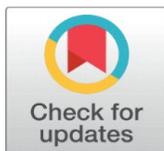# MANAGEMENT OF VISUAL INTEGRATED TEACHING ACTIVITIES IN LOWER SECONDARY SCHOOLS: A STUDY IN THE MEKONG DELTA, VIETNAM

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ABSTRACT

Integrated teaching is central to Vietnam's 2018 General Education Curriculum, yet lower secondary schools in the Mekong Delta (MD) continue to face challenges in lesson design and implementation. This study investigates the implementation and management of visual integrated teaching activities using an online survey of 680 respondents (500 teachers, 180 administrators) from 68 schools in the 2024 - 2025 school year. Three questionnaires examined implementation, management functions, and contextual influences; results were summarized with descriptive statistics and Cronbach's alpha. Our results show that both groups rated goal identification highly (teachers: M = 4.08; administrators: M = 4.01) and viewed monitoring/review as the strongest management function (teachers: M = 3.99; administrators: M = 4.01). In contrast, theme and integrated lesson-content development was weaker (teachers: M = 3.16; administrators: M = 3.15), while teaching methods and formats remained moderate (M = 3.39 - 3.42). Contextual constraints were perceived as strong, especially limited procedural guidance/support (M = 4.32 - 4.38) and organizational-environment factors (M = 4.19 - 4.25). The findings suggest priorities for reform: strengthen practical guidance materials, support collaborative planning, and target professional development on integrated lesson design and pedagogy.

Keywords: Lower Secondary Schools, Educational Management, Vietnam's Mekong Delta, Integrated Teaching, Teachers

1. INTRODUCTION

Education is widely recognized not only as a development outcome but also as a key means of advancing sustainable development UNESCO and MGIEP. (2017). Within this agenda, Education for Sustainable Development (ESD) emphasizes embedding sustainability-related principles, values, and practices across teaching and learning processes UNESCO. (2005). In school settings, ESD-oriented integration is expected to support competency development while also helping to streamline curricula and reduce unnecessary overlap across subjects Huynh (2021).

Integrated and interdisciplinary approaches have gained momentum internationally as education systems respond to demands for creativity, problem solving, and application of knowledge in real-life contexts Zhu, J., Su, Y., Zheng, G., Zhang and Chen (2024), Cohen et al. (2024). Interdisciplinary teaching and learning (ITL) - often discussed alongside curriculum integration - encourages students to connect ideas across disciplinary boundaries and engage in more authentic tasks Du et al. (2021). In Vietnam, integrated teaching has become a central direction of general education reform, and STEM education has been promoted as a pathway for developing 21st-century competencies Ministry of Education and Training. (2018), Vo (2021).

In this study, visual integrated teaching activities refer to integrated teaching practices in which learning is organized through themes and tasks that connect multiple subjects and explicitly use visual modes (e.g., visual representations, images, diagrams, maps, models, and other visual learning resources) to support conceptual connections, classroom communication, and applied learning. Such activities aim to link theory with practice and help students mobilize knowledge and skills across domains to address complex problems Ministry of Education and Training. (2018). Internationally, STEM-oriented reforms have further reinforced integrated instruction by encouraging project-based and inquiry-driven learning experiences that build relevant competencies Bartels et al. (2019), Fernández-Morant et al. (2022). UNESCO also stresses that effective integration should preserve the distinctive features of each subject, avoid overloading learners, and adopt learner-centred pedagogy UNESCO and MGIEP. (2017).

Despite strong policy orientation, implementation remains challenging. Teachers need not only conceptual understanding of integrated teaching and ESD, but also practical competence in designing themes, developing integrated lesson content, and enacting appropriate methods and formats in classrooms Bertschy et al. (2013), Nguyen and Hoang (2022). In many contexts, a lack of concrete guidance materials and limited institutional support can hinder consistent practice Nguyen (2023), Ha (2024b). These challenges are particularly relevant when integrated teaching is expected to simultaneously meet curriculum requirements and support ESD-related competencies Ha (2024a), Level (2018).

In Vietnam's 2018 General Education Curriculum (VGEC 2018), integrated teaching is explicitly articulated through new integrated subjects and cross-cutting educational activities Ministry of Education and Training. (2018). However, evidence suggests that teachers' capacity to integrate ESD and STEM has not been fully developed, and interdisciplinary integration within specific subjects is often uneven in practice Nguyen and Bui (2024), Nguyen et al. (2020), Vo (2021). Beyond classroom pedagogy, managing visual integrated teaching activities at the school level - planning, organizing, directing, and monitoring - remains a critical yet underexamined dimension, especially in regions where school conditions and professional support can vary substantially.

Against this backdrop, this study investigates the implementation and management of visual integrated teaching activities in lower secondary schools in Vietnam's MD. It focuses on two objectives: (1) assessing the extent to which these activities are implemented and how they are managed in schools; and (2) examining contextual factors - policy, socioeconomic, and cultural - that shape management outcomes, with the aim of developing evidence-based recommendations aligned with the 2018 curriculum reform. By synthesizing perspectives from both teachers and school administrators, the study contributes a practice-oriented basis for strengthening management and support systems for visual integrated teaching activities in the MD and comparable settings.

2. LITERATURE REVIEW
2.1. RESEARCH ON INTEGRATED TEACHING IN LOWER SECONDARY SCHOOLS

Studies by Tran et al. (2016), Nguyen and Bui (2024), and Nguyen et al. (2025) identify integrated teaching as a common trend in general education worldwide, contributing to the formation and development of action competence and problem-solving competence among students. Blagoeva et al. (2019) view integrated teaching as one way to put into practice a social constructivist approach to learning and guided knowledge construction; and Anui and Arphattananon, (2021) argue that integrated teaching helps school students develop qualities and competencies by mobilizing knowledge and skills from multiple educational domains. In Vietnam, visual integrated teaching is one of the main orientations in general education curriculum reform Ministry of Education and Training. (2018), Vo (2021).

In discussing the theoretical and practical foundations of integrated teaching, Drake (2012), Nguyen (2011), Do (2010), and Huynh and Nguyen (2015) identify forms of integration in the General Education Curriculum through several integrated educational themes: (1) intra-disciplinary integration; (2) interdisciplinary integration; (3) transdisciplinary integration; and (4) embedding content into existing curricula. In particular, integrated teaching must identify content

from two or more subjects (interdisciplinary) to be taught so that learners do not have to study the same content repeatedly in different subjects D'Hainaut (1981), Nguyen (2015). In Vietnam at the lower-secondary level, two new integrated subjects have been introduced: Natural Sciences, and History & Geography; across all three levels there are also two integrated educational activities: experiential/career guidance and local education content Tran (2021). Meanwhile, STEM (Science, Technology, Engineering, and Mathematics) has been identified as a global focal point of curriculum reforms Bartels et al. (2019). STREAM education content represents the latest development of STEM and STEAM initiatives in K - 12 schools in the United Arab Emirates (UAE) Badawy et al. (2025). STEAM, in particular, is an interdisciplinary instructional approach to science, technology, engineering, the arts, and mathematics Arango-Caro et al. (2025). Especially under the "combined school" model Scheerens (2004), integrating knowledge, skills, and action in integrated teaching Hoang (2020) and combining science with computing using interactive applications and computational thinking can help students address real-world problems Chu and Wu (2025).

Research on integrated teaching methods indicates that interdisciplinary lesson units can yield measurable learning benefits. For example, integrating mathematics with physical education has been shown to improve mathematics learning outcomes Carriedo and Cecchini-Estrada (2019). In addition, carefully designed integrated lectures and short workshops may help address students' specific knowledge gaps when the content is targeted and appropriately scaffolded Barss et al. (2009). Evidence also suggests that integrating Geographic Information Systems (GIS) into instruction can outperform conventional approaches in enhancing geography learners' intrinsic motivation Bikar Singh et al. (2022). More recently, the integration of artificial intelligence (AI) into secondary education has been highlighted as a promising direction for increasing student engagement, supporting interdisciplinary learning, and developing essential digital competencies Limjumroonrat et al. (2025). Likewise, integrated approaches in English language teaching can simultaneously support language acquisition and moral learning, for instance by using folktales as pedagogical resources Rochmiyati et al. (2020).

2.2. RESEARCH ON THE MANAGEMENT OF INTEGRATED TEACHING IN LOWER SECONDARY SCHOOLS

Regarding the management of visual integrated teaching, studies by Ishak (2002), Awang and Ramiah (2002), Mulyasa. (2003), and Kholila and Mustofa (2023) indicate that management should adhere to: (1) planning of teaching and learning activities; (2) organizing and implementing teaching and learning activities; (3) directing teaching and learning activities; and (4) inspection and evaluation of results. At the same time, Kong and Hoare (2010), Roegiers (1996), and Norman and Schmidt (1992) identify three principles of implementation in integrated teaching: (1) plan from content to integrate fundamental scientific concepts; (2) integrate content and language instruction; and (3) explicitly teach the language of the content. Sagstetter et al. (2009) prioritize actions such as identifying outcomes, setting goals, and teacher-led planning for integrated teaching, and clarify the sequence of planning: (1) define goals (What do I want to achieve?); (2) plan actions (How can I achieve the goals?); (3) act (implement the plan); and (4) evaluate actions (Which goals have been met and what additional goals remain?).

Linn and Songer (1988) and Drake (2012) argue for creating standards-based integrated curricula within a framework that permits multi-, inter-, and transdisciplinary approaches to curriculum integration. Do (2010) and Nguyen (2014) emphasize that teachers' instructional practice should be grounded in appropriate learning theories and models to construct suitable lessons for integrated teaching. To implement integrated curricula effectively, secondary teachers need to develop new competencies, including the ability to design integrated thematic units Shofa (2021), Nguyen and Hoang (2022), and they should pay attention to assessment tools for interdisciplinary teaching (Zhan et al. (2025).

Research has identified several emerging integrated teaching models aimed at meaningful learning. Notable examples include: a mathematics model that connects mathematics with everyday situations and other subjects Barboza et al. (2015); integrating career-oriented education into teaching the Hydrocarbon unit Vu et al. (2023); a secondary-level STEAM module integrating plant science, design, and emerging technologies through creating 3D plant models and augmented/virtual reality (AVR) experiences Arango-Caro et al. (2025); STEM instruction aligned with the context of field-trip experiences Duran et al. (2025); and an integrated music-learning model to promote higher-order musical thinking skills among secondary students, developed around five instructional steps: Step 1 - Integration of knowledge; Step 2 - Analysis; Step 3 - Evaluation; Step 4 - Creation; Step 5 - Performance/Delivery Bampenthan et al. (2025). Rusilowati and Marwoto (2021) developed natural science teaching materials that integrate Bundengan ethnoscience

into the topic of Vibration, Waves, and Sound for Central Java; and Vu et al. (2023) integrated career education into teaching the Hydrocarbon unit to develop lower-secondary students' ability to apply learned knowledge and skills, following the integrated model of Bampenthan et al. (2025). Therefore, when planning instructional content, selecting theme-based integrated teaching materials is crucial Sagstetter et al. (2009); moreover, integrated teaching in science education should emphasize inquiry-based learning (IBL) to develop scientific competence among lower-secondary students Nguyen and Pham (2025).

2.3. STUDIES ON FACTORS INFLUENCING INTEGRATED TEACHING IN LOWER SECONDARY SCHOOLS

Regarding factors related to procedural guidance and conditions that support integrated teaching, Dao and Chu (2017) and Dinh and Nguyen (2020) note that integrated teaching remains relatively new to teachers and exhibits confusion, shortcomings, and a lack of coherence. In the context of a developing country like Vietnam - with inherent disparities in school resources and insufficiently prepared materials and inputs Nguyen and Bui (2024) - the capacity of teachers and students to adapt across regions as instruction shifts toward competency development within integrated settings poses a major challenge Le and Nguyen (2019), Nguyen and Hoang (2022). To promote interdisciplinary teaching, teachers need support, including greater attention to the design of teacher guides Lin et al. (2023); in particular, interdisciplinary teaching resources are needed to promote AI ethics education and to help educators build AI literacy Lin and Dai (2025).

Organizational and classroom conditions also play a decisive role in shaping the effectiveness of visual integrated teaching. Prior studies point to barriers such as teachers' limited awareness of the value and requirements of visual integrated approaches, large class sizes, and students' insufficient prior knowledge Bampenthan et al. (2025). In addition, local contextual pressures - often involving intertwined economic, environmental, and equity concerns - can constrain the design and feasibility of interdisciplinary instruction Ireland and Monroe (2015). School culture and students' backgrounds further influence learning processes and outcomes Lin et al. (2023), while the organizational culture surrounding interdisciplinary STEM teaching may interact with teachers' individual psychological factors and professional dispositions Zhou et al. (2021). Importantly, teachers' readiness to shift toward interdisciplinary teaching is shaped by their educational background and by workplace dynamics, including collaboration norms, job satisfaction, and resistance to change Al Salami et al. (2017), Zhou et al. (2021), Barchas-Lichtenstein et al. (2023).

2.4. RESEARCH QUESTIONS

To respond to the challenges identified in the literature, this study seeks to assess the current status of visual integrated teaching activities and to identify practical directions for improving their effectiveness in lower secondary schools in Vietnam's MD. Specifically, the study examines how these activities are being implemented, how they are managed at the school level, and which contextual conditions most strongly shape their implementation and outcomes. Based on this focus, the study is guided by the following research questions:

1) To what extent are visual integrated teaching activities currently implemented in lower secondary schools?
2) How effectively are visual integrated teaching activities managed in these schools (e.g., planning, organizing, directing, and review)?
3) Which key factors influence the design, implementation approaches, and outcomes of visual integrated teaching activities at the lower-secondary level?
4) What evidence-based strategies can strengthen the effectiveness of visual integrated teaching activities and ensure alignment with VGEC 2018?

To address these questions, the study employs a quantitative survey design complemented by in-depth interviews. The next section details the research design, participants, instruments, and data analysis procedures.

3. RESEARCH METHODOLOGY
3.1. RESEARCH DESIGN

This study adopted a quantitative survey design to systematically examine the implementation and management of visual integrated teaching activities in lower secondary schools in Vietnam's Mekong Delta. The survey targeted two key stakeholder groups - teachers and school administrators - to capture complementary perspectives on (i) classroom implementation, (ii) school-level management practices, and (iii) contextual influences.

To strengthen interpretation and to cross-check key themes emerging from the survey, the study also employed in-depth interviews as a supporting qualitative component. Interviews were used primarily for preliminary exploration and for validating information from the survey dataset. A convenience sample of 10 participants was recruited, including five administrators (coded C1–C5) and five teachers (coded V1–V5) working at selected lower secondary schools in the MD. Interviews were conducted through face-to-face conversations or other communication channels, focusing on teachers' capacity for visual integrated teaching and management practices that may enhance implementation quality.

This mixed set of data sources enabled the study to obtain standardized, measurable evidence from a large sample while also capturing contextual explanations and stakeholder interpretations that support a more grounded discussion of findings.

3.2. PARTICIPANTS

The study used a convenience sample of 680 respondents from 68 lower secondary schools in the MD, Vietnam, including 180 administrators and 500 teachers. Data were collected via an online survey during the 2024–2025 school year, focusing on the status and management of visual integrated teaching activities as implemented in the period 2023–2025.

Regarding demographic characteristics, the proportion of female administrators and teachers in the sample was over 65%. The survey also indicated that all participants met national qualification requirements for their positions; in particular, more than 3% reported holding a master's degree.

All participants were informed that participation was voluntary and that they could withdraw at any time. Ethical standards were strictly observed throughout the research process. Respondents were fully informed of their rights, and anonymity was ensured; no personal or institutional identifying information was collected.

3.3. RESEARCH INSTRUMENTS

The study employed three structured scales designed to assess multiple dimensions of visual integrated teaching activities in lower secondary schools. The instruments were developed to evaluate implementation practices, management functions, and contextual influences relevant to integrated teaching within the context of educational reform. All items were measured using 5-point Likert scales, with anchors specified according to the construct being assessed.

Scale 1 (G1): Implementation of visual integrated teaching activities

Scale G1 assessed the extent to which visual integrated teaching activities were implemented in schools across four components:

Goal identification (3 indicators) – e.g., identifying appropriate objectives for integrated themes/lesson content and conditions required to achieve them.

Theme and integrated lesson-content development (5 indicators) – e.g., developing a matrix of integrated themes/content linked to curriculum subjects and real-world situations.

Teaching methods (4 indicators) – e.g., analyzing the strengths and limitations of different methods for visual integrated teaching.

Teaching formats (3 indicators) – e.g., blended formats that synthesize knowledge from two or more subjects.

Responses were recorded on a 5-point scale from 1 (not implemented at all) to 5 (fully implemented).

Scale 2 (G2): Management of visual integrated teaching activities

Scale G2 assessed perceived effectiveness of school-level management across four core functions:

Planning (4 indicators) – e.g., identifying steps and anticipating resources for implementing visual integrated teaching plans.

Organizing (4 indicators) – e.g., organizing personnel and assigning roles to support integrated teaching implementation.

Directing (4 indicators) – e.g., providing guidance to teachers on effective integrated teaching approaches.

Monitoring/review and evaluation (5 indicators) – e.g., detecting misalignments and implementing adjustments to improve integrated teaching activities.

Responses were recorded on a 5-point scale from 1 (not very effective) to 5 (very effective).

Scale 3 (G3): Contextual factors influencing visual integrated teaching activities

Scale G3 assessed perceived influence of contextual conditions that affect implementation quality:

Procedural guidance and supportive conditions (3 indicators) – e.g., availability of guidance materials for teachers on visual integrated teaching.

Organizational environment (4 indicators) – e.g., teamwork norms, teacher satisfaction, and resistance to change that may shape readiness for interdisciplinary teaching.

Responses were recorded on a 5-point scale from 1 (little influence) to 5 (very strong influence).

3.4. DATA PROCESSING

All variables were coded numerically from 1 (lowest) to 5 (highest). For interpreting Likert-scale means, the response range was divided into five equal intervals using:

$$(5 - 1)/5 = 0.8$$

Accordingly, mean values were interpreted as: 1.0–<1.8 (Level 1), 1.8–<2.6 (Level 2), 2.6–<3.4 (Level 3), 3.4–<4.2 (Level 4), and 4.2–5.0 (Level 5).

Survey data were analyzed using descriptive statistics (mean and standard deviation) to summarize perceived levels of implementation, management effectiveness, and contextual influence. The internal consistency of each scale was assessed using Cronbach's alpha, with values of $\alpha \geq 0.70$ considered acceptable, indicating satisfactory reliability for measuring the intended constructs Nguyen and Pham (2013).

4. RESULTS
4.1. EVALUATION OF THE IMPLEMENTATION OF INTEGRATED TEACHING ACTIVITIES IN LOWER SECONDARY SCHOOLS

Table 1

Table 1 Implementation of Visual Integrated Teaching Activities in Lower Secondary Schools						
Assessment components	Teachers' self-assessment Mean (M)	SD	Alpha (α)	Administrators' assessment Mean (M)	SD2	Alpha (α)3
1. Identifying objectives for integrated teaching	4.08	0.72	0.75	4.01	0.7	0.81
2. Developing themes and integrated lesson content	3.16	0.7	0.71	3.15	0.73	0.71
3. Integrated teaching methods	3.41	0.68	0.76	3.39	0.72	0.74
4. Formats of integrated teaching	3.42	0.71	0.72	3.4	0.8	0.75

Table 1 summarizes perceptions of how visual integrated teaching activities are implemented in lower secondary schools, based on responses from both teachers and administrators. Overall, the two groups reported similar patterns across all four components, with acceptable internal consistency (α = 0.71–0.81).

Identifying objectives was rated highest by both groups (teachers: M = 4.08, SD = 0.72, α = 0.75; administrators: M = 4.01, SD = 0.70, α = 0.81), indicating broad agreement that integrated-teaching objectives are generally clear and appropriately established at school level.

In contrast, developing themes and integrated lesson content received the lowest ratings (teachers: M = 3.16, SD = 0.70, α = 0.71; administrators: M = 3.15, SD = 0.73, α = 0.71). These moderate-to-low mean scores suggest that schools may still encounter difficulties in translating curriculum expectations into coherent integrated themes and lesson content.

Similarly, teaching methods were evaluated at a moderate level (teachers: M = 3.41, SD = 0.68, α = 0.76; administrators: M = 3.39, SD = 0.72, α = 0.74), pointing to limited diversity and innovation in pedagogical approaches for visual integrated teaching. Teaching modes (e.g., embedding, interdisciplinary application, and blended synthesis across subjects) were also rated as moderate (teachers: M = 3.42, SD = 0.71, α = 0.72; administrators: M = 3.40, SD = 0.80, α = 0.75), suggesting uneven or incomplete implementation in classroom practice.

Qualitative interview evidence supported these survey patterns. Teacher V1 noted that "teaching modes for integrated instruction have not yet been fully optimized or implemented consistently", a view echoed by teachers V2–V5. Administrator C1 likewise emphasized that the relatively low scores for theme/content development and for teaching methods and modes highlight a need for more systematic teacher support and capacity building in visual integrated teaching, together with policy-level interventions to strengthen implementation across schools. Similar perspectives were expressed by administrators C3–C5.

4.2. EVALUATION OF THE MANAGEMENT OF INTEGRATED TEACHING ACTIVITIES IN LOWER SECONDARY SCHOOLS

Table 2

Table 2 Management of Visual Integrated Teaching Activities in Lower Secondary Schools						
Assessment components	Teachers' self-assessment Mean (M)	SD	Alpha (α)	Administrators' assessment Mean (M)	SD2	Alpha (α)3
1. Planning for integrated teaching	3.49	0.78	0.72	3.59	0.69	0.71
2. Organizing the implementation of integrated teaching	3.48	0.66	0.71	3.52	0.71	0.7
3. Directing the implementation of integrated teaching	3.39	0.76	0.8	3.45	0.8	0.73
4. Monitoring and reviewing integrated teaching activities	3.99	0.7	0.71	4.01	0.75	0.79

Table 2 summarizes perceptions of school-level management of visual integrated teaching activities across four functions: planning, organizing, directing, and review. Ratings from teachers and administrators show similar patterns, with acceptable reliability across subscales (α = 0.70–0.80).

Planning received moderate ratings (teachers: M = 3.49; administrators: M = 3.59), suggesting that core planning practices exist but may still be constrained by limited time, resource allocation, and structured professional development for teachers. Organizing was also rated at a moderate level (teachers: M = 3.48; administrators: M = 3.52), indicating that arrangements for assigning roles and coordinating implementation function to some extent but may not yet be sufficiently robust for consistent delivery across schools.

For directing, ratings were the lowest among the four functions (teachers: M = 3.39; administrators: M = 3.45), pointing to a need for stronger instructional leadership and clearer guidance to support pedagogical innovation in visual integrated teaching. In contrast, review was rated highest by both groups (teachers: M = 3.99; administrators: M = 4.01), implying that review mechanisms (e.g., feedback collection and follow-up adjustments) are relatively well established.

Interview data supported these results. Administrator C2 emphasized that organizing and directing should encourage teacher creativity and reflect the distinctive characteristics of visual integrated teaching. Administrators also agreed that management at different levels should more consistently organize, implement, and motivate teachers to enhance effectiveness and improve education quality in the MD context.

4.3. EVALUATION OF FACTORS INFLUENCING INTEGRATED TEACHING ACTIVITIES IN LOWER SECONDARY SCHOOLS

Table 3

Table 3 Perceived Contextual Influences on Visual Integrated Teaching Activities in Lower Secondary Schools						
Components	**Teachers' self-assessment Mean (M)**	**SD**	**Alpha (α)**	**Administrators' assessment Mean (M)**	**SD2**	**Alpha (α)3**
1. Influence of guidance procedures and supportive conditions	4.38	0.75	0.72	4.32	0.76	0.71
2. Influence of the organizational environment	4.25	0.79	0.7	4.19	0.78	0.73

Table 3 presents respondents' perceptions of contextual factors influencing visual integrated teaching activities. Both teachers and administrators reported high levels of influence for the two factor groups, with acceptable internal consistency (α = 0.70–0.73), indicating strong agreement within each group.

The strongest perceived influence was procedural guidance and supportive conditions (teachers: M = 4.38, SD = 0.75, α = 0.72; administrators: M = 4.32, SD = 0.76, α = 0.71). These high mean scores suggest that the availability and clarity of guidance (e.g., practical instructions, templates, and supporting materials for teachers) are viewed as critical determinants of whether visual integrated teaching can be implemented effectively and consistently.

Organizational-environment factors were also rated as strongly influential (teachers: M = 4.25, SD = 0.79, α = 0.70; administrators: M = 4.19, SD = 0.78, α = 0.73). This finding highlights the importance of conditions within schools - such as collaboration norms, workload and time constraints, leadership support, and readiness for change - that shape teachers' capacity and willingness to enact visual integrated teaching activities.

Taken together, the consistently high ratings across both groups indicate that improving the effectiveness of visual integrated teaching activities requires a systematic, multi-stakeholder approach rather than isolated classroom-level efforts. In particular, strengthening planning, organizing, and directing (as shown in Section 4.2) will likely be more effective when accompanied by clear procedural guidance, accessible support resources.

5. DISCUSSION AND IMPLICATIONS
5.1. DISCUSSION
5.1.1. INTEGRATED TEACHING ACTIVITIES IN LOWER SECONDARY SCHOOLS

The data reflect positive outcomes of integrated teaching in terms of meeting clearly defined objectives. Integrated teaching helps learners become better prepared to face real-life challenges D'Hainaut. (1981), develops creativity and improves students' creative knowledge and skills Du et al. (2021), and integrates different subjects into coherent themes that promote student-centred learning and emphasize active engagement and critical thinking Wadiyo et al. (2024). However, the relatively low ratings for theme and lesson-content development, as well as for methods and formats of integrated teaching (M < 3.42), indicate a need for pedagogical innovation. Teachers need to draw on appropriate theories and models to design lessons and learning activities that are suitable for integrated teaching Do (2010).

In particular, teaching methods and modes need stronger innovation to move beyond routine integration toward more engaging and coherent classroom practice. Prior evidence suggests that expanding the range of interdisciplinary approaches - such as combining mathematics with physical education - can generate measurable learning benefits and may also encourage students' regular physical activity Carriedo and Cecchini-Estrada (2019). Likewise, STEAM-oriented instruction and blended STREAM approaches, when implemented in supportive learning environments, can strengthen students' participation and promote richer cross-disciplinary connections Arango-Caro et al. (2025), Badawy et al.

(2025), Fernández-Morante et al. (2022). Further improvement may be achieved by embedding scientific and engineering thinking across learning tasks Cheng et al. (2024), strengthening sustained interdisciplinary learning experiences Zhou et al. (2021), Ellinghusen et al. (2025). In addition, interdisciplinary models that incorporate AI-era competencies offer a promising direction for developing lower secondary students' core literacies in ways that remain relevant to contemporary learning demands Chu and Wu (2025).

These results are also consistent with perspectives on integrated teaching in the context of educational reform: teachers need a positive awareness of integrated teaching - from knowledge to personality development and the competencies required for learning and life - to achieve high effectiveness Mai (2019). Implementing integrated teaching requires an integrated educational model that includes three elements: knowledge, skills, and action Hoang (2020). Furthermore, integrating learning domains, lesson themes, and content across multiple subjects through group teaching and cooperative learning can help learners acquire knowledge more effectively Gunawan and Shieh (2020).

5.1.2. MANAGEMENT OF INTEGRATED TEACHING ACTIVITIES IN LOWER SECONDARY SCHOOLS

Prior research has long emphasized that effective implementation of integrated teaching depends on coordinated functions of planning, organizing, directing, and review Kong and Hoare (2010), Roegiers (1996), Norman and Schmidt (1992). The present findings support this view but also reveal an important imbalance across management functions. In our data, review was consistently rated the strongest function by both teachers and administrators (M ≈ 3.99–4.01), whereas directing received the lowest ratings (M ≈ 3.39–3.45) and planning/organizing remained only moderate (M ≈ 3.48–3.59). This pattern suggests that schools may be relatively active in checking and appraising implementation, yet less effective in providing instructional leadership, coordinated support, and timely adjustments that translate review outcomes into improved classroom practice.

The moderate ratings for organizing and directing also help explain why implementation indicators related to theme/lesson-content development and teaching methods and modes remained weaker than goal identification in Section 4.1. In practical terms, schools may be able to articulate objectives for visual integrated teaching activities, but lack sufficient managerial capacity to (i) mobilize collaborative planning teams, (ii) provide structured guidance on lesson design, and (iii) support teachers in changing day-to-day pedagogical routines. These findings align with Sagstetter et al. (2009), who argue that implementation requires planning that anticipates resources and stakeholder coordination, as well as mechanisms for acting on review evidence. Drawing on integrated curriculum management approaches (e.g., STEM and STEAM modules) can be useful Gunawan and Shieh (2020), Arango-Caro et al. (2025), but the local effectiveness of such models ultimately depends on whether school leadership and organizational arrangements enable teachers to co-design and enact integrated lessons in feasible ways.

In the MD context, the results reinforce the need for a stakeholder-engaged management strategy that strengthens the "middle" functions - planning, organizing, and especially directing - rather than relying primarily on review. This includes clearer division of responsibilities, protected time for collaboration, and targeted professional development that equips teachers with operational procedures for designing and running visual integrated lessons Le and Nguyen (2019), Nguyen and Hoang (2022). Strengthening these management functions is also consistent with curriculum reform goals related to competency development and reducing content overload and duplication across subjects Huynh et al. (2021), because stronger coordination is needed to make integration pedagogically meaningful rather than merely administrative.

5.1.3. FACTORS INFLUENCING INTEGRATED TEACHING ACTIVITIES IN LOWER SECONDARY SCHOOLS

This study shows that contextual constraints are perceived as highly influential for visual integrated teaching activities. Both teachers and administrators rated procedural guidance and supportive conditions as the strongest influence (M ≈ 4.32–4.38) and organizational-environment factors as similarly high (M ≈ 4.19–4.25). These results indicate that stakeholders view context as a primary determinant of implementation quality rather than a secondary condition.

The prominence of procedural guidance is consistent with prior arguments that teachers need concrete support on selecting methods, using representations, and translating integration principles into workable classroom practice Dao and Chu (2017), Dinh and Nguyen (2020). In this study, it also aligns with the gap between strong goal identification and weaker performance in theme/content development and pedagogical enactment: objectives may be clear, but teachers may lack practical templates, examples, and coaching to operationalize them. Meanwhile, the high ratings for organizational-environment influences underscore the role of school culture and working conditions - such as collaboration norms, teacher satisfaction, and resistance to change - in shaping readiness for interdisciplinary teaching Lin et al. (2023), Al Salami et al. (2017), Zhou et al. (2021), Barchas-Lichtenstein et al. (2023).

5.2. IMPLICATIONS

The findings have important implications for improving the quality and effectiveness of integrated teaching activities in lower secondary schools to meet the requirements of VGEC 2018 reform Ministry of Education and Training. (2018) and to contribute to achieving the United Nations Sustainable Development Goals in education Alharbi et al. (2024). Previous studies have clarified fundamental issues in planning, organizing, directing, and monitoring/reviewing integrated teaching implementation Kong and Hoare (2010), Roegiers (1996), Norman and Schmidt (1992). Related evidence also suggests that integrated-teaching management in advanced education systems reflects sound perspectives and scientific approaches grounded in modern frameworks Gunawan and Shieh (2020), Arango-Caro et al. (2025), Bampenthan et al. (2025), which can be selectively learned from and adapted to Vietnam's conditions.

Several studies have provided important practical evidence evaluating the status of integrated teaching in different localities and regions Nguyen (2015), Dao and Chu (2017). Lower secondary schools have made progress toward meeting integrated-teaching objectives Arango-Caro et al. (2025), Bampenthan et al. (2025); however, low scores in theme development and in the use of integrated teaching methods and formats indicate a key area needing improvement Tran et al. (2017), Nguyen and Pham (2025).

This study also outlines strategic implications to guide lower secondary schools in improving integrated teaching activities Carriedo and Cecchini-Estrada (2019), Nguyen and Bui (2024). At the same time, emphasis should be placed on organization, leadership, and ecosystem collaboration in developing operational models of integrated teaching for teachers Williams and Wainwright (2016), Carriedo and Cecchini-Estrada (2019), Hoang (2019). To further improve integrated teaching quality in the MD context, lower secondary schools should focus on raising teachers' and administrators' awareness of integrated teaching to meet the reform requirements of VGEC 2018. Additionally, it is necessary to provide a fundamental theoretical clarification of integrated teaching D'Hainaut. (1981), Drake (2012), focus on identifying methods, formats, and quality-assurance conditions for visual integrated teaching activities Nguyen (2011), and ensure strong direction, supervision, and monitoring by the entire management system - especially the role of principals and vice principals in lower secondary schools Nguyen (2015).

The significance of these findings lies in their practical and strategic relevance to Vietnam's education reform. At the classroom level, teachers need to engage in purposeful instructional planning and reflective practice - iteratively revising integrated lesson designs based on evidence from implementation and their own teaching experience. This includes strengthening integrated teaching capacity by promoting collaboration among colleagues in pedagogical practice, as well as the ability to share knowledge, experience, and working habits with peers Le and Nguyen (2019), Nguyen and Hoang (2022). In particular, schools should emphasize teachers' self-directed learning and professional development, and value the application of information technology in integrated teaching as an important teacher quality Gaible and Burns (2005), Ho et al. (2023), as this is a decisive factor for the success of the process.

6. CONCLUSION

This study examined the implementation, management, and contextual influences of visual integrated teaching activities in lower secondary schools in Vietnam's MD, in alignment with the VGEC 2018 reform. Survey evidence from 680 respondents across 68 schools shows a clear and consistent pattern across teachers and administrators. Goal identification was perceived as a strong area (teachers: M = 4.08; administrators: M = 4.01), suggesting that schools generally understand and articulate objectives for integrated teaching. However, the implementation of core pedagogical components remains uneven: developing themes and integrated lesson content was rated lowest (teachers: M = 3.16; administrators: M = 3.15), and teaching methods and modes were only moderate (approximately M = 3.39–3.42). These

findings imply that schools may have clarity at the level of intention, but face practical constraints in translating policy expectations into coherent lesson designs and consistent classroom enactment.

At the management level, the strongest function was review (teachers: M = 3.99; administrators: M = 4.01), indicating that schools have relatively established processes for checking and appraising integrated teaching activities. In contrast, directing and, to a lesser extent, planning and organizing received only moderate ratings (approximately M = 3.39–3.59). This imbalance suggests that schools may review implementation more than they actively guide, coordinate, and support instructional improvement - especially the steps needed to convert review feedback into concrete adjustments in lesson design and classroom practice.

Contextual conditions were perceived as highly influential by both groups. Respondents emphasized the importance of procedural guidance and supportive conditions (approximately M = 4.32–4.38) as well as organizational-environment factors (approximately M = 4.19–4.25). Together, these results underscore that strengthening visual integrated teaching activities in the MD requires more than individual teacher effort. Sustainable improvement likely depends on providing practical guidance materials, enabling collaborative planning, strengthening instructional leadership, and improving school-level conditions that support change. The study contributes evidence-based insights into the current strengths and constraints of visual integrated teaching activities in a regionally specific context.

CONFLICT OF INTERESTS

None.

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