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ENHANCING GEOGRAPHY EDUCATION THROUGH TEACHING MEDIA: EVIDENCE FROM CLASSROOM ACTION RESEARCH IN LAO SECONDARY SCHOOLS

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Abstract

This study aimed to improve geography teaching and learning management in Lao secondary schools by promoting the integration of teaching media, encouraging student-centered approaches, and identifying strategies for instructional improvement. A classroom action research design was implemented with geography students. Data collection involved classroom assessments and student feedback surveys. Descriptive statistics (means and percentages) were used to evaluate teaching activities, preparation and use of media, types of media employed, instructional techniques, student satisfaction, and assessment practices—the integration of teaching media in geography lessons produced positive outcomes. Student learning performance was rated “very good” according to the evaluation criteria. Student feedback indicated consistently high satisfaction across seven dimensions. Assessment and evaluation were rated highest, followed by organization of learning activities. The lowest-rated aspect was the use of electronic media, though it was still considered satisfactory. The findings demonstrate that media use substantially enhances student engagement, satisfaction, and performance in geography education. The study highlights the pedagogical value of integrating diverse teaching media. It emphasizes the need to expand the use of electronic resources to strengthen digital learning capacity in resource-limited contexts.

Keywords: Teaching Media, Student-Centered Learning, Classroom Action Research, Geography Education, Instructional Innovation, Student Satisfaction

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Introduction

Geography education plays a crucial role in developing students' spatial awareness, environmental understanding, and global perspectives (Kerski, 2015). In the era of educational transformation, the integration of instructional media has become essential to enhance pedagogical efficiency and foster active learning environments (Mayer, 2021). Effective teaching media not only help clarify complex abstract concepts but also stimulate learners' critical thinking and spatial problem-solving skills (Hattie, 2009; National Research Council, 2006). Consequently, educational institutions worldwide have increasingly emphasized the modernization of learning resources to prepare students for a knowledge-based society (Voogt & Roblin, 2012).

However, the implementation of instructional media in developing nations frequently encounters multi-dimensional challenges. In the Lao People's Democratic Republic (Lao PDR), secondary education has traditionally relied heavily on teacher-centered approaches and conventional textbook delivery (Ministry of Education and Sports [MoES], 2015). While the national curriculum guidelines advocate for student-centered learning and the use of diverse educational technology, the actual classroom practice remains constrained by limited digital infrastructure, insufficient instructional materials, and a lack of specialized teacher training (UNESCO, 2020). Secondary school teachers, especially in regional provinces, often struggle to move beyond traditional talk-and-chalk methods due to structural and systemic barriers (Phommalangsy, 2021).

Despite the growing global emphasis on digital and multimedia integration in education (Voogt et al., 2013), a significant research gap remains regarding how secondary school geography teachers in developing Southeast Asian contexts, particularly Lao PDR, adapt to and implement instructional media within the constraints of traditional curricula. Most existing literature focuses on higher education or on fully equipped urban schools, often overlooking the practical challenges and localized pedagogical adjustments in Lao secondary classrooms. This study addresses this critical gap by examining the immediate classroom realities, structural barriers, and pedagogical outcomes associated with teaching media integration.

By framing this inquiry through a classroom action research lens, this study aims to systematically improve the teaching and learning management of geography in Lao secondary schools. Specifically, it seeks to promote the meaningful integration of diverse teaching media, encourage the adoption of student-centered learning approaches, and identify sustainable, context-sensitive strategies for long-term instructional improvement. Ultimately, these insights provide an empirical foundation to support teacher professional development and inform broader curriculum reform initiatives across the region.

Literature Review

Challenges in Traditional Teaching Approaches

In many Lao classrooms, traditional teacher-centered pedagogies continue to dominate, limiting opportunities for active and participatory learning. Constraints such as large class sizes, inadequate teaching resources, and reliance on rote instruction reinforce passive student roles and reduce space for innovation (Demas et al, 2018). Despite global recognition of the value of integrating technology and media into learning environments, Lao schools often face systemic barriers, including insufficient infrastructure, a lack of professional training, and limited access to digital resources (Kilpatrick et al., 2019; Nanthalangsy et al, 2025). These conditions contribute to the underutilization of teaching media, restricting both the quality of instruction and student engagement. Moreover, overcrowded classrooms and rural resource disparities exacerbate the challenges of adopting student-centered methods. Together, these challenges underscore the need for strategic interventions to promote the effective use of teaching media and transform educational practice in the Lao context.

Role of Teaching Media in Student-Centered Learning

Teaching media play a pivotal role in fostering student-centered learning by transforming traditional didactic instruction into more interactive and participatory experiences. Multimedia tools, such as visual aids, digital platforms, and interactive simulations, help students engage more actively with content, thereby promoting deeper understanding and retention of knowledge (Mayer, 2021). When strategically integrated, these innovations enhance not only academic performance but also student motivation and satisfaction, which are essential for sustaining meaningful learning (Memon et al., 2022). In Southeast Asian contexts, including Laos, the incorporation of teaching media has been shown to address limitations of teacher-centered approaches by empowering learners to take ownership of their learning processes (Nanthalangsy et al., 2025). Furthermore, instructional technologies support differentiated learning, allowing students with diverse abilities and learning preferences to benefit equitably. Evidence indicates that such media-enriched environments contribute to higher student engagement and more positive classroom dynamics, underscoring their pedagogical value in shifting toward student-centered practices.

Theoretical Framework

This study is grounded in well-established cognitive learning theories that explain how learners process information when instructional media are integrated into classroom teaching. Geography education relies heavily on visual, spatial, and contextual representations, such as maps, diagrams, images, and models. As a result, understanding the cognitive mechanisms underlying multimedia learning is essential for explaining how instructional media can enhance student engagement, satisfaction, and learning outcomes. Accordingly, this research is informed by the Cognitive Theory of Multimedia Learning and Cognitive Load Theory, which together provide a robust theoretical foundation for the pedagogical use of teaching media in secondary geography classrooms. The Cognitive Theory of Multimedia Learning proposes that meaningful learning occurs when learners actively process information presented through both verbal and visual channels (Mayer, 2021).

This theory is based on three core assumptions: learners possess dual channels for processing verbal and pictorial information, each channel has limited capacity, and meaningful learning requires active cognitive processing, including selecting relevant information, organizing it into coherent mental representations, and integrating it with prior knowledge. In geography education, many concepts such as spatial patterns, physical processes, and human-environment interactions are abstract and cognitively demanding. Instructional media such as maps, diagrams, photographs, and digital visualizations support learning by enabling learners to integrate words and pictures to promote conceptual understanding. When instructional media are coherently designed and aligned with learning objectives, they facilitate deeper comprehension, improve retention, and increase learner engagement (Mayer, 2021). Cognitive Load Theory complements this perspective by focusing on the limitations of working memory during learning (Sweller et al., 2011). The theory distinguishes among intrinsic cognitive load, which is inherent in the complexity of the learning material; extraneous cognitive load, which results from ineffective instructional design; and germane cognitive load, which contributes to schema construction and meaningful learning. From this viewpoint, instructional media function as cognitive tools that can either support or hinder learning. In geography classrooms, well-designed visual media can reduce extraneous cognitive load by simplifying complex spatial information, highlighting essential relationships, and guiding learners' attention toward key concepts. Conversely, poorly organized or excessive media may overload working memory and impede learning, particularly for students with limited prior knowledge. Inside the perimeter of secondary geography instruction, these cognitive dynamics directly underscore the importance of how teachers systematically structure their lessons, prepare instructional tools, and evaluate outcomes. Consequently, the seven core dimensions examined

in this study—ranging from instructional activity organization and media preparation to student satisfaction and assessment practices—are functionally designed to capture how effectively classroom media usage manages cognitive load and facilitates meaningful multimedia learning in real-world educational settings.

Context of Lao Secondary Education

The integration of teaching media in Lao secondary education must be understood within the broader national and regional context. The Demonstration Secondary School of Pakse Teacher Training College serves as a critical setting in which innovative pedagogical approaches are tested before being disseminated nationwide. Lao classrooms have historically relied on teacher-centered practices, which often limit student engagement and interactive learning (Gutiérrez-Colón & Somsivilay, 2021). Recent reforms under the Ministry of Education and Sports have emphasized competency-based curricula and encouraged the use of technology and media to enhance student-centered practices (Ministry of Education and Sports, 2020). Within the ASEAN region, Laos faces similar challenges as neighboring countries in balancing resource constraints with the demand for innovative learning environments. Studies across Southeast Asia suggest that multimedia integration improves student motivation, learning outcomes, and satisfaction, even in contexts with limited technological infrastructure. By situating teaching media innovation within the context of Pakse Teacher Training College, this study contributes to regional discussions on how educational technologies can advance equity, quality, and inclusivity in secondary education.

Research Methodology

Population and Sample

The target population for this study comprised Grade 9 students enrolled at the Demonstration Secondary School, Pakse Teacher Training College, totaling 284 students, including 130 female students. A census sampling approach was used, involving the entire population of 284 Grade 9 students directly engaged in the classroom action research cycles. This comprehensive inclusion within the designated grade level ensured a robust and comprehensive representation of learners for the systematic analysis of media integration in geography teaching.

Data Collection

Data collection was executed through two primary research instruments designed to capture both subjective perceptions and objective academic outcomes:

- 1) **Structured Questionnaire:** The questionnaire comprised two essential sections. The first section gathered demographic information from the respondents. The second section examined the deployment of instructional media across seven key dimensions: (a) organization of teaching and learning activities, (b) preparation of instructional media by teachers and students, (c) teachers' application of instructional media during instruction, (d) types of instructional media employed, (e) techniques for using instructional media, (f) students' satisfaction with teachers' use of instructional media, and (g) assessment and evaluation practices. This instrument adopted a five-point Likert scale to systematically and quantitatively measure respondents' perceptions, ranging from 1 (very low emphasis) to 5 (very high emphasis).
- 2) **Academic Score-Recording Form:** A dedicated score-recording form was utilized parallelly to document and track students' learning outcomes and academic performance across the action research cycles.

Data Analysis

The quantitative data obtained from the instruments were processed and analyzed using SPSS for Windows, facilitating a meticulous descriptive analysis to evaluate classroom activities, media preparation, and learner satisfaction. Descriptive statistics, including frequency distributions, percentages, means, and standard deviations, were generated to summarize the

data. Frequencies (F), percentages (P), and total sample size (N) described the respondents' demographic profiles, with percentages calculated using the standard formula:

$$P = \frac{F}{N} \times 100$$

In analyzing the integration of instructional media into geography teaching, the mean ($\bar{X}$) was calculated using the formula:

$$\bar{X} = \frac{\sum fx}{N}$$

where $\sum fx$ represents the sum of frequencies multiplied by score values, and N represents the total number of participants. The variability of responses was examined using the standard deviation (σ), calculated as:

$$\sigma = \sqrt{\frac{n(\sum_{i=1}^n f_i x_i^2) - (\sum_{i=1}^n f_i x_i)^2}{n(n-1)}}$$

where f denotes frequency, x the score level, and n the total number of cases. These calculations provided a detailed understanding of central tendency and dispersion, which are essential for interpreting learner and teacher perspectives on the use of instructional media in geography education (Field, 2018; Pallant, 2020).

The analysis of mean scores and standard deviations was conducted to interpret the extent of emphasis on the use of instructional media, where mean scores between 4.51 and 5.00 indicated very high emphasis, 3.51-4.50 indicated high emphasis, 2.51-3.50 indicated moderate emphasis, 1.51-2.50 indicated low emphasis, and 1.00-1.50 indicated very low emphasis.

Research Ethics

The study was conducted with strict adherence to ethical standards governing research involving human subjects. Prior to administration, formal permission was secured from the institutional administrations of the Demonstration Secondary School and the Pakse Teacher Training College. Informed consent was obtained from participating students and their legal guardians, ensuring that participation was entirely voluntary and that respondents retained the right to withdraw at any time without incurring pedagogical or academic penalties. To protect participant privacy, all data gathered via questionnaires and academic score-recording forms were strictly anonymized, treated with the utmost confidentiality, and used exclusively for aggregate academic analysis in this research.

Research Results

Organization of Teaching and Learning Activities

The results presented in Table 1 show that teachers demonstrated a high level of effectiveness in organizing teaching and learning activities in Grade 9 geography classes. Instruction was generally well-structured, with clear lesson introductions, logical content sequencing, and deliberate connections between students' prior knowledge and new learning. These practices indicate a strong focus on instructional clarity and lesson coherence. However, comparatively less emphasis was placed on strategies that promote student creativity, independent inquiry, and alternative forms of lesson summarization. This suggests a predominantly teacher-centered approach, in which instructional organization prioritizes content delivery over student-led exploration. Overall, the findings highlight effective classroom organization and reveal opportunities to strengthen learner autonomy through more creative instructional practices.

Table 1 Instructional activity organization.

Item	Question contents	Mean ($\bar{X}$)	SD	Interpretation
1	The teacher presents the learning objectives to students	4.55	0.71	Very high
2	The teacher creates a classroom atmosphere that motivates engagement in new lessons	4.36	0.67	High
3	The teacher introduces lessons by designing activities that stimulate interest	4.52	0.67	Very high
4	The teacher appropriately allocates key information on the board	4.59	0.69	Very high
5	The teacher connects prior knowledge with new knowledge	4.61	0.51	Very high
6	The teacher uses role-play or examples to explain the lesson	4.39	0.60	High
7	The teacher integrates media into teaching	4.31	0.61	High
8	The teacher incorporates personal ideas into activities	4.23	0.71	High
9	The teacher provides opportunities for students to express their opinions about activities	4.35	0.56	High
10	The teacher considers individual student opinions in group discussions	4.28	0.60	High
11	The teacher summarizes the students' opinions	4.28	0.81	High
12	The teacher encourages students to search for answers independently	4.41	0.76	High
13	The teacher promotes student creativity and originality	4.18	0.93	High
14	The teacher allows students to summarize content, regardless of accuracy	4.27	0.75	High
15	The teacher summarizes lessons using visual diagrams	4.16	0.93	High
Overall		4.36	0.69	High

Teachers' Preparation and Use of Instructional Media

As shown in Table 2, students perceived both the preparation and classroom use of instructional media in Grade 9 geography instruction to be consistently high. This finding suggests that teachers not only invested effort in preparing media aligned with lesson objectives but also applied these resources effectively during instruction. The close alignment between preparation and use indicates coherence between planning and classroom practice, reflecting systematic integration of instructional media rather than sporadic or incidental use. Overall, the results imply that instructional media functioned as a regular and purposeful component of teaching and learning, supporting lesson delivery, student engagement, and instructional clarity.

Table 2 Teachers' preparation and use of instructional media in Grade 9 geography teaching

No.	Dimension	Mean ($\bar{X}$)	SD	Interpretation
1	Preparation of instructional media by teachers	4.20	0.66	High
2	Use of instructional media in teaching and learning	4.33	0.69	High
Overall		4.27	0.68	High

Types of Instructional Media Used in Geography Teaching

The results presented in Figure 1 show that geography teachers employed a wide range of instructional media, with visual and contextual resources used more frequently than electronic media. Materials such as globe models, maps, brochures, library visits, museums, and science exhibitions were commonly integrated into classroom instruction, indicating a strong emphasis on concrete and experiential learning. In contrast, the use of electronic media was more variable. While digital tools such as mobile phones, computers, and LCD projectors were regularly utilized, traditional electronic devices and scientific measuring instruments were used only moderately or infrequently. Overall, the findings suggest that geography instruction relied more heavily on visual and contextual media, with comparatively limited integration of electronic and technology-based resources.

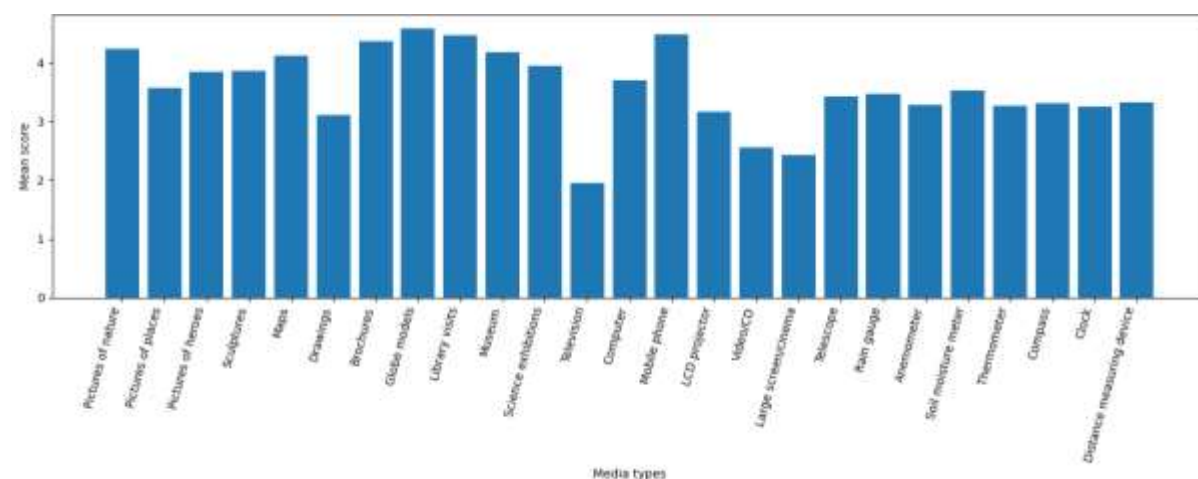


Figure 1 Types of instructional media used by geography teachers

Instructional Media Usage Techniques and Assessment Practices

Figure 2 illustrates teachers' use of instructional media and assessment practices in Grade 9 geography classes. Overall, the findings indicate that instructional media were applied effectively throughout the teaching-learning process, from lesson delivery to assessment. Teachers commonly use media to enhance clarity, stimulate student participation, encourage discussion, and support critical thinking during instruction. In assessment, media were most strongly integrated into formal evaluation activities, such as midterm and final examinations, as well as ongoing assessment and lesson review. In contrast, the use of media specifically for lesson summarization appeared comparatively weaker, suggesting a gap between instructional delivery and reflective consolidation of learning. Taken together, the results demonstrate that instructional media played a substantial role in both pedagogy and assessment, while highlighting opportunities to strengthen their use for synthesis and reflective learning.

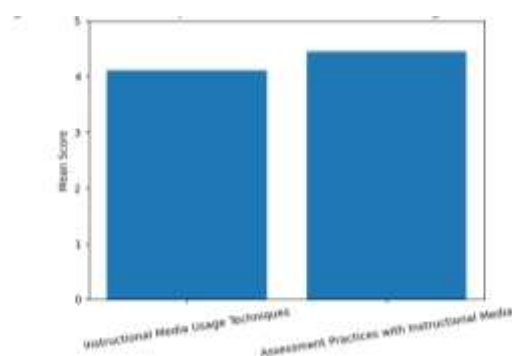


Figure 2 Teachers' techniques and assessment practices in using instructional media

Student Satisfaction and Promotion of Instructional Media Use

As presented in Table 3, students reported high satisfaction with teachers' use of instructional media in Grade 9 geography classes, alongside a similarly high level of overall promotion of instructional media use within the school. This indicates that instructional media were not only well received by students but were also consistently supported across teaching, learning, and assessment practices. The alignment between student satisfaction and institutional promotion suggests that media use was perceived as meaningful and beneficial rather than superficial or occasional. Overall, the findings highlight the positive role of instructional media in enhancing learning experiences and reinforce the importance of sustained support for their continued integration in geography education.

Table 3 Student satisfaction and overall promotion of instructional media use in Grade 9 geography teaching

No.	Dimension	Mean ($\bar{X}$)	SD	Interpretation
1	Students' satisfaction with teachers' use of instructional media	4.11	0.75	High
2	Overall promotion of instructional media use in geography teaching	4.10	0.73	High
Overall		4.11	0.74	High

Conclusion and Discussion

Instructional Media and Cognitive Learning Principles

The findings indicate that teachers used instructional media effectively, particularly for linking prior knowledge to new content, organizing information clearly on the board, and delivering engaging lesson introductions. These practices align with multimedia learning theory, which emphasizes that connecting new information to existing mental models enhances comprehension and retention (Mayer, 2021). Clear structuring of content through media also reflects effective management of cognitive load, enabling efficient processing of essential information (Sweller et al., 2011). However, lower scores for fostering creativity and using visual summaries suggest limited application of generative and multimodal strategies. Previous research shows that instructional media are often used for information transmission rather than to support divergent thinking or inquiry-based learning (Kozma, 2003; Ertmer & Ottenbreit-Leftwich, 2010). This contrasts with evidence that visual and diagrammatic representations enhance cognitive organization and long-term retention (Paivio, 2007; Moreno & Mayer, 2007). Overall, instructional media use remains predominantly teacher-centered, supporting content clarification more than student innovation (Jonassen, 1999; Voogt & Roblin, 2012).

Integration and Challenges of Instructional Media in Geography Teaching

The findings indicate a high level of promotion of instructional media in Grade 9 geography classes, suggesting strong recognition of its value for teaching and learning at the Demonstration Secondary School and the Pakse Teacher Training College. Within the established interpretation criteria, assessment practices demonstrated a consistently high level of integration, aligning with evidence that multimedia-supported assessment enhances understanding and formative feedback (Kay & LeSage, 2009). The high score for organizing teaching and learning activities reflects effective lesson structuring and student engagement, consistent with studies on media-supported active learning (Mayer, 2021; Molnar & Kearney, 2017). Visual media and educational sites were also widely used, supporting spatial thinking in geography education (Kerski, 2015). In contrast, electronic media use was moderate, reflecting challenges such as limited infrastructure and teacher preparedness (Tondeur et al.,

2019). Targeted professional development and infrastructure support are therefore essential to advance digital integration (Organization for Economic Co-operation and Development, 2021).

Regional Perspectives in Asian Education Contexts

The findings align with evidence from other developing Asian education contexts, in which shared structural and pedagogical constraints shape the integration of instructional media. Countries such as Vietnam, Cambodia, Myanmar, and Lao PDR face limited digital infrastructure, uneven teacher digital literacy, and persistent teacher-centered traditions (United Nations Educational, Scientific and Cultural Organization, 2024; United Nations Children's Fund, 2024). Consequently, instructional media are often adopted in pragmatic, low-cost forms, emphasizing visual materials and mobile technologies over advanced digital platforms. Comparative studies from Cambodia, Myanmar, and Vietnam highlight the importance of leadership capacity, teacher professional development, and policy alignment in shaping implementation outcomes (Oo et al., 2025). As in the present study, instructional media primarily support content delivery and assessment, while student-generated, inquiry-based, and creative media use remains limited. These findings underscore the need for context-sensitive, capacity-focused regional strategies to support sustainable and equitable educational reform across ASEAN (United Nations Educational, Scientific and Cultural Organization, 2024; Oo et al., 2025).

Implications for Sustainable Development

This study demonstrates that integrating instructional media into geography education has significant implications for sustainable development, particularly in terms of educational quality, community engagement, and environmental awareness. Enhanced student engagement, satisfaction, and learning outcomes directly support Sustainable Development Goal 4 (Quality Education) by promoting inclusive, equitable, and effective learning, especially in resource-constrained contexts (United Nations Educational, Scientific and Cultural Organization, 2017; United Nations, 2015). Media-supported, student-centered instruction addresses diverse learning needs and improves conceptual understanding, consistent with evidence that multimedia tools reduce cognitive load and promote deeper learning (Mayer, 2021). The findings also align with SDG 11 (Sustainable Cities and Communities) by emphasizing locally grounded geography instruction that fosters place-based learning, spatial awareness, and community responsibility (Kerski, 2015; United Nations Educational, Scientific and Cultural Organization, 2020). Moreover, enhanced use of visual and interactive media supports SDG 13 (Climate Action) by strengthening climate literacy and students' understanding of environmental processes and sustainability challenges (Organization for Economic Co-operation and Development, 2021; United Nations Educational, Scientific and Cultural Organization, 2017).

Limitations and Future Research

Several limitations should be considered when interpreting this study's findings. First, the research was confined to Grade 9 geography classes at a single institution, the Demonstration Secondary School, Pakse Teacher Training College, limiting the generalisability to other contexts, subjects, or educational levels. Future studies should include multiple institutions and comparative settings to broaden applicability (Creswell & Creswell, 2018). Second, reliance on teacher- and student-reported perceptions may introduce social desirability bias and self-report bias (Podsakoff et al., 2012). Employing mixed-methods designs that integrate observations, learning analytics, and performance-based measures would strengthen validity through data triangulation (Johnson & Onwuegbuzie, 2004). Third, the cross-sectional design does not capture changes in instructional media use over time. Longitudinal research could illuminate how practices evolve in response to professional development and technological change (Voogt et al., 2013). Finally, low electronic media use suggests unresolved

infrastructural and pedagogical barriers that warrant systematic investigation (Tondeur et al., 2019).

In conclusion, this classroom action research demonstrates that the strategic integration of instructional media in Grade 9 geography classrooms at the Demonstration Secondary School, Pakse Teacher Training College, serves as an effective pedagogical catalyst. The empirical evidence indicates that while traditional visual tools and teacher-prepared resources are deeply embedded and highly effective in clarifying spatial concepts, managing cognitive load, and enhancing learner engagement, a noticeable pedagogical gap persists in optimizing digital and electronic media. The current paradigm remains predominantly teacher-centered, focusing heavily on content transmission and formal assessment rather than fostering critical inquiry or student-led knowledge creation. To transcend these instructional boundaries and align with national competency-based curriculum goals, educational stakeholders must invest in targeted, professional development programs that enhance teachers' digital literacy and pedagogical agility. Ultimately, bridging the gap between traditional and digital media will not only modernize geography education in Lao PDR but also provide a scalable model for fostering inclusive, high-quality education and digital capacity building across resource-constrained educational environments in the ASEAN region.

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