



CULTURE-BASED BRAIN GYM: MULTIETHNIC STUDENTS, CULTURE IDENTITY AND TEACHER'S ROLE IN WEST JAVA

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Submit: 2 Mei 2025., Revision: 28 Mei 2025, Approve: 31 Mei 2025

Abstract

This study aims to examine the role of teachers in strengthening national identity among multiethnic students in West Java and the effectiveness of culture-based Brain Gym in supporting the process. Qualitative research methods were used with data collection through written tests, questionnaires, in-depth interviews, and participant observations of teachers and students in five elementary schools in Bandung. The findings indicate that students' low interest in local culture due to the dominance of foreign culture can be overcome by integrating traditional cultural elements (music, dance, and visualization) into a series of Brain Gym movements. Teachers who systematically facilitate these activities can create an interactive and meaningful learning atmosphere, thus triggering emotional responses and increasing awareness of local culture among students. In addition to enriching the learning experience and balancing physical-mental activities, this approach has proven effective in strengthening a sense of pride in cultural heritage and supporting the formation of an inclusive national identity. Thus, implementing a culture-based Brain Gym, combined with the active role of teachers as facilitators and motivators, is recommended as an innovative learning strategy to strengthen cultural literacy and national identity in elementary schools.

Keywords: Culture-Based Brain Gym, Teacher's Role, Multiethnic Students

Quotation: Annisa, Nuri, et.al. (2025). Culture-Based Brain Gym: Multiethnic Students, Culture Identity and Teacher's Role in West Java. *JMIE: Journal of Madrasah Ibtidaiyah Education*, 9(1), 2025, 13-26. [jmie.v9i1.750](http://dx.doi.org/10.32934/jmie.v9i1.750).

Permalink/DOI: <http://dx.doi.org/10.32934/jmie.v9i1.750>

INTRODUCTION

National identity in a nation-state is evidenced by the ethnocultural diversity that exists in society. In West Java, with its various ethnic groups, this phenomenon is evident among multiethnic students who are increasingly less immersed in Indonesian cultural values. This decline in understanding, especially among the younger generation, has the potential to lead to an identity crisis, both personally and on a social scale. This study aims to examine the role of teachers in strengthening national identity among multiethnic students in West Java and the role of culture-based brain gyms in strengthening national identity. Through an ethnographic approach, this study reveals how teachers play an active role in cultural activities at school, such as introducing local arts and traditions, which contribute significantly to shaping students' awareness of national identity. The research findings show that inclusive local cultural and historical education can positively impact students' psychological development, as seen from the increasing love for the homeland and understanding of diversity. This study provides valuable insights into the importance of cultural teaching to strengthen national identity and the role of teachers and schools in preventing identity crises among the younger generation. A good understanding of ethnocultural identity can strengthen the foundation of a more solid national identity within the nation-state framework (Dewantara et al., 2023).

This study aims to provide insight into the importance of teaching to strengthen national identity and the role of teachers in preventing identity crises among the younger generation. By focusing on students' cultural literacy skills, this study highlights how integrating local culture into the learning process can support the formation of a strong national identity. Cultural teaching that is carried out inclusively, involving elements of regional culture such as music, dance, and traditional visualization, enriches students' understanding of cultural diversity and improves their cultural literacy. In addition, teachers play an important role as agents of change who can bring students closer to their cultural heritage while helping them develop a sense of belonging to their national identity. Brain Gym, which is widely known in the community, is identical to ice-breaking activities in class. Previous research suggests that brain gym helps improve or stabilize a person's emotions (Azizah et al., 2017). In addition, other studies show that brain gym functions to increase concentration (Maslin et al., 2024; Pratiwi & Pratama, 2020; Siroya & Kapoor, 2021). Brain gym not only functions for the affective of students but several studies show that brain gym helps improve motor skills (Elbanna et al., 2023; Herbawi, 2018)) and cognitive (Cano-Estrada et al., 2022; Ramos-Galarza et al., 2023; Varela et al., 2023) which are not only beneficial for children but also for adults (Andi et al., 2019) and even the elderly (Cancela et al., 2020; Jenny et al., 2020; Murtadho et al., 2019; Varela et al., 2023). However, although Brain Gym is often used as an icebreaker, its application has also benefited individuals with special needs (Arbianingsih et al., 2021; Hudson et al., 2020; Larosa et al., 2022). Although many studies have explored the benefits of Brain Gym in cognitive aspects, unfortunately, none have specifically examined its use to incorporate local cultural elements into

learning. Unfortunately, there has been no Brain Gym research that focuses on integrating local culture into learning. Meanwhile, cognitive aspects alone are not enough to play a role in building ideal knowledge to internalize local cultural literacy for children (Dewantara et al., 2023).

I argue that cultural teaching based on local cultural values introduces physical skills that support the learning process and as a strategy to introduce and internalize cultural values in students' daily lives. This perspective emerged as a response to the challenges of cultural globalization, where students tend to be more interested in foreign cultures than local ones. To overcome these challenges, I propose that cultural-based Brain Gym practices can effectively foster an appreciation of local culture by integrating movements inspired by regional traditions into learning activities. This research is expected to be able to develop a new perspective on the integration of culture-based Brain Gym as an innovative approach to learning, focusing on two main problem formulations: (1) The importance of integrating cultural teaching in shaping the national identity of multiethnic students (2) The role of teachers and schools in preventing identity crises. This research is important for Indonesian citizens because it helps children love local culture from an early age through fun Brain Gym movements while strengthening their identity, mental health, and cultural literacy amidst the challenges of globalization.

In the first part, I define culture-based Brain Gym as a series of simple physical movements combined with local cultural elements, such as music, dance, and traditional visual symbols. This concept stimulates brain function while introducing local cultural values to students. In the second part, I outline the main principles of integrating culture-based Brain Gym into learning, with a special emphasis on the central role of teachers in preventing identity crises among the younger generation. These principles include the importance of consistency in movement practice, a close relationship between movement and the accompanying cultural story, and using visual media to strengthen students' memory and imagination. In multicultural education, teachers play a role not only as transmitters of knowledge but also as guardians of cultural values in society. Through an approach that integrates aspects of physical movement with local cultural narratives, teachers can create learning spaces that are not only fun and interactive but also emotionally and culturally profound. This strategy is believed to increase students' cultural literacy, build awareness of their cultural roots, and foster a sense of pride in local identity amidst the flow of globalization. Thus, teachers have a strategic role in shaping a young generation that is physically and cognitively healthy and has a high appreciation for the richness of local culture and a strong and inclusive national identity.

METHODS

This study explores the implementation of a culture-based Brain Gym in five elementary schools in Bandung City spread across various sub-districts with diverse social backgrounds, characters, and academic climates. A qualitative approach with a case study method is used to understand how each school adapts and responds to implementing a culture-based Brain Gym in the learning process. Case studies are chosen because they allow for more naturalistic exploration, provide space to reveal the subjectivity of informants, and provide an opportunity to explore knowledge often not documented in conventional research. (Creswell, John and Creswell, 2023)

This study used purposive sampling to ensure that participants met the study's objectives. Participants were 151 fifth-grade students and five teachers from various elementary schools in Bandung City and spread across several sub-districts; Five elementary schools were selected because they represent the geographical and cultural diversity of Bandung City, have students with diverse ethnic backgrounds, and show support for culture-based learning innovations. This selection also took into account ease of access and feasibility of conducting research in the field. the selection of this group aims to explore the importance of integrating cultural teaching in shaping the national identity of multiethnic students and the role of teachers and schools in preventing student identity crises. Data collection in this study was carried out from November 2024 to April 2025, using Indonesian as the primary language in the communication process. Interviews were structured to explore participants' understanding of Brain Gym, cultural literacy, and the role of teachers and school institutions in instilling and preserving local cultural identity. All interview results were transcribed verbatim to maintain data accuracy. For international publication purposes, specific illustrative quotes have been translated into English with the help of professional translators and through a proofreading process by an academic editor. To ensure confidentiality and comply with research ethics principles, all participants' identities have been anonymized by applicable ethical approval standards. In addition to qualitative data from interviews, this study is also supported by visual documentation and field observation results. To increase the validity and credibility of the findings, this study applies the source triangulation technique (Creswell, John, and Creswell, 2023) by comparing data from various sources to strengthen the reliability of the interpretation of the research results.

The data collected in this study were analyzed through a series of systematic stages, including coding, data grouping, triangulation, and thematic analysis. This process aimed to identify key patterns from interview transcripts and other data sources. Initial coding was carried out by highlighting relevant units of meaning from interview transcripts, allowing for in-depth exploration of each participant's perspective. Next, data triangulation was carried out by comparing findings from various sources, including observation notes, archival documents,

participant histories, and interview notes. This process aims to increase the validity and reliability of the findings. After the triangulation stage, the data that had been grouped into specific categories was analyzed thematically, allowing for the identification of conceptual patterns that emerged naturally from the research results. Each identified data category was then systematically coded to support evidence-based interpretations. The final step in this analysis was deductive synthesis, where findings were compared with relevant theoretical frameworks and previous research results to ensure they were consistent with previous studies and provide new insights into the field) (Creswell & Poth, 2018). With this approach, this study aims to reveal the impact of implementing a culture-based Brain Gym on students' understanding of cultural literacy and how they identify and maintain local cultural heritage.

RESULTS AND DISCUSSION

Result

Culture-Based Brain Gym as a Means of Strengthening Cultural Identity in Education

Education plays an important role in shaping students' cultural awareness and national identity. In the context of globalization, the influence of foreign cultures is getting stronger, especially among children and adolescents who are more interested in popular culture from other countries, such as Korea and Japan, compared to their own local culture. Previous research shows that understanding and appreciation of cultural heritage must be instilled early on through education, not to be displaced by the flow of foreign culture. With the increasing flow of globalization, approaches such as culture-based Brain Gym are becoming increasingly relevant in education. This activity effectively improves students' learning readiness and is a concrete step in preserving local culture. By actively involving students in learning experiences based on movement and cultural expression, culture-based Brain Gym can be an important tool in building a generation that is aware, proud, and active in preserving its cultural identity. Culture-based Brain Gym is an innovative strategy for building students' cultural awareness and national identity. Integrating body movements with local cultural elements improves focus and readiness to learn and becomes an effective tool for instilling national values naturally and enjoyably.



Figure 1. Culture-based Brain Gym Activities in the Learning Process

In a culture-based Brain Gym session, students seemed enthusiastic about demonstrating movements in class. Previously, they watched a video showing Brain Gym movements without realizing that some were adaptations of traditional regional movements. As they began recognizing the cultural elements in the movements, their reflex responses became sharper. The most interesting moment occurred when one of the accompanying songs in the video began to be sung, without realizing it, several students began to move their hands, following the rhythm and movements of Brain Gym that they had learned.

This phenomenon shows that cultural integration in the Brain Gym strengthens physical coordination and instills cultural values naturally and pleasantly. This proves that through an interactive approach, students can internalize local culture without feeling forced, but rather through a pleasant experience that leaves an impression on their memory, students' memory, concentration, and enthusiasm for learning increase (Gustika et al., 2021). Various studies have shown that listening to music can reduce stress levels, especially in moderate-stress individuals. These findings encourage the development of music therapy as an additional treatment method. However, the effects of music on stress can vary depending on the mental condition, age, and health of the individual. Therefore, this study aims to analyze the effect of music on EEG signals in various stress conditions. (Nawaz et al., 2019). Brain Gym builds and strengthens neural pathways through movement stimulation that harmonizes with the brain's natural mechanisms. This exercise improves learning skills and cognitive performance, especially for individuals with learning and behavioral difficulties. In addition, brain gymnastics has been shown to improve self-confidence, self-esteem, coordination, and communication skills. Given that almost 50% of the nerves in the body are connected to the head and face, the tension that often accumulates in the jaw muscles can inhibit sensory function. By relaxing this area, brain gymnastics helps stabilize the nervous system, reduces stress, and optimizes sensory processing to support cognitive and emotional balance. (Kulkarni & Khandale, 2019)



Figure 2. Implementation of Brain Gym in Learning

The image shows the implementation of culture-based *Brain Gym* activities in the classroom, where teachers and students actively perform physical movements combined with visual stimuli of local culture in the form of wayang figures. This activity is part of the implementation of a learning model designed to stimulate students' cognitive, affective, and psychomotor interactions simultaneously. The relevance of this image is in line with research findings that show that the integration of Brain Gym movements with local cultural elements can improve learning concentration, strengthen cultural identity, and raise awareness of the importance of cultural preservation among elementary school students.

The movements demonstrated collectively improved concentration and motor coordination and triggered students' cultural awareness of the ethnic diversity around them. At the same time, the teacher plays an important role as a mediator who presents meaningful learning experiences through an adaptive and enjoyable approach. Integrating culture-based Brain Gym clearly shows great potential in preventing identity crises among multiethnic students. By simultaneously presenting activities that touch the physical, emotional, and cultural domains, students learn to move in a structured manner and recognize and appreciate their cultural roots. This approach is in line with the findings of Dawood et al., (2022) who emphasized the role of Brain Gym in reshaping neural pathways through a combination of movement and cognitive stimulation. In addition, (Enjela, 2024) stated that brain gyms can strengthen children's fine motor skills and executive functions. Even from a neurophysiological perspective, brain gymnastics has been shown to help reduce levels of interleukin-6 (IL-6) related to stress and inflammation (Juswanto et al., 2021). By adopting this method, teachers facilitate increased cultural literacy and play a strategic role in sustainably building students' national identity. Kulkarni and Khandale (2019) state that activities such as the Brain Gym stabilize the nervous system and support emotional balance, making it a potential strategy for character and cultural education in elementary schools.

Teacher Involvement in Culture-Based Learning: Instilling National Identity Through Brain

Teachers play a strategic role in inserting cultural values into the learning process as part of efforts to strengthen national identity among students. As a form of implementation of national education policy, before starting learning, students are required to sing the national anthem to foster a sense of love for the homeland and pride in national identity. In addition, teachers also integrate culture into learning through innovative approaches, one of which is by implementing Brain Gym based on cultural literacy. Brain Gym, which is oriented towards cultural literacy, aims to increase students' awareness of local wisdom while optimizing their cognitive functions. Students improve their focus and concentration through contextually developed exercises and become more connected to their local culture.



Figure 3. Dance Performance Activities on *Kemis Nyunda* (Misda)

The image shows the “Kemis Nyunda” activity in an elementary school, where students performed traditional Sundanese dance as part of culture-based learning. This activity is relevant to research findings that emphasize the importance of integrating local culture into school activities to strengthen cultural identity and improve students' cultural literacy. Several schools in West Java, especially Bandung City, have initiated programs that combine cultural activation in teaching and learning activities. Teachers teach literacy materials by linking them to local folklore, traditional music, and other cultural symbols. This initiative reflects educational efforts to preserve cultural heritage while building national character in students. With teachers' active involvement in inserting cultural values in learning, it is hoped that the younger generation will continue to have a high awareness of their national identity without ignoring openness to global culture.

Integration of Cultural Habits in Education: Efforts to Maintain Local Identity in Schools

Seeing the fading attachment of the younger generation to local customs and culture, concerns about the loss of national identity are increasingly fundamental. Pride and concern for cultural heritage are no longer deeply embedded in students' hearts, especially in border areas exposed to various global influences. Educators feel responsible for maintaining and re-instilling a love for local culture. Cultural familiarization in the school environment is an effective strategy to instill local wisdom values and strengthen national identity amidst the flow of globalization. In certain schools, this familiarization is categorized into two primary forms: familiarization in the classroom and the school environment. As part of the familiarization in the classroom, students must sing the national song before learning begins. This activity not only fosters a sense of nationalism but also builds reflective habits towards the meaning of nationality in everyday life (Immordino-Yang & Damasio, 2007; Maxera & Álvarez-Blanco, 2022).

Meanwhile, at the school level, the *Kemis Nyunda (Misda)* program is a leading initiative in maintaining local culture, especially in West Java. This program is held every Thursday in the school field, where each class can display various forms of traditional art expression, such as pupuh, borangan, biantara, kawih, traditional dance, and other cultural performances. Each class has a performance schedule arranged by the student affairs department, with direct guidance from the teacher. Through this activity, students develop an appreciation for regional arts and culture and build self-confidence and togetherness in the school community. In addition, every Wednesday, students are encouraged to participate in the pencak silat extracurricular activity; in several areas in Bandung, in particular, some make this extracurricular activity a mandatory activity; for example, it is mandatory for all students in grade 3.



Figure 4. Kaulinan Barudak Performance Activity on *Kemis Nyunda (Misda)*

The picture above shows an activity that is part of the routine program "*Kemis Nyunda*", a school initiative that aims to preserve Sundanese culture through thematic activities every Thursday. Traditional games or Kaulinan Barudak, such as rope jumping, are a means to reintroduce local wisdom to the younger generation while reviving the spirit of cooperation and sportsmanship. In this activity, students learn from books and experience cultural values through fun games. *Kemis Nyunda* is implemented not only through language and traditional clothing but also through the introduction of traditional games that are part of the identity of local culture. This activity aligns with the objectives of character education and preservation of intangible cultural heritage, as emphasized in the Merdeka Curriculum, which emphasizes contextual learning based on local culture. In addition to strengthening social relations between students, this activity is also a concrete effort by the school to create an inclusive, dynamic learning space rooted in local values. Through games like this, students are invited to move actively, collaborate, and recognize the richness of their own regional culture. The rope-skipping game becomes more than just a physical activity it becomes a bridge between the past and the present, between tradition and 21st-century learning.

In addition to locally-based programs, several schools implement international teacher exchange programs, especially with partner schools in Australia. This initiative aims to introduce local and national cultures to the global education community while opening space for a broader exchange of educational insights and practices. This program is a bridge for strengthening cultural diplomacy involving education as the primary agent. In addition, schools also implement policies required by the government, such as the use of traditional Sundanese clothing every Thursday. These steps are part of a systematic effort to preserve regional languages and cultures amidst rapid modernization. With various initiatives oriented towards cultural preservation, schools are a place for transferring knowledge and a space for character formation based on local and national identity. Therefore, the role of teachers is crucial in instilling pride in local culture with innovative and engaging learning methods. Culture-based learning not only increases understanding of national identity but also strengthens social solidarity in diversity (Dewantara et al., 2023)

Discussion

Culture-Based Brain Gym as a Means of Strengthening Cultural Identity in Education

Culture-based Brain Gym is an innovative strategy for building cultural awareness and national identity in students. By integrating body movements with local cultural elements, this method increases focus and readiness to learn and becomes an effective tool for instilling national values naturally and enjoyably. In its application, culture-based Brain Gym helps students feel and understand their traditions more deeply through movements that follow the rhythm of regional songs, traditional dances, and typical games with historical meaning.

Implementing culture-based Brain Gym in elementary schools has positively impacted students' appreciation of their cultural heritage. Students involved in these activities become more familiar with local arts and traditions, such as Sundanese pupuh, kawih, or traditional dances combined with simple movements to stimulate the brain and motor coordination. (Hyatt, 2007; Jalilinasab et al., 2022; Spaulding et al., 2010) With this approach, students gain cognitive and physical benefits and experience a deeper emotional connection to their culture. Furthermore, culture-based Brain Gym also strengthens social values and collective identity. Through activities that involve group interaction, such as traditional games that rely on teamwork and harmonious movement rhythms, students learn to appreciate diversity and develop a sense of belonging to their cultural community. This strengthening reflects that national identity does not conflict with ethnocultural identity but can develop side by side through culture-based education. (Martono et al., 2022)

Culture-based Brain Gym is important in strengthening students' cultural identity naturally and enjoyably. Through a series of movements combined with local cultural elements, Brain Gym not only functions to improve focus and learning readiness but also becomes an effective medium for instilling the values of nationalism and national identity. As a method that integrates physical movement with cognitive stimulation, culture-based Brain Gym can strengthen students' memory of local cultural heritage through multisensory experiences. For example, students are invited to do simple movements that follow the rhythm of Sundanese kawih or traditional pupuh to practice motor skills and absorb the cultural values contained therein. This activity improves body coordination and concentration and fosters students' love for their cultural heritage. In addition, Brain Gym can be developed in various culture-based learning contexts, such as through traditional games that involve body movements and rhythmic patterns typical of the local area. For example, movements in the Engklek or Galah Asin game can be combined with brain stimulation that trains thinking agility while introducing the history and cultural meaning behind the game. Thus, students gain cognitive and motor benefits and understand how local culture is integral to everyday life. Through Brain Gym activities involving physical, emotional, and cognitive elements, students feel the benefits of cultural radiation: increased solidarity, respect for diversity, and stronger social ties in an increasingly heterogeneous community. (Dobson et al., 2023; Maslin et al., 2024)

CONCLUSION

The conclusion of this study shows that integrating local cultural elements into Brain Gym activities systematically and effectively strengthens the sense of nationalism. Through an interactive approach combining reflective movements and traditional values, students learn the theoretical aspects of culture and feel deeply attached to Indonesian cultural heritage. Thus, cultural integration is complementary material and an important foundation in fostering national

pride and uniting the diversity of ethnic backgrounds in one collective identity. Meanwhile, regarding the role of teachers and schools in preventing identity crises and supporting students' psychological well-being, the research findings emphasize that the involvement of educational actors is crucial. Teachers and school institutions that consistently design and facilitate culture-based Brain Gym provide a safe space for students to express and reflect on cultural values without causing value conflicts. This approach strengthens social cohesion between students and contributes to increased self-confidence, reduced anxiety, and the growth of solidarity. Thus, educators and school institutions' strategic role in internalizing culture strengthens national identity and supports students' mental health.

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