's instructions and rarely engage actively in asking questions, expressing opinions, or presenting their own thoughts independently (Naidoo, Quaynor, and Shen 2023). This situation indicates that learning remains teacher-centered, thereby limiting students' opportunities to develop reflective and metacognitive thinking skills.

Overall, the gap between instructional planning and implementation indicates that the learning process is influenced not only by the instructional design that has been developed but also by the complexity of the classroom learning situation. This situation results in the suboptimal development of students' metacognitive skills, particularly in terms of planning, monitoring, and reflecting on the learning process.

DISCUSSION

The Implementation Shift from The Shared Model to The Networked Model

The findings indicate that the implementation of integrated thematic learning did not unfold linearly in accordance with the instructional design developed during the planning stage. The teacher initially designed the instruction using The Shared Model, which emphasises the systematic integration of interrelated concepts; however, classroom implementation evolved towards the characteristics of The Networked Model, with greater emphasis on collaboration, the exploration of diverse learning resources, and the independent construction of knowledge. This shift suggests that instructional implementation is not merely a process of translating a predetermined design into classroom practice, but rather an

adaptive process shaped by the interplay among learning objectives, learner characteristics, and evolving classroom dynamics.

Fogarty's (1991) perspective, The Shared Model is designed to integrate two or more disciplines through overlapping concepts, thereby enabling learners to develop deeper conceptual connections. In contrast, The Networked Model positions learners at the centre of the learning process, where they actively construct networks of knowledge through diverse sources of information and learning experiences. Thus, the two models should not be viewed as mutually contradictory; rather, they represent distinct orientations towards integration. The findings of this study indicate that the teacher did not entirely abandon the initial instructional design but instead shifted the focus of implementation from conceptual integration towards the integration of learning experiences in response to the demands of the classroom context. This shift suggests that flexibility in implementation is an inherent feature of integrated thematic learning rather than a deviation from the intended instructional design.

This finding can be interpreted through the theory of Pedagogical Content Knowledge (PCK), originally proposed by Shulman and further discussed by Ball et al. (2008). PCK emphasises teachers' capacity to transform instructional plans into learning experiences that are responsive to learners' characteristics as a central dimension of professional teaching competence. Accordingly, the strategic changes identified in this study reflect a process of pedagogical decision-making, or pedagogical reasoning, particularly when teachers are confronted with time constraints, variations in learners' abilities, and the demands of differentiated instruction. This perspective is further supported by recent scholarship emphasising that PCK must be enacted flexibly to enable teachers to establish meaningful connections among subject matter, instructional strategies, and learner characteristics within dynamic classroom contexts (Mafa-theledi 2024). In other words, the gap between planning and implementation does not merely indicate a lack of consistency in adhering to the intended instructional design; rather, it reflects the teacher's capacity to adapt instruction in response to the actual conditions and emerging demands of the classroom.

The shift towards The Networked Model can also be understood through Vygotsky's social constructivist perspective, as discussed by Wardani et al. (2023) which conceptualises learning as a process of knowledge construction through social interaction. The predominance of group discussions, exploration of diverse learning resources, and presentations of discussion outcomes indicates that the learning process evolved into a space for the negotiation of meaning among learners. Within this context, the teacher assumes the role of a facilitator who provides scaffolding to support learners in constructing knowledge collaboratively. Nevertheless, the findings reveal that these collaborative activities were more strongly oriented towards task completion than towards the development of cognitive regulation. Consequently, although the learning process enhanced learner participation, it did not adequately facilitate reflection, monitoring, and evaluation of the learning strategies employed.

This phenomenon can be explained through Walter Doyle's perspective on classroom ecology. According to Doyle (2005) instructional implementation takes place within a classroom environment characterised by multidimensionality, simultaneity, and dynamism. Consequently, teachers' decisions are shaped not only by predetermined instructional plans but also by the interplay among curricular demands, learner characteristics, time management, and the evolving dynamics of classroom activities. From this perspective, instructional implementation can be understood as an ongoing process of pedagogical decision-making aimed at sustaining meaningful learning activities amid the complexity of classroom situations. Therefore, the shift from The Shared Model to The Networked Model should not be interpreted as inconsistency with the initial plan, but rather as an adaptive strategy that enables the teacher to maintain the engagement of all learners when actual classroom conditions do not fully correspond to the original instructional design. This perspective explains why the teacher prioritised collaborative activities, the exploration of diverse learning resources, and group discussions over rigid adherence to the entire sequence of planned instructional procedures, as the primary orientation of implementation shifted from procedural fidelity towards the optimisation of learners' educational experiences.

The findings of this study reinforce those of Witraguna et al. (2024) who reported that the implementation of differentiated instruction frequently requires adjustment due to time constraints, diverse learner characteristics, and the increasing complexity of classroom management. However, the present study offers a broader conceptual contribution by demonstrating that such adjustments not only lead to changes in instructional strategies but also shift the orientation of implementation from conceptual integration towards networked learning. This shift indicates that teachers do not merely simplify instructional stages; rather, they reconstruct their pedagogical approaches to accommodate diverse learning needs. Accordingly, the gap between planning and implementation should not be understood solely as a technical issue

or operational constraint, but as a logical consequence of an ongoing process of pedagogical negotiation among curricular demands, the principles of differentiated instruction, and teachers' professional judgement in sustaining meaningful learning experiences (Manik and Jaya 2024). These findings extend the literature on instructional implementation by demonstrating that pedagogical flexibility constitutes an important dimension of teacher professionalism in navigating the complexity of classroom learning, rather than merely representing a deviation from the intended instructional design.

From a pedagogical perspective, these findings indicate that increased student engagement through collaborative learning is not, in itself, sufficient to foster the development of metacognitive abilities. Although the shift towards The Networked Model broadens students' opportunities to engage in discussion, exchange information, and construct knowledge through social interaction, these activities tend to be oriented more towards task completion than towards the regulation of thinking processes. This condition suggests that engagement and metacognition constitute distinct constructs. Students may demonstrate high levels of participation in learning activities without necessarily possessing the ability to plan, monitor, and evaluate their own thinking processes, particularly when instruction does not explicitly facilitate reflective activities. These findings support the view of Jules Smith Ferguson (2020) that metacognitive development does not emerge automatically through participation in learning activities, but develops when students are provided with opportunities to consciously regulate their thinking through planning, monitoring, and evaluation. Therefore, collaborative learning should be integrated with explicit metacognitive strategies that systematically support students in reflecting on, monitoring, and evaluating their own learning processes.

Therefore, flexibility in instructional implementation needs to be balanced with the explicit integration of metacognitive strategies so that pedagogical adaptation not only enhances student engagement but also strengthens learners' self-regulation. Strategies such as reflective questioning, learning journals, self-assessment, and formative feedback enable learners to evaluate the effectiveness of their learning strategies, identify gaps in their understanding, and independently plan appropriate steps for improvement. Previous studies have shown that reflective activities combined with self-assessment and formative feedback can significantly improve the accuracy of metacognitive monitoring and strengthen self-regulated learning skills (Siegesmund 2016). Accordingly, the success of integrated thematic learning should not be assessed solely in terms of the teacher's ability to manage collaborative activities, but also in terms of the capacity to create a learning environment that fosters reflective, autonomous learners who are able to regulate their own learning processes.

Factors Contributing to the Shift in the Learning Model

Time constraints, heterogeneity in students' abilities, and the demands of differentiated instruction do not operate as isolated factors; rather, they interact in shaping teachers' pedagogical decisions throughout the learning process. The interplay among these three factors shifts the orientation of instructional implementation from adherence to predetermined instructional procedures towards a more adaptive management of learning in response to classroom dynamics. Accordingly, instructional implementation should not be understood as the mechanical execution of a predetermined plan, but as an ongoing process of professional decision-making (pedagogical decision-making) that responds to students' characteristics and evolving learning situations. This perspective suggests that the quality of instructional implementation depends more on teachers' ability to balance curricular demands with classroom realities than on strict consistency with the initial design (Eikeland and Ohna 2022). This view is consistent with the concept of adaptive teaching, which positions flexibility as an essential teacher competence in addressing learner diversity.

Tomlinson's (2014), perspective, differentiated instruction requires teachers to adapt content, process, product, and the learning environment according to students' readiness, interests, and learning profiles. Consequently, classroom implementation cannot always adhere fully to the initial plan, as teachers must continuously respond to changing learning needs throughout the instructional process. The findings of this study indicate that the predominance of collaborative and exploratory activities was not merely a methodological choice, but an adaptive strategy intended to ensure that all students retained meaningful opportunities to learn despite limited instructional time and diverse levels of ability. Thus, the shift towards more flexible learning reflects the enactment of differentiation principles, although it simultaneously reduces fidelity to the procedures associated with The Shared Model. This finding reveals a pedagogical tension between maintaining fidelity to the intended instructional design and responding to students' individual learning needs.

The findings of this study also extend those of Pagampa et al. (2023), who identified limited instructional time as a major constraint on the implementation of learning. Previous research has tended to conceptualise time primarily as a technical constraint that restricts the completion of planned learning activities. By contrast, the present study indicates

that time constraints have more fundamental consequences, as they can reshape the orientation of instructional implementation itself. The teacher did not merely simplify instructional stages, but reconstructed instructional strategies to accommodate learner diversity more effectively. Accordingly, the gap between planning and classroom practice should not be understood solely as a matter of time efficiency; rather, it reflects an ongoing process of negotiation among curricular demands, students' learning needs, and teachers' professional judgement in maintaining instructional effectiveness. This analysis suggests that pedagogical adaptation is an inherent feature of curriculum enactment rather than an indicator of implementation failure.

From a pedagogical perspective, flexibility in instructional implementation may enhance student participation through collaborative activities and the exploration of diverse learning resources. However, such flexibility does not automatically produce learning conditions that support metacognitive development. When teachers prioritise the completion of learning activities over reflective processes, students may become primarily engaged in the operational aspects of task completion without sufficient opportunities to plan learning strategies, monitor their understanding, or evaluate the effectiveness of the approaches they employ. Therefore, instructional adaptation needs to be complemented by the explicit integration of metacognitive strategies, such as self-assessment, learning journals, reflective questioning, and formative feedback. Integrating these strategies can preserve the flexibility of classroom implementation while ensuring that students retain meaningful opportunities to develop self-regulation and reflective thinking, both of which constitute essential educational goals for 21 century learning.

Pedagogical Implications for Metacognitive Development

The predominance of collaborative activities and task completion does not automatically lead to the development of students' metacognitive abilities (Martella and Schneider 2024). Although students actively engage in group discussions, information exploration, and presentations of learning outcomes, these activities tend to be more oriented towards the production of learning outputs than towards the regulation of thinking processes. This condition suggests that active engagement in learning does not necessarily correspond to the development of metacognitive abilities when the learning process provides insufficient opportunities for students to plan learning strategies, monitor their understanding, and reflect on the effectiveness of the strategies they employ (Tabanli 2023). In other words, collaborative learning activities can contribute to metacognitive development only when accompanied by pedagogical interventions that explicitly cultivate students' awareness of their own thinking processes. This interpretation is supported by research on active learning, which emphasises that student engagement needs to be accompanied by reflective activities to promote deep learning and effective learning regulation.

Consistent with Flavell's theory, as discussed by Merkebu et al. (2024), metacognition refers to an individual's capacity to monitor and regulate cognitive processes through three key components: planning, monitoring, and evaluation. Flavell emphasises that these abilities develop when students are provided with opportunities to consciously regulate their own learning processes rather than merely complete tasks assigned by the teacher. This perspective was further elaborated by Brown (1987) who conceptualised metacognitive regulation as an ongoing process involving the monitoring, evaluation, and revision of learning strategies. In the context of the present study, the predominance of task-based activities led students to focus more on completing assigned work than on evaluating the effectiveness of the strategies they employed. Consequently, the learning process did not yet provide sufficient opportunities for students to develop metacognitive awareness optimally.

The findings of this study also extend those of Andayani et al. (2025) and Khairani et al. (2025), who emphasised the importance of reflection, self-monitoring, and feedback in fostering metacognitive development. Previous studies have largely attributed low levels of metacognition to the inadequate implementation of instructional strategies. In contrast, the present study demonstrates that constraints on metacognitive development are also associated with the gap between instructional design and classroom implementation. When teachers adapt instructional strategies to accommodate time constraints and student diversity, opportunities for reflective activities may become increasingly limited (Vosniadou et al. 2024). Consequently, instruction becomes more oriented towards activity completion than towards the development of learning regulation. This finding broadens the understanding of metacognitive development by demonstrating that its quality is determined not only by the instructional methods employed but also by the consistency with which reflective strategies are enacted throughout the learning process. This perspective is consistent with Zimmerman's theory of Self-Regulated Learning, as discussed by Ratnayake et al. (2024), which conceptualises self-regulation as a cyclical process

comprising forethought, performance, and selfreflection. When one of these phases, particularly selfreflection, is insufficiently facilitated, students' metacognitive development may remain suboptimal.

From a pedagogical perspective, the effectiveness of integrated thematic learning cannot be assessed solely on the basis of students' high levels of engagement in collaborative activities, but must also consider the extent to which instruction facilitates the conscious regulation of learning (Yong and Sokumaran 2023). The shift in implementation towards The Networked Model expanded opportunities for social interaction and the exploration of diverse learning resources, yet it did not fully develop students' capacity to regulate their own thinking processes. Therefore, discussion and exploratory activities need to be integrated with explicit metacognitive strategies, such as reflective questioning, learning journals, self-assessment, peer assessment, and formative feedback. The integration of these strategies enables students not only to construct knowledge through social interaction but also to develop awareness of their own thinking processes, select appropriate learning strategies, and evaluate the effectiveness of their learning.

Thus, integrated thematic learning can move beyond fostering learning engagement to cultivating students who are capable of regulating their learning independently and sustainably. This perspective is supported by Efklides' work, which positions metacognitive experiences as a key mechanism linking learning activities, motivation, and self-regulation.

CONCLUSION

This study demonstrates that the implementation of integrated thematic learning in the Natural and Social Sciences (IPAS) subject shifted from The Shared Model at the planning stage to The Networked Model during classroom implementation. This shift was shaped by the interplay among limited instructional time, heterogeneity in students' abilities, and the demands of differentiated instruction, which prompted the teacher to adapt instructional strategies. These findings indicate that the implementation of a learning model is not a linear process; rather, it involves dynamic pedagogical decision-making in response to the complexity of classroom learning situations.

Although these adaptations enhanced student engagement through collaborative activities and the exploration of diverse learning resources, the learning process did not fully facilitate the development of students' metacognitive abilities. The predominance of task-completion-oriented activities limited students' opportunities to develop planning, monitoring, and evaluation skills as core components of learning regulation. Therefore, this study highlights that the effectiveness of integrated thematic learning depends not only on the teacher's ability to facilitate active learning but also on the capacity to explicitly integrate instructional strategies that foster students' metacognitive development.

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