IGNATIAN
INTERNATIONAL JOURNAL FOR MULTIDISCIPLINARY RESEARCH
www.icceph.com
ISSN 2984-9942

TEACHING STRATEGIES, INSTRUCTIONAL RESOURCE ADEQUACY, AND STUDENT ENGAGEMENT IN PHILIPPINE PRIMARY EDUCATION: A CONVERGENT MIXED-METHODS STUDY

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ABSTRACT

This study examined the relationships among teaching strategies, instructional resource adequacy, and student engagement in Music, Arts, Physical Education, and Health (MAPEH) in public primary schools in Tandag II District, Philippines, during the Academic Year 2025-2026. A convergent parallel mixed-methods design was employed, involving 19 MAPEH teachers and 552 Grade 6 students in the quantitative component, alongside semi-structured interviews with 16 MAPEH coordinators and 22 selected students. Quantitative data were analyzed using weighted means and Pearson product–moment correlations, while qualitative responses underwent thematic analysis. Findings indicated that teaching strategies were rated very effective, particularly learner-centered, activity-based, play-based, inquiry-based, and technology-assisted approaches. Instructional materials and facilities were generally rated less adequate, with music resources identified as the most limited. Student engagement was rated very high across behavioral, emotional, and cognitive dimensions. Significant positive relationships were observed between teaching strategies and engagement among teachers ($r = .567$, $p = .011$) and students ($r = .191$, $p = .001$), as well as between resource adequacy and engagement among teachers ($r = .554$, $p = .014$) and students ($r = .227$, $p = .001$). Qualitative findings highlighted funding constraints, insufficient instructional time, and limited access to updated materials. The study underscores the importance of pedagogical innovation and equitable resource provision in supporting student engagement in performance-based primary education.

Keywords: *teaching strategies, instructional resource adequacy, student engagement, MAPEH education, mixed-methods research, Philippine primary education*

INTRODUCTION

Student engagement has become a central concern in contemporary primary education because meaningful learning requires more than students' physical presence in the classroom. Effective instruction encourages learners to participate actively, develop positive attitudes toward learning, and invest cognitive effort in understanding and applying knowledge. These dimensions are particularly important in performance-based subjects, where learning occurs through demonstration, experimentation, collaboration, and practical application. Wong et al. (2024), in a systematic review and meta-analysis involving 137 studies and 158,510 participants, examined behavioral, affective, and cognitive engagement and their associations with academic achievement and subjective well-being. Their findings established the multidimensional nature of engagement and reinforced the importance of examining students' participation, emotional involvement, and cognitive investment as interconnected aspects of educational experiences. This perspective provides a foundation for understanding engagement in Music, Arts, Physical Education, and Health (MAPEH), where learners are expected to demonstrate physical, creative, social, and intellectual competencies.

MAPEH occupies a distinctive position in Philippine basic education because it integrates artistic expression, cultural appreciation, physical development, and health literacy within a multidisciplinary learning area. Unlike subjects primarily organized around conceptual instruction, MAPEH requires opportunities for experiential learning, movement, performance, creativity, and collaborative participation. Consequently, instructional effectiveness depends substantially on teachers' ability to select appropriate pedagogical approaches that accommodate learners' interests, developmental characteristics, and available learning resources. Traditional approaches, including lectures and textbook-based instruction, may provide foundational knowledge; however, their effectiveness in performance-oriented activities may depend on their integration with demonstrations, guided practice, group activities, and meaningful learning tasks. The increasing emphasis on learner-centered education therefore highlights the importance of examining how different teaching strategies relate to students' engagement in MAPEH classrooms.

Recent educational research has emphasized the potential of active and playful pedagogical approaches to support meaningful learning in primary education. Li and Kangas (2024), through a systematic literature review of 21 empirical studies, identified planning, orientation, playing, and elaboration as important phases of teachers' pedagogical activities in playful learning environments. Their findings highlighted teachers' roles in designing learning experiences, facilitating participation, encouraging curiosity, and guiding students' reflection. These insights are relevant to MAPEH instruction, where activity-based, play-based, and inquiry-based approaches can provide opportunities for students to explore concepts and develop skills through direct participation. Such approaches may also create classroom conditions that encourage cooperation, creativity, and sustained attention. Nevertheless, their successful implementation requires careful instructional planning and alignment between learning objectives, teaching activities, and assessment practices.

Within physical education, the relationship between instructional approaches and student engagement has received increasing scholarly attention. Lerio (2025), in a systematic review of 45 studies, identified autonomy-supportive teaching, technology integration, gamification, peer teaching, goal-setting, and culturally responsive instruction as approaches associated with student participation, motivation, and performance. The review particularly emphasized the importance of instructional practices that provide meaningful choices, encourage collaboration, and respond to learners' developmental needs. These findings suggest that pedagogical effectiveness in MAPEH may depend not simply on the frequency with which particular strategies are employed but also on how teachers implement them to create inclusive and engaging learning environments. Activity-based and collaborative strategies may be especially relevant because they enable learners to demonstrate skills, interact with classmates, and participate in authentic learning experiences. However, the extent to which these approaches are associated with behavioral, emotional, and cognitive engagement in resource-constrained Philippine primary schools requires further contextual investigation.

Beyond pedagogical practices, the availability and adequacy of instructional materials and facilities represent important conditions for effective classroom implementation. MAPEH instruction frequently requires specialized resources, including musical instruments, art materials, sports equipment, health education materials, appropriate activity spaces, and digital learning tools. Insufficient resources may restrict the range of activities teachers can implement and limit students' opportunities for direct participation. Conversely, adequate and accessible materials may support varied demonstrations, differentiated instruction, and performance-based learning. These considerations suggest that instructional resource adequacy should be examined alongside teaching strategies rather than treated as an unrelated institutional concern. Understanding both factors may provide a more comprehensive explanation of the classroom conditions associated with student engagement.

The integration of digital technologies has introduced additional possibilities for enhancing instructional delivery in MAPEH. Multimedia demonstrations, interactive learning applications, instructional videos, and digital assessment tools may provide alternative ways to present concepts and encourage participation. However, technology integration does not automatically guarantee meaningful learning. The United Nations Educational, Scientific and Cultural Organization (UNESCO, 2023) emphasized that educational technologies should be evaluated in relation to their relevance, equity, effectiveness, and sustainability. Its Global Education Monitoring Report highlighted the importance of ensuring that technology supports rather than replaces meaningful teacher–student interaction. In MAPEH, this distinction is particularly important because digital resources may enrich demonstrations and instructional explanations, but students still require opportunities for physical practice, artistic production, collaboration, and experiential learning. Thus, the educational value of technology-assisted instruction depends on appropriate pedagogical integration and the availability of supporting infrastructure.

Contemporary evidence also suggests that innovative instructional models can strengthen students' motivational experiences in physical education. Cano-Cañada et al.

(2025), in a systematic review and meta-analysis, found that student-centered pedagogical models had a positive overall effect on novelty satisfaction, although the included studies demonstrated substantial heterogeneity. Their findings indicate that varied instructional experiences may support students' interest and motivation, while also highlighting the importance of implementation quality and contextual differences. These observations are relevant to MAPEH because the subject requires teachers to sustain engagement across activities that differ considerably in content, instructional demands, and resource requirements. The effectiveness of innovative strategies may therefore vary according to classroom conditions, teacher preparation, learner characteristics, and the accessibility of appropriate materials.

In the Philippine educational context, the Enhanced Basic Education Act of 2013 (Republic Act No. 10533) provides a policy foundation for learner-centered and developmentally appropriate instruction. Similarly, Department of Education policies emphasize the importance of performance-based assessment, varied teaching approaches, and meaningful learning experiences. Despite these policy directions, the implementation of engaging MAPEH instruction may be constrained by limited instructional materials, inadequate facilities, competing curricular demands, and differences in teachers' access to professional development opportunities. These challenges are particularly relevant to public primary schools, where instructional practices must frequently be adapted to existing resources. Consequently, understanding how teachers employ different instructional strategies and how students respond to these practices is important for strengthening the quality and inclusiveness of MAPEH education.

In Tandag II District, Tandag City, Surigao del Sur, the thesis identified a need for localized empirical evidence concerning MAPEH teaching strategies, instructional resource adequacy, and Grade 6 students' learning engagement. Although existing literature provides insights into learner-centered instruction, playful learning, technology integration, and physical education pedagogy, these findings do not necessarily explain how instructional strategies and available resources relate to engagement within the district's public primary schools. Furthermore, the integration of Music, Arts, Physical Education, and Health into a single learning area creates instructional conditions that may not be fully represented in studies focusing exclusively on physical education or other individual disciplines. This contextual gap underscores the value of examining teaching practices and resource conditions together while considering students' behavioral, emotional, and cognitive engagement.

The present study addresses this gap by investigating the relationships among teaching strategies, instructional resource adequacy, and student engagement in MAPEH among public primary schools in Tandag II District. Specifically, it examines the perceived effectiveness of lecture, textbook-based, teacher-centered, learner-centered, activity-based, play-based, inquiry-based, and technology-assisted teaching strategies; evaluates the adequacy of instructional materials and facilities across the MAPEH components; and assesses students' behavioral, emotional, and cognitive engagement. It further determines the statistical relationships between instructional practices, resource adequacy, and engagement and explores the challenges encountered by teachers and

students in implementing and experiencing MAPEH instruction. Using a convergent parallel mixed-methods design, the study integrates quantitative assessments with qualitative accounts to develop a contextualized understanding of classroom experiences.

The study contributes to the literature by examining instructional practices and material conditions within a multidisciplinary, performance-based learning area in Philippine primary education. Its contribution lies in combining teacher and student perspectives with qualitative evidence to illuminate how pedagogical approaches and resource availability are associated with student engagement. Rather than assuming that particular teaching strategies produce direct causal effects, the investigation identifies relationships and contextual conditions that may inform instructional improvement. The findings are intended to support evidence-informed professional development, instructional resource planning, and the formulation of a context-responsive MAPEH intervention program. More broadly, the study seeks to contribute to international discussions on equitable access to engaging, learner-centered, and resource-supported primary education.

Research Questions

This study aimed to examine the relationships among teaching strategies, instructional resource adequacy, and student engagement in Music, Arts, Physical Education, and Health (MAPEH) among public primary schools in Tandag II District, Philippines. Specifically, it sought to answer the following research questions:

1. What is the perceived effectiveness of MAPEH teaching strategies in terms of lecture, textbook-based, teacher-centered, learner-centered, activity-based, play-based, inquiry-based, and technology-assisted approaches?
2. What is the level of adequacy of instructional materials and facilities for Music, Arts, Physical Education, Health, and digital or ICT-supported instruction?
3. What is the perceived level of student engagement in MAPEH in terms of behavioral, emotional, and cognitive dimensions?
4. Is there a significant relationship between the perceived effectiveness of teaching strategies and student engagement in MAPEH?
5. Is there a significant relationship between instructional resource adequacy and student engagement in MAPEH?
6. What challenges do MAPEH teachers and students encounter in implementing and participating in instructional activities?
7. How do the qualitative findings corroborate, complement, or explain the quantitative results concerning teaching strategies, instructional resources, and student engagement?
8. What evidence-based intervention program can be proposed to strengthen MAPEH teaching strategies, improve instructional resource adequacy, and enhance student engagement?

METHODOLOGY

This study employed a convergent parallel mixed-methods research design integrating quantitative and qualitative approaches to examine the relationships among teaching strategies, instructional resource adequacy, and student engagement in Music, Arts, Physical Education, and Health (MAPEH). The quantitative component utilized a descriptive-correlational design to assess the perceived effectiveness of teaching strategies, the adequacy of instructional materials and facilities, and students' behavioral, emotional, and cognitive engagement. The qualitative component adopted a descriptive approach using semi-structured interviews to explore participants' experiences and challenges related to MAPEH instruction. Both datasets were analyzed separately and subsequently integrated to identify convergent and divergent findings, providing a comprehensive understanding of the instructional conditions associated with student engagement.

The study was conducted during School Year 2025–2026 in 16 public elementary schools in Tandag II District, Schools Division of Tandag City, Surigao del Sur, Philippines. The quantitative component involved 571 respondents, comprising 19 MAPEH teachers and 552 Grade 6 students. Complete enumeration was employed to include all MAPEH teachers and Grade 6 students in the participating schools. For the qualitative component, purposive sampling was utilized to select 16 MAPEH coordinators and 22 Grade 6 students. One MAPEH coordinator and one Grade 6 student were selected from each school, while six additional students were selected from schools with larger Grade 6 enrollment. The tiered purposive sampling procedure provided representation across participating schools while allowing the inclusion of students with varied learning experiences.

Data were collected using researcher-developed survey questionnaires and semi-structured interview guides. Separate but parallel questionnaires were administered to teachers and students, with statements adapted to their respective roles and levels of comprehension. The instruments assessed the perceived effectiveness of lecture, textbook-based, teacher-centered, learner-centered, activity-based, play-based, inquiry-based, and technology-assisted teaching strategies. Instructional resource adequacy was evaluated in terms of materials and facilities for Music, Arts, Physical Education, Health, and digital or ICT-supported instruction. Student engagement was measured through behavioral, emotional, and cognitive dimensions. Responses were obtained using a five-point Likert scale, while semi-structured interviews explored instructional practices, resource limitations, participation experiences, and challenges encountered in MAPEH classes.

The research instruments underwent content validation by three experts, comprising a MAPEH supervisor from the Schools Division Office and two Master Teachers specializing in MAPEH instruction. The validators evaluated the clarity, relevance, appropriateness, and alignment of the questionnaire items and interview questions with the research objectives. Their recommendations were incorporated into the revised instruments. Pilot testing was subsequently conducted among MAPEH

teachers and Grade 6 students from schools outside the study population to assess instrument clarity, usability, and internal consistency. Cronbach's alpha was identified as the reliability measure, with a coefficient of .70 or higher considered acceptable. However, the specific reliability coefficients should be reported in the final journal manuscript after verification against the original reliability analysis.

Before data collection, the researcher secured permission from the Schools Division Superintendent, District Supervisor, and school heads of the participating institutions. Following approval, validated questionnaires were personally administered to the identified teacher and student respondents using standardized instructions. Completed questionnaires were collected and organized for quantitative analysis. Semi-structured interviews were also conducted with the selected MAPEH coordinators and Grade 6 students to obtain contextual information concerning teaching practices, resource availability, learning engagement, and instructional challenges. The quantitative and qualitative data were collected within the same research period to support their subsequent integration.

Quantitative data were analyzed using descriptive and inferential statistical procedures. Weighted means were computed to determine the perceived effectiveness of teaching strategies, the adequacy of instructional resources, and the level of student engagement. Teacher and student responses were analyzed separately, and a combined average weighted mean was calculated by averaging the two respondent-group means to provide an equally weighted comparison of their perspectives. Pearson's product–moment correlation coefficient was employed to examine the relationships between teaching strategies and student engagement and between instructional resource adequacy and student engagement. Statistical significance was evaluated at the .05 level. The relationships were interpreted as associations rather than evidence of causation because the study employed a nonexperimental research design.

Qualitative interview data were analyzed using thematic analysis to identify recurring patterns in participants' experiences and perceptions. Responses were examined and organized into meaningful categories, from which themes and subthemes concerning instructional challenges, resource limitations, teaching practices, and student engagement were developed. The qualitative findings were subsequently compared with the quantitative results through a corroboration matrix. This integration enabled the identification of areas of convergence, complementarity, and divergence between the statistical findings and participants' experiences. The combined evidence served as the basis for developing a proposed intervention program intended to strengthen instructional practices, improve resource provision, and enhance student engagement in MAPEH.

RESULTS

Table 1

Perceived Effectiveness of MAPEH Teaching Strategies as Rated by Teachers and Students

Teaching strategy	Teachers M	Students M	Combined M	Rank
Lecture	4.26	4.81	4.53	2
Textbook use	4.12	4.65	4.38	8
Teacher-centered	4.30	4.67	4.48	4.5
Learner-centered	4.23	4.68	4.45	6
Activity-based	4.38	4.80	4.59	1
Play-based	4.31	4.66	4.48	4.5
Inquiry-based	4.22	4.60	4.41	7
Technology-assisted	4.32	4.67	4.50	3
Overall	4.27	4.69	4.48	—

Note. M = mean. Teacher respondents (n = 19); student respondents (n = 552).

Table 2

Adequacy of MAPEH Instructional Materials and Facilities as Rated by Teachers and Students

Resource component	Teachers M	Students M	Combined M	Interpretation
Music	3.21	2.76	2.99	Less Adequate
Arts	3.38	3.34	3.36	Less Adequate
Physical Education	3.37	3.23	3.30	Less Adequate
Health	3.37	3.49	3.43	Adequate
Digital/ICT materials and facilities	3.69	4.01	3.85	Adequate
Overall	3.40	3.37	3.39	Less Adequate

Note. M = mean.

Table 3

Perceived Student Engagement Across Behavioral, Emotional, and Cognitive Dimensions

Engagement dimension	Teachers M	Students M	Combined M	Interpretation
Behavioral engagement	4.11	4.61	4.36	Very High Impact
Emotional engagement	4.21	4.67	4.44	Very High Impact
Cognitive engagement	4.20	4.65	4.43	Very High Impact
Overall	4.17	4.64	4.41	Very High Impact

Note. M = mean.

Table 4

Pearson Correlations Between Perceived Teaching Strategy Effectiveness and Student Engagement

Respondent group	n	r	p	Decision
Teachers	19	.567	.011	Significant
Students	552	.191	.001	Significant

Note. r = Pearson product–moment correlation coefficient. Significance was evaluated at α = .05.

Table 5

Pearson Correlations Between Instructional Resource Adequacy and Student Engagement

Respondent group	n	r	p	Decision
Teachers	19	.554	.014	Significant
Students	552	.227	.001	Significant

Note. r = Pearson product–moment correlation coefficient. Significance was evaluated at α = .05.

Table 6

Major Challenges Encountered by MAPEH Teachers in Implementing Instructional Strategies

Challenge indicator	M	Rank	Interpretation
Inadequate funding for field trips, performances, and extracurricular activities	4.42	1	Very Significant
Insufficient instructional time	4.37	2.5	Very Significant
Lack of updated instructional resources and equipment	4.37	2.5	Very Significant
Limited instructional materials	4.32	6	Very Significant

Inadequate training in innovative teaching strategies	4.32 6	Very Significant
Difficulty sustaining students' interest	4.32 6	Very Significant
Limited professional collaboration	4.32 6	Very Significant
Students' lack of motivation in certain MAPEH components	4.32 6	Very Significant
Overall challenge rating (all 15 items)	4.21 —	Very Significant

Note. M = mean.

Table 7

Qualitative Themes on Challenges Experienced by MAPEH Teachers and Students

Participant group	Emerging theme	Principal subthemes
Teachers	Instructional friction	Material scarcity, ICT accessibility gaps, pedagogical improvisation
Teachers	Structural strain	Large classes, compressed instructional time, reduced individual attention
Teachers	Professional tension	Limited training opportunities, diverse learner needs, challenges sustaining innovative instruction
Students	Performance difficulty	Difficulty performing routines, limited confidence, need for repeated demonstrations
Students	Resource limitations	Shared equipment, inadequate facilities, restricted access to learning tools
Students	Adjustment challenges	Fatigue, time pressure, difficulty sustaining focus during performance tasks

Table 8

Joint Display of Quantitative and Qualitative Findings on MAPEH Instruction and Student Engagement

Research dimension	Quantitative findings	Qualitative findings	Integration
Teaching strategies	Very Effective (M = 4.48); activity-based highest (M = 4.59)	Participants valued interactive activities, demonstrations, and repeated practice	Convergence
Instructional resource adequacy	Less Adequate (M = 3.39); Music lowest (M = 2.99)	Equipment shortages, sharing of materials, and limited facilities	Convergence

Student engagement	Very High Impact (M = 4.41); emotional engagement highest (M = 4.44)	Enjoyment and willingness to participate, alongside difficulties sustaining focus and completing tasks	Complementarity
Instructional challenges	Very Significant (M = 4.21); inadequate funding highest (M = 4.42)	Resource shortages, limited time, large classes, and insufficient professional support	Convergence

Table 9

Proposed Areas for a Context-Responsive MAPEH Intervention Program

Priority area	Proposed intervention	Intended outcome
Teacher professional development	Training in activity-based, learner-centered, inquiry-based, and technology-assisted instruction	Strengthened instructional competence
Instructional resource provision	Resource mobilization and provision of essential MAPEH equipment	Improved access to learning materials
Music and Arts instruction	Acquisition or development of musical instruments and creative learning materials	Expanded performance-based learning opportunities
Digital learning integration	ICT training and improved access to digital instructional resources	More purposeful technology integration
Instructional time management	Improved lesson planning, activity scheduling, and performance-task organization	More efficient use of instructional time
Student engagement	Differentiated activities, peer collaboration, demonstrations, and guided practice	Sustained behavioral, emotional, and cognitive engagement
Monitoring and evaluation	Classroom observation, feedback, and periodic assessment of implementation	Evidence-informed instructional improvement

DISCUSSION

The present study examined the relationships among teaching strategies, instructional resource adequacy, and student engagement in Music, Arts, Physical Education, and Health (MAPEH) among public primary schools in Tandag II District, Philippines. The findings demonstrated that teaching strategies were generally perceived as highly effective, while instructional materials and facilities were comparatively inadequate. Students nevertheless reported high levels of behavioral, emotional, and cognitive engagement. Significant positive relationships were identified between teaching strategies and engagement and between instructional resource adequacy and engagement. The qualitative findings further revealed constraints involving funding,

instructional time, equipment, and professional support. These findings suggest that student engagement in MAPEH is associated with both pedagogical practices and the material conditions supporting their implementation.

The first research objective assessed the perceived effectiveness of MAPEH teaching strategies. The findings indicated that the teaching strategies were rated Very Effective overall (M = 4.48), with activity-based instruction obtaining the highest combined mean (M = 4.59), followed by lecture (M = 4.53) and technology-assisted instruction (M = 4.50). Textbook-based instruction received the lowest mean (M = 4.38), although it remained within the same descriptive category. These results suggest that teachers and students generally viewed the instructional approaches positively, particularly those involving active participation and structured learning activities. Zhang et al. (2024), in a systematic review of hybrid pedagogical models in physical education, found that combining instructional models could support students' learning outcomes when implemented coherently. Their findings emphasize the importance of integrating complementary teaching approaches rather than relying exclusively on a single instructional method. Similarly, the present findings suggest that MAPEH instruction may benefit from combining teacher explanations, demonstrations, collaborative activities, and experiential learning. However, the ratings represent participants' perceptions of instructional effectiveness rather than direct experimental evidence of improved achievement.

The relatively high ratings for activity-based, play-based, and technology-assisted instruction also highlight the importance of creating learning environments that encourage participation and motivation. These approaches are particularly relevant to MAPEH because students are expected to demonstrate physical skills, artistic creativity, collaborative behaviors, and practical understanding. Ramírez Ruiz et al. (2024), in a systematic review of gamification and school engagement, emphasized that game-based instructional approaches can support students' motivation and participation, while also noting the importance of examining engagement beyond isolated motivational outcomes. Their findings provide a useful perspective for interpreting the present results because play-based activities in MAPEH may encourage enjoyment and classroom participation without necessarily producing equivalent improvements in every dimension of engagement. Consequently, instructional effectiveness should be understood in relation to the quality of learning activities, their alignment with educational objectives, and their capacity to support meaningful participation.

The second research objective examined the adequacy of MAPEH instructional materials and facilities. The findings revealed an overall rating of Less Adequate (M = 3.39), with Digital/ICT resources receiving the highest mean (M = 3.85) and Music resources obtaining the lowest (M = 2.99). This pattern suggests uneven availability of instructional resources across the four MAPEH components. The relatively limited availability of Music materials is particularly important because effective music instruction may require instruments, appropriate audio resources, and opportunities for practical musical experiences. Palmer and Booth (2024), in their systematic review of music and song as pedagogical tools in elementary science education, identified the potential of

music-based activities to promote student engagement and enrich learning experiences. Although their review focused on science rather than MAPEH, it illustrates the broader educational value of musical experiences in primary education. The present findings therefore highlight the importance of improving access to appropriate musical instruments and learning materials to support experiential instruction. Nevertheless, the study did not directly evaluate whether providing additional resources would improve engagement or achievement.

The findings also revealed that Digital/ICT resources were rated more favorably than several traditional MAPEH resource categories. This result suggests that some schools may have greater access to digital instructional materials than to specialized equipment for music, arts, and physical education. However, the availability of digital tools should not be interpreted as a substitute for practical learning resources. MAPEH requires students to engage in activities involving physical movement, creative production, interpersonal interaction, and hands-on performance. Accordingly, instructional resource planning should consider the specific requirements of each learning component rather than assuming that technology availability alone ensures adequate instructional provision. The findings further suggest that resource allocation decisions should be informed by component-specific assessments, particularly in schools where teachers must adapt activities because of limited equipment.

The third research objective examined students' behavioral, emotional, and cognitive engagement. The findings indicated a Very High overall rating (M = 4.41), with emotional engagement receiving the highest mean (M = 4.44), followed by cognitive engagement (M = 4.43) and behavioral engagement (M = 4.36). These results suggest that students generally expressed positive emotional responses, cognitive involvement, and active participation in MAPEH activities. Saiz-González et al. (2024), through a systematic review and meta-analysis, examined the effects of pedagogical models on students' basic psychological needs in physical education. Their findings indicated that many pedagogical interventions supported autonomy, competence, and relatedness, although some produced mixed or nonsignificant effects. This evidence supports the importance of learning environments that provide opportunities for students to develop confidence, participate meaningfully, and establish positive relationships. The present study extends this perspective by examining engagement across the integrated MAPEH learning area rather than physical education alone.

The relatively high emotional engagement rating may reflect the opportunities for enjoyment, creativity, collaboration, and self-expression associated with MAPEH activities. Students may experience positive emotional involvement when instructional tasks allow them to participate in performances, games, artistic projects, and cooperative learning experiences. However, emotional engagement should not be treated as equivalent to cognitive learning or academic achievement. The findings also indicate favorable cognitive engagement, suggesting that students perceived themselves as involved in understanding, applying, and reflecting on lesson content. These results reinforce the importance of examining engagement as a multidimensional construct rather than relying exclusively on observable participation or student enjoyment.

The fourth research objective investigated the relationship between perceived teaching strategy effectiveness and student engagement. Significant positive correlations were reported among teachers ($r = .567$, $p = .011$) and students ($r = .191$, $p = .001$). The teacher-based correlation indicated a moderate positive association, whereas the student-based correlation indicated a comparatively weak positive association. These findings suggest that respondents who rated teaching strategies more favorably also tended to report higher engagement. Nevertheless, the difference in correlation strength between teachers and students requires careful interpretation because the two groups differed substantially in size and represented distinct perspectives. The results are consistent with the broader literature indicating that instructional approaches may be associated with student motivation, participation, and learning experiences (Zhang et al., 2024). However, the correlational design does not establish that teaching strategies directly caused improvements in engagement.

The fifth research objective examined the relationship between instructional resource adequacy and student engagement. The findings revealed significant positive associations among teachers ($r = .554$, $p = .014$) and students ($r = .227$, $p = .001$). These results indicate that more favorable assessments of instructional resource adequacy were associated with higher engagement ratings. The relationship was moderate among teachers and weak among students, suggesting that resource availability may be perceived differently by those responsible for delivering instruction and those participating in classroom activities. Teachers may be more directly aware of the limitations imposed by insufficient equipment, while students may evaluate engagement primarily through their immediate learning experiences. These findings suggest that instructional resources form part of the broader conditions associated with engagement, although resource availability alone cannot explain differences in students' participation, motivation, or cognitive investment.

The sixth research objective explored challenges encountered in implementing and participating in MAPEH instruction. Teachers reported a Very Significant overall level of challenges ($M = 4.21$), particularly inadequate funding for educational activities ($M = 4.42$), insufficient instructional time ($M = 4.37$), and limited access to updated instructional resources and equipment ($M = 4.37$). Qualitative findings similarly identified material scarcity, ICT accessibility gaps, large classes, limited professional development opportunities, and difficulties accommodating diverse learner needs. These findings indicate that teachers may encounter structural constraints even when they possess the motivation and instructional competence to implement innovative approaches. Such challenges may require teachers to modify performance tasks, share limited equipment, or reduce opportunities for individualized practice.

The qualitative findings also identified student difficulties involving limited equipment, performance confidence, fatigue, and insufficient opportunities for repeated practice. These experiences suggest that students' engagement may depend not only on the attractiveness of instructional activities but also on their opportunities to participate successfully. Maras et al. (2025), in a systematic review of communities of practice in visual arts, highlighted the potential of collaborative artistic experiences to promote

student engagement, belonging, and creative identity. Their review also identified inadequate support and limited project continuity as barriers to successful implementation. These findings provide a relevant perspective for interpreting the present study, particularly the importance of adequate resources, sustained teacher guidance, and collaborative opportunities in creative learning environments. The present findings suggest that resource constraints may limit teachers' ability to provide consistent, inclusive, and meaningful performance-based learning experiences.

The seventh research objective examined the integration of quantitative and qualitative findings. The joint analysis demonstrated convergence between the favorable ratings of teaching strategies and participants' descriptions of interactive instructional experiences. Similarly, the quantitative assessment of instructional resources as Less Adequate was supported by qualitative accounts of equipment shortages, limited facilities, and material sharing. These patterns strengthen the contextual interpretation of the findings because the qualitative accounts provide examples of the instructional conditions reflected in the survey responses. The qualitative findings also complemented the high engagement ratings by identifying challenges that students continued to experience despite generally favorable perceptions of MAPEH activities. Thus, the integrated results suggest that high engagement and instructional difficulties can coexist within the same learning environment.

An important implication of the integrated findings is that perceived instructional effectiveness should not be interpreted as evidence that all learning conditions are satisfactory. Teachers may successfully engage students through creative strategies and pedagogical adaptation even when instructional resources remain insufficient. However, this adaptability should not diminish the institutional responsibility to provide appropriate equipment, facilities, and professional support. The results suggest that sustaining engagement may require improvements in both instructional quality and resource accessibility. The convergence of quantitative and qualitative evidence also highlights the value of mixed-methods research in identifying contextual conditions that may not be fully captured through numerical assessments alone.

The eighth research objective concerned the development of a context-responsive intervention program for MAPEH instruction. Based on the findings, the proposed program emphasizes teacher professional development, instructional resource enhancement, technology integration, improved lesson planning, and systematic monitoring of student engagement. These priorities correspond to the principal concerns identified in the study, particularly funding limitations, inadequate equipment, insufficient instructional time, and the need for continued instructional innovation. The literature also supports the importance of coherent pedagogical implementation, student-centered learning environments, and sustained opportunities for meaningful participation (Ramírez Ruiz et al., 2024; Saiz-González et al., 2024). Accordingly, the proposed intervention program may provide a practical framework for district-level instructional improvement. Nevertheless, its effectiveness remains untested, and implementation should be accompanied by appropriate monitoring and evaluation.

Overall, the study contributes to the understanding of student engagement in performance-based primary education by demonstrating that teaching strategies and instructional resource adequacy are positively associated with engagement in MAPEH. Its contribution lies in examining multiple pedagogical approaches, resource conditions, and engagement dimensions within a localized Philippine educational setting while integrating teacher and student perspectives with qualitative evidence. The findings suggest that meaningful engagement may be sustained through responsive instructional practices even when schools experience material and organizational constraints. However, the study's cross-sectional and correlational design, reliance on self-reported perceptions, and concentration within one school district limit causal interpretation and broader generalization. Future research should incorporate classroom observations, objective learning assessments, and longitudinal or intervention-based designs to examine whether improvements in teaching practices and instructional resources produce measurable changes in student engagement and learning outcomes. Ultimately, the study underscores the importance of coordinated pedagogical development and equitable resource provision in strengthening inclusive and engaging MAPEH education.

Conclusions

The study concluded that teaching strategies and instructional resource adequacy were significantly associated with student engagement in Music, Arts, Physical Education, and Health (MAPEH) among public primary schools in Tandag II District, Philippines. Teaching strategies were generally perceived as very effective, particularly activity-based, lecture, and technology-assisted approaches, suggesting that varied instructional practices supported positive classroom learning experiences. Despite these favorable assessments, instructional materials and facilities were generally less adequate, with Music resources identified as the most limited. Nevertheless, students demonstrated very high perceived behavioral, emotional, and cognitive engagement, indicating that meaningful participation could be sustained even under resource constraints.

The significant positive correlations between teaching strategies and student engagement, as well as between instructional resource adequacy and engagement, demonstrated the importance of considering both pedagogical practices and learning conditions in MAPEH instruction. However, these associations did not establish causal relationships. The qualitative findings further revealed that inadequate funding, insufficient instructional time, limited equipment, and restricted professional development opportunities continued to challenge effective instructional implementation. The convergence of quantitative and qualitative findings emphasized that instructional effectiveness and student engagement could coexist with substantial institutional limitations.

Overall, the study established that strengthening MAPEH education requires an integrated approach that combines responsive teaching strategies, equitable instructional resource provision, and sustained professional support. Its contribution lies in providing context-specific mixed-methods evidence on the interconnected roles of pedagogy, resource adequacy, and student engagement in Philippine primary education. These

findings provide an empirical foundation for developing a context-responsive MAPEH intervention program and informing instructional improvement initiatives aimed at promoting inclusive, engaging, and meaningful learning experiences.

Recommendations

Based on the findings and conclusions, the study recommends strengthening Music, Arts, Physical Education, and Health (MAPEH) instruction through the integration of effective teaching strategies, improved instructional resources, and sustained professional development. School administrators and MAPEH teachers should prioritize learner-centered, activity-based, play-based, inquiry-based, and technology-assisted approaches to provide meaningful opportunities for behavioral, emotional, and cognitive engagement. These instructional practices should be adapted to students' developmental needs, learning abilities, and available classroom resources to promote inclusive and participatory learning experiences.

School administrators, in collaboration with the Department of Education and relevant stakeholders, should prioritize the provision and equitable distribution of MAPEH instructional materials and facilities, particularly musical instruments, arts supplies, sports equipment, and appropriate learning spaces. Resource allocation should be guided by regular needs assessments to address identified deficiencies and ensure that teachers have access to materials necessary for performance-based instruction. Additionally, partnerships with local government units, parent–teacher associations, and community organizations may be strengthened to support resource mobilization and the sustainability of instructional improvement initiatives.

Continuous professional development should also be provided to MAPEH teachers through school-based training, Learning Action Cells, mentoring, and collaborative instructional planning. These activities should emphasize innovative pedagogical approaches, effective classroom management, differentiated instruction, technology integration, and strategies for maximizing limited instructional resources. School administrators should likewise review instructional schedules and workload arrangements to provide sufficient time for practical demonstrations, collaborative activities, and performance-based assessments.

Furthermore, the proposed MAPEH intervention program should be considered for pilot implementation, with clearly defined objectives, responsibilities, timelines, and monitoring mechanisms. Its implementation should prioritize instructional resource enhancement, teacher capacity-building, and student engagement initiatives. Periodic evaluations should assess changes in teaching practices, resource accessibility, student participation, and learning outcomes to determine the program's effectiveness and identify areas requiring improvement.

Finally, future researchers are encouraged to conduct similar investigations across different school districts and educational contexts using larger and more diverse samples. Longitudinal, experimental, or quasi-experimental research designs may be employed to

examine the effects of specific instructional strategies and resource improvements on student engagement and academic performance. Incorporating classroom observations, performance-based assessments, and additional qualitative evidence may also provide a more comprehensive understanding of the factors influencing MAPEH learning experiences. Such investigations could strengthen the evidence base for developing sustainable, equitable, and context-responsive instructional interventions in Philippine primary education.

Compliance with Ethical Standards

The study was conducted in accordance with established ethical principles governing educational research involving teachers and minor students. Permission to conduct the research was obtained from the appropriate educational authorities, including the Schools Division Office and the school heads of participating public elementary schools in Tandag II District, Philippines. Informed consent was obtained from participating teachers and the parents or legal guardians of Grade 6 students, while age-appropriate assent was sought from student participants. Participation was voluntary, and respondents were informed of the study's objectives, procedures, and their right to withdraw without adverse consequences. Confidentiality and privacy were maintained throughout the research process, and collected information was used exclusively for academic purposes in accordance with Republic Act No. 10173, or the Data Privacy Act of 2012. The author declares no known conflicts of interest and reports that the study received no specific external funding. The author was responsible for the conceptualization, research design, data collection, analysis, interpretation, and preparation of the manuscript. Research data were handled securely and may be made available in de-identified form upon reasonable request, subject to institutional approval and applicable data privacy requirements. Generative artificial intelligence tools were used to assist in organizing and refining the manuscript; however, responsibility for the accuracy, integrity, and authenticity of the research findings remains with the author.

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APA Citation:

Agrabio, J. A., & Sanchez, R. S. (2026). TEACHING STRATEGIES, INSTRUCTIONAL RESOURCE ADEQUACY, AND STUDENT ENGAGEMENT IN PHILIPPINE PRIMARY EDUCATION: A CONVERGENT MIXED-METHODS STUDY. Ignatian International Journal for Multidisciplinary Research, 4(11), 816–834. https://doi.org/10.5281/zenodo.24245864

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