

**Influential factors in improving cognitive development for the MAPEH curriculum**

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**ABSTRACT**

The data which was used as the bases to analyze factors affecting cognitive development in MAPEH (Music Arts Physical Education Health) curriculum. It emphasizes the benefits that arise from the participation of learners in creative and physical activities helping to improve their thinking, memory and problem-solving skills. In addition, the study stresses physical activity as a tool for enhancing brain function and concentration, with social and emotional content being fundamental to cognitive development. It also looks into how knowledge about health, including sound nutrition and lifestyle choices promote superior mental performance. In addition, specific teaching practices and conducive learning environments are recognized as crucial components to optimize the cognitive development of students. Total development of cognitive skills is embodied by the integration of artistic expression, physical activity and health awareness in MAPEH.

**Keywords:** Cognitive development, MAPEH curriculum, physical activity, creative learning, health awareness.

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**INTRODUCTION**

Cognitive development is important for the future of PE, so developing Physical Education (P.E.) curriculums with a cognitive adaptation transform (P.E) from having it emerge as merely another round of exercise to becoming a brain-boosting wholesome experience (Austin, D.S.,2013). Well-designed, cognitively engaging physical education models with advanced team sports activities, complex motor skills training and moderate-to-vigorous exercise directly improve children's executive functions, attention, memory. It can also promote academic achievement.

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Apart from critical thinking skills, the MAPEH (Music, Arts Physical Education and Health) curriculum focuses on creativity, decision making physical movement and emotional understanding (Ong,D., 2024). So, this development is determined by an array of aspects.

Students, when they are engaged in performing and creating as well as exercising their minds, learn better, enhancing critical thinking and problem-solving skills. Active participation is crucial. Also, constructivist learning theory enhances cognitive development because students build their own knowledge through experience and reflection (Bada, S. O., & Olusegun, S., 2015).

A positive learning environment with sufficient resources fosters exploration and creativity. Teaching methods such as differentiated learning, technology integration and collaboration further promote higher-order thinking (Bhaumik et al., 2024). Social Learning Theory explains how social and emotional factors are involved in student learning through engagement, observation, and feedback. Good experiences build confidence and motivate you. Lastly, physical health and well-being improve concentration, memory, and general cognitive function.

In conclusion, cognitive development in MAPEH can be defined as learning by doing, proper pedagogy, conducive environment, interaction with others and healthy lifestyle. There are some important gaps in molecular and animal behavior studies of MAPEH-related cognitive development. This even with the limited emphasis on cognitive skills, since much of it is treated as performance based; the persistence of teacher-centered methods (as opposed to experiential, student-centered learning); and the lack of sufficient resources to support hands-on experiences.

Other problems were lack of teacher-training, low assessment of cognition (focusing more on performance) and the poor use of social and emotional components in learning. Moreover, it neglects the interconnection between physical and mental health.

In total, these gaps reveal that more effective strategies, resources across all strands of MAPEH needs assessment and the whole cognitive aspect of life.

By analyzing article findings to fill in these MAPEH blanks — and pinpointing what strategies work and which don't. The impact of learning outcomes can be identified through these findings; for instance, researchers are able to measure from this information how resources and assessments contribute to learning outcomes, whether or not teaching strategies meet learner-centered approaches, whether or not cognitive objectives are being properly integrated (Driscoll, A., & Wood, S., 2023). This analysis also identifies inconsistencies, gaps and aspects that need further improvement concerning the interplay between physical health and cognition, teacher preparation and the exploitation of psychosocial elements (Baars et al., 2021). Overall, determining article results provides evidentiary support in guiding further development of holistic and successful approaches to enhance cognitive skills through the MAPEH curriculum.

To identify the issues with teacher competency to implement elementary-level interventions, the researcher analyzes previous studies for gaps in their instructional methods, training and pedagogical skills (Kennedy T., 2025). Consequently, targeted strategies that enhance educators' ability to effectively facilitate cognitive development—including professional development opportunities, more effective pedagogies and adoption of learner-centered approaches—can be developed (Ebert-May, D., Derting, T. L., Henkel, T. P., Middlemis Maher, J., Momsen, J. L., Arnold, B., & Passmore H A; 2015).

This study assumes that it exists such active, student-centred learning experiences in a MAPEH curriculum fostering cognitive development as well as teaching strategies and social interaction along with physical well-being that could significantly impact the student benefits of the MAPEH discipline.

This assumption is reinforced by Constructivist Learning Theory, where we learn and reflect through experience; and by Social Learning Theory, in which observation, interaction, and feedback play a role in learning. All these theories explain how MAPEH activities engaged can show a more profound level of cognition and an individual that develops in a holistic way.

#### Statement of the problem

This study investigates the cognitive development gaps in MAPEH as manifested in sub-issues of teaching strategies, teachers' competence, availability of resources and tools for assessment, effectiveness between cognitive and violence levels in relation to physical exercise fitness. Moreover, this paper focuses on their integration of cognitive with social and physical aspects so that learning outcomes can be attained positively.

#### METHODOLOGY

The present study utilized the data mining approach to analyze previous studies on cognitive development in MAPEH curriculum. Its purpose is to derive patterns, shortcomings, and conclusions regarding pedagogy, teacher ability or quality of teaching resources, assessment methods and associated cognitive affects that play a role in student learning outcomes.

#### RESULTS AND DISCUSSION

The findings across Asia, Africa, North America, South America, Europe, and Australia collectively demonstrate that cognitive development within the MAPEH (Music, Arts, Physical Education, and Health) curriculum is strongly influenced by the integration of innovative instructional strategies, technology-supported learning environments, culturally responsive pedagogies, teacher preparedness, parental involvement, and learner-centered approaches. The discussion presented in this section is grounded in the gathered literature and interpreted in direct relation to the objective of identifying the key components that enhance cognitive development in MAPEH instruction across global educational contexts. The synthesis highlights how various educational systems respond to the growing demand for 21st century competencies through reforms in pedagogy, curriculum delivery, assessment practices, and student engagement strategies. These findings further emphasize that cognitive development in MAPEH extends beyond physical performance and artistic expression, encompassing critical thinking, creativity, metacognition, social awareness, and lifelong learning competencies.

In Asia, cognitive development in MAPEH is significantly strengthened through the integration of innovative and technology-supported teaching strategies, differentiated instructional materials, and intensive teacher training designed to support project-based learning approaches. Mastul (2024) emphasized that these strategies promote critical and creative thinking skills while encouraging ownership of the learning environment and improving student achievement. The findings suggest that the incorporation of technology-enhanced pedagogy has become increasingly relevant following the accelerated digital adaptation brought by the COVID-19 pandemic. Satyanarayana and Manjunath (2025) explained that Philippine physical education now emphasizes student engagement, individualized fitness tracking, and the reduction of theory-practice gaps through technology-enhanced pedagogy and customized learning materials. This demonstrates that digital tools and wearable technologies contribute not only to physical activity monitoring but also to the

stimulation of cognitive functions associated with planning, reflection, and problem solving. Ruhela (2025) further argued that customized instructional materials foster inclusive and enjoyable learning experiences while promoting cognitive activation through the integration of applications, games, and cloud-based technologies. These findings indicate that cognitive development within Asian MAPEH curricula is increasingly anchored on personalization, innovation, and learner engagement. Simonton, Layne, and Irwin (2021) further reinforced the importance of extensive teacher preparation and active student involvement in project-based learning to address diverse learner needs, promote health consciousness, and cultivate lifelong physical activity habits. The implementation of the PATH-Fit program in the Philippines, as discussed by Lozada and Manly (2025), further supports this direction by enhancing student interest and enabling teachers to apply sustainable pedagogical practices. Collectively, these findings reveal that the Asian approach to MAPEH cognitive development prioritizes technological advancement, learner participation, and instructional adaptability as mechanisms for enhancing higher-order thinking skills and holistic learning outcomes.

In Africa, the findings reveal that cognitive development in the MAPEH curriculum is deeply connected to cultural traditions, community participation, nutrition practices, and flexible teaching approaches. Taimur and Sattar (2020) highlighted that indigenous knowledge systems and local involvement, particularly in rural communities, support analytical reasoning and holistic competency development. This demonstrates that African educational systems recognize the importance of contextualized learning experiences that are rooted in cultural identity and community engagement. Day (2023) further emphasized that the integration of cultural traditions into physical education serves as a decolonial strategy that challenges Western-centered educational paradigms while promoting holistic health, social cohesion, and cultural identity formation. The inclusion of traditional games, dances, and physical activities, as explained by Shandu, Shaw, Mathunjwa, and Shaw (2024), allows teachers to address contemporary health issues such as non-communicable diseases while strengthening heritage preservation and community relationships. These findings indicate that cognitive development in African MAPEH education extends beyond academic achievement to include cultural consciousness, social connectedness, and health awareness. Siedentop and Van der Mars further argued that organized play and structured physical activity form an essential foundation of physical education because they support educational advancement, cultural sustainability, and health promotion simultaneously. East (2013) noted that African physical education evolved from colonial military training models into holistic developmental frameworks that integrate traditional games with modern sports. This transformation reflects a shift toward learner-centered approaches that value mental, physical, and social outcomes equally. Furthermore, the findings emphasize the critical role of proper nutrition in supporting athletic performance, reducing obesity and malnutrition, and sustaining long-term health outcomes among school-aged children. These insights collectively demonstrate that cognitive development in African MAPEH curricula is enhanced through culturally relevant instruction, holistic wellness promotion, and community-centered learning practices.

In North America, the findings reveal that cognitive development within the MAPEH curriculum is facilitated by active learning methodologies, targeted teacher training, multimedia integration, and accessible educational resources. Chang, Li, Chen, and Chiu emphasized that project-oriented learning, increased student participation, digital tools, and stakeholder support collectively enhance critical thinking, imagination, and memory retention. These findings indicate that cognitive development is strengthened when students are actively involved in the learning process rather than positioned as passive recipients of information. Dzaiy and Abdullah (2024) further explained that active learning strategies reduce excessive lecture time and improve experiential learning opportunities, resulting in enhanced retention rates and lower academic failure rates. This reflects the growing recognition that student-

centered approaches promote deeper understanding and meaningful learning experiences. Verma, Sharma, and Karaktan likewise observed that shifting from traditional lecture-based instruction to learner-centered methodologies contributes to closing equity gaps while improving motivation and readiness for future professional responsibilities. These findings suggest that North American educational systems increasingly prioritize inclusive and participatory learning environments that support both cognitive and socio-emotional development. Valenzuela (2022) emphasized the importance of focused training for educators and access to high-quality resources in improving educational outcomes and sustaining long-term equity in education. The findings further show that teacher training in digital and artificial intelligence tools, combined with evidence-based pedagogical approaches such as trauma-informed teaching and restorative practices, contributes significantly to cognitive development by creating supportive and responsive learning environments. Overall, the North American perspective highlights the central role of active participation, technological competence, and evidence-based instruction in advancing cognitive development within MAPEH education.

In South America, cognitive development within the MAPEH curriculum is strongly associated with improved teaching quality, increased student engagement, parental involvement, and the availability of instructional resources. Tomporowski, McCullick, and Pesce (2015) emphasized that movement integration enhances concentration while arts-based activities stimulate creativity and cognitive engagement. The use of Strategic Instructional Materials further supports learner participation and conceptual understanding. These findings demonstrate that cognitive development is reinforced when instruction integrates physical movement, artistic expression, and interactive learning strategies. Akiba and LeTendre (2009) argued that improving teaching quality requires highly educated teachers who receive continuous professional preparation and effective performance assessment mechanisms. This finding suggests that teacher competence remains a fundamental determinant of successful cognitive development initiatives within the curriculum. Wu and Huang (2007), together with Danilov, Dragulescu, and Dumitrache (2025), highlighted that active, student-centered, and technology-enhanced learning approaches are essential for motivating students and improving educational standards throughout the region. These approaches contribute to the enhancement of human capital by fostering creativity, innovation, and analytical thinking skills. The findings further emphasize the importance of parental involvement in physical education, particularly in countries such as Chile and Brazil, where family participation positively influences children's academic achievement and health outcomes. Rockström, Sachs, Öhman, and Schmidt-Traub (2019) additionally noted that South America faces the challenge of balancing economic growth with environmental sustainability in achieving the 2030 development goals. Rockström et al. (2022) explained that investment in essential minerals, fiscal sustainability, and environmental protection are necessary for regional progress. These broader contextual realities indicate that cognitive development within MAPEH is also influenced by socio-economic and environmental conditions that shape educational priorities and resource allocation. Collectively, the findings demonstrate that South American approaches to cognitive development emphasize integrated learning, family participation, instructional innovation, and sustainable development perspectives.

In Europe, the findings indicate that cognitive development in MAPEH is promoted through inquiry-driven instruction, multisensory learning experiences, and cognitively accelerated tasks that integrate music, arts, physical education, and health education. Schultz (2023) explained that movement-based synchronization activities and project-oriented learning approaches encourage critical thinking and active engagement while increasing teacher confidence in curriculum integration. These findings reveal that European educational systems

value interdisciplinary and experiential learning approaches that stimulate multiple dimensions of cognition simultaneously. Suri, Wu, and Egan further discussed the relationship between exercise patterns, biomarkers related to vascular endothelial growth factor, and cognitive functioning, emphasizing the physiological foundations of learning and mental performance. This demonstrates that physical activity within MAPEH contributes not only to physical health but also to neurological and cognitive enhancement. Sukvijit (2009) further observed a shift from traditional examination-focused models toward holistic and learner-centered educational practices that promote critical thinking, physical literacy, and lifelong engagement in healthy lifestyles. These findings indicate that European MAPEH education increasingly prioritizes holistic development, creativity, and inquiry-based learning as essential components of cognitive advancement.

In Australia, the findings reveal that cognitive development within the MAPEH curriculum is strengthened through cognitively demanding lessons, the promotion of self-efficacy, opportunities for physical activity, and the development of metacognitive skills. Shernoff (2013) emphasized that active participation, supportive classroom environments, effective teaching practices, and home involvement collectively contribute to meaningful learning experiences. These findings suggest that cognitive development is enhanced when students are emotionally supported, intellectually challenged, and actively engaged in the learning process. McCuaig, Quennerstedt, and Macdonald (2013) further explained that Australian physical education has evolved from merely encouraging movement to promoting movement integrated with cognitive reflection and strategic thinking. The Australian Curriculum's Health and Physical Education framework emphasizes strengths-based learning and requires students to develop self-awareness, decision-making skills, and reflective thinking abilities. Lubans, Plotnikoff, and Lubans (2012) highlighted the importance of engaged learning in ensuring that students remain physically active both during schooling and throughout their lives. These findings demonstrate that safe and supportive learning environments encourage students to take intellectual and social risks that enhance their cognitive and interpersonal development. Harris further stressed the critical role of teacher knowledge in determining student engagement, skill acquisition, and lifelong health maintenance. Lynch and Soukup Sr. (2017) noted that the Australian Curriculum requires qualified physical education specialists to ensure effective instruction. Johnson (2018) warned that insufficiently prepared generalist teachers may reduce physical education to mere supervised activity rather than meaningful skill-based instruction. Furthermore, the findings indicate that family involvement significantly influences participation, confidence, motivation, and long-term physical activity engagement among young people. These collective insights demonstrate that Australian MAPEH education promotes cognitive development through metacognitive learning, self-efficacy enhancement, qualified instruction, and strong home-school partnerships.

The findings of the study ultimately reveal persistent inadequacies in cognitive development within the MAPEH curriculum despite global efforts toward educational innovation and reform. Across the reviewed contexts, common challenges include the minimal incorporation of higher-order thinking skills, continued reliance on traditional teaching methods, inadequate instructional resources, insufficient teacher training related to 21st century competencies, and assessment systems that prioritize performance outcomes over cognitive development. The findings further indicate that social, emotional, and physical variables are often neglected despite their significant influence on learning processes and student achievement. These inadequacies suggest that while many educational systems recognize the importance of holistic and learner-centered approaches, practical implementation remains inconsistent due to structural, pedagogical, and resource-related limitations. The synthesis of findings demonstrates that effective cognitive development within MAPEH requires

comprehensive reforms that integrate innovative pedagogies, culturally responsive instruction, technological advancement, teacher professional development, family engagement, and holistic assessment practices. Collectively, these insights contribute to a broader understanding of how global educational systems address cognitive development in MAPEH and provide a foundation for future curricular enhancement, instructional innovation, and policy development aimed at fostering higher-order thinking skills, lifelong learning, and holistic student development.

## CONCLUSION

The inter-related inadequacies in instruction, materials and assessment, textbooks as learning resource system deficiencies, teacher quality has implications to MAPEH cognitive development. These limitations cloud MAPEH's ability to fully facilitate the holistic education and its aspect of helping learners to develop their mental, physical and artistic skills.

Educational institutions should devise cognitive skill assessment tools, promote constructiveness and student-centered teaching methods, increase access to learning resources, and improve teacher preparation. MAPEH training must integrate social-emotional and health-related strategies to better support holistic cognitive development.

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