



Embodied cultural pedagogy through traditional games: investigating language interaction, civic identity, and social cohesion in Physical Education

Pedagogía cultural encarnada a través de juegos tradicionales: Investigación sobre la interacción lingüística, la identidad cívica y la cohesión social en la Educación Física

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Abstract

Introduction: Traditional games embedded in local culture provide meaningful pedagogical contexts for developing language interaction, civic identity, and social cohesion. In South Sulawesi, Indonesia, games such as *Tari Paraga*, *Massempe*, and *Egrang* reflect Bugis-Makassar cultural values that can be integrated into Physical Education through embodied cultural pedagogy.

Objective: This study examined the role of traditional game-based embodied cultural pedagogy in fostering language interaction, civic identity, and social cohesion among Physical Education students in South Sulawesi.

Methodology: A mixed-methods sequential explanatory design was employed involving 150 students from three state universities. Quantitative data were collected through validated questionnaires and analyzed using Structural Equation Modeling–Partial Least Squares (SEM-PLS). Qualitative data were obtained from 18 in-depth interviews and analyzed thematically using NVivo 14.

Results: Traditional game participation significantly influenced language interaction ($\beta = 0.61$, $p < 0.001$), civic identity ($\beta = 0.58$, $p < 0.001$), and social cohesion ($\beta = 0.65$, $p < 0.001$). Qualitative findings revealed increased cultural awareness, communication skills, and peer solidarity. Four themes emerged: Cultural Embodiment as Communicative Catalyst, Traditional Games as Civic Classrooms, Solidarity Through Shared Cultural Practice, and Language as Cultural Boundary Marker.

Discussion and Conclusions: The findings support embodied cognition theory and culturally responsive pedagogy, demonstrating that traditional games promote linguistic competence, civic values, and social connectedness. Traditional game-based embodied cultural pedagogy offers a culturally relevant model for strengthening civic and social outcomes in multicultural educational settings.

Keywords

Civic identity; embodied pedagogy; Physical Education; social cohesion; traditional games.

Resumen

Introducción: Los juegos tradicionales arraigados en la cultura local ofrecen contextos pedagógicos valiosos para desarrollar la interacción lingüística, la identidad cívica y la cohesión social. En Sulawesi del Sur, Indonesia, juegos como *Tari Paraga*, *Massempe* y *Egrang* reflejan valores culturales Bugis-Makassar que pueden integrarse en la Educación Física mediante una pedagogía cultural encarnada.

Objetivo: Examinar el papel de la pedagogía cultural encarnada basada en juegos tradicionales en el fortalecimiento de la interacción lingüística, la identidad cívica y la cohesión social entre estudiantes de Educación Física.

Metodología: Se empleó un diseño mixto secuencial explicativo con 150 estudiantes de tres universidades estatales de Sulawesi del Sur. Los datos cuantitativos se recopilaron mediante cuestionarios validados y se analizaron utilizando SEM-PLS. Los datos cualitativos se obtuvieron a través de 18 entrevistas en profundidad y se analizaron temáticamente con NVivo 14.

Resultados: La participación en juegos tradicionales mostró efectos positivos significativos sobre la interacción lingüística ($\beta = 0,61$; $p < 0,001$), la identidad cívica ($\beta = 0,58$; $p < 0,001$) y la cohesión social ($\beta = 0,65$; $p < 0,001$). Los hallazgos cualitativos revelaron un mayor desarrollo de la conciencia cultural, las habilidades comunicativas y la solidaridad entre pares. Conclusiones: Los resultados respaldan la teoría de la cognición encarnada y la pedagogía culturalmente receptiva. La integración de juegos tradicionales en la Educación Física fortalece eficazmente la interacción lingüística, la identidad cívica y la cohesión social en contextos educativos multiculturales.

Palabras clave

Cohesión social; Educación Física; identidad cívica; juegos tradicionales; pedagogía encarnada.



Introduction

Physical Education (PE) in the 21st century has increasingly been recognized not merely as a domain of physical training but as a site for holistic human development encompassing cognitive, social, cultural, and civic dimensions (Kirk, 2022; Siedentop & Van der Mars, 2022). Within this broader conceptualization, the integration of culturally rooted practices into PE curricula has gained substantial scholarly attention as a means to address the persistent fragmentation between physical activity and students' sociocultural realities (Cappello et al., 2025; Azevedo et al., 2022). Traditional games — as embodied cultural artifacts carry multiple layers of linguistic, ethical, and communal meaning that extend far beyond their performative and recreational dimensions, making them uniquely positioned as pedagogical vehicles in multicultural educational contexts.

In South Sulawesi, Indonesia, traditional games such as Tari Paraga a traditional Makassar ball game combining artistry, balance, and physicality Massempe (a competitive leg-wrestling game rooted in Bugis warrior culture), and Egrang (stilts walking as a test of balance and perseverance) represent living expressions of Bugis-Makassar cultural heritage. These games are not merely recreational forms but are pedagogical systems embedded with norms of social cooperation, civic responsibility, moral integrity, and communicative exchange conducted in the local vernacular (Saddhono et al., 2025; Williyen et al., 2025). Despite their cultural richness and pedagogical potential, the systematic integration of these games into formal PE instruction at the higher education level remains conspicuously underexplored in the research literature.

The theoretical foundation of this study draws primarily from embodied cognition theory, which posits that cognitive processes including language acquisition, identity formation, and social bonding — are fundamentally grounded in bodily experience and environmental interaction (Varela et al., 2017; Lakoff & Johnson, 2019). Within PE contexts, embodied learning occurs when students engage physically with culturally meaningful movement forms, allowing cultural values and social norms to be internalized through somatic experience rather than through abstract or didactic instruction (Cappello et al., 2025; Young et al., 2020). Traditional games, being inherently embodied and culturally coded, provide an ideal medium for this form of pedagogy because they simultaneously engage the body, the mind, and the cultural imagination of participants.

The concept of embodied cultural pedagogy, as applied in this study, refers to a structured instructional approach in which culturally meaningful physical practices are used as the primary vehicle for achieving educational outcomes beyond physical performance. This framework draws on culturally responsive pedagogy (Gay, 2018), which emphasizes the importance of connecting instructional content to students' cultural backgrounds and lived experiences. When students engage with traditional games that originate from their own or neighboring cultural communities, the educational encounter becomes not merely pedagogically enriching but also personally affirming and socially bonding. This is particularly significant in the South Sulawesi context, where ethnic and linguistic diversity — encompassing Bugis, Makassar, Mandar, and Toraja cultural communities — creates both rich intercultural learning opportunities and potential challenges for social cohesion in educational settings.

Language interaction — defined in this study as the quality and diversity of communicative exchanges that students engage in during collaborative physical activity — has been identified as a critical dimension of social learning in PE settings (Saddhono et al., 2025). Traditional games, which often require verbal coordination, negotiation of rules, collective strategizing, and shared celebration of achievement, naturally stimulate language use in culturally authentic contexts. This linguistic dimension is particularly significant in multilingual regions like South Sulawesi, where local languages coexist with the national language Bahasa Indonesia and carry deep civic significance as markers of regional cultural identity. Unlike formal classroom language instruction, the communicative demands generated by traditional game participation are emergent, purposeful, and embedded in shared cultural meaning — characteristics that research on traditional game-based learning has consistently associated with more durable language development outcomes (Saddhono et al., 2025).

Civic identity — understood in this study as students' sense of belonging to a civic community, their internalization of shared civic values, and their commitment to civic participation — is increasingly recognized as an educational outcome that cannot be effectively achieved through didactic instruction alone (Caena & Redecker, 2019; PISA, 2021). Research in civic education has consistently demonstrated



that experiential learning modalities — including community-based practices, cultural engagement, and collaborative problem-solving — are significantly more effective than lecture-based approaches in fostering civic commitment among young people (Agus et al., 2025). Traditional games, which are rooted in community norms of fairness, respect for elders, solidarity under adversity, and collective accountability, offer precisely such experiential conditions for civic learning. In the Indonesian context, where the Pancasila — the national philosophical foundation emphasizing unity in diversity — serves as the ideological cornerstone of civic education, traditional games from diverse cultural communities represent living embodiments of these civic principles.

Social cohesion — defined as the capacity of individuals within a group to cooperate, trust one another, and engage in mutually supportive collective action — is a foundational outcome of quality education in diverse societies (Sember et al., 2020; Vouzoulis et al., 2023). In PE contexts, social cohesion emerges through shared physical challenge, coordinated team effort, and mutual support in competitive and cooperative game situations. When these game situations are culturally grounded, students not only develop interpersonal bonds through shared physical experience but also construct shared cultural narratives that deepen group solidarity and create lasting foundations for intercultural understanding (Purnomo et al., 2024; Panyawong et al., 2026). This dual process — physical bonding through shared challenge and cultural bonding through shared heritage — constitutes the distinctive mechanism through which traditional game-based embodied cultural pedagogy generates social cohesion outcomes.

Despite the theoretical alignment between traditional games, embodied pedagogy, and the targeted outcomes of language interaction, civic identity, and social cohesion, empirical studies that systematically examine these relationships within Indonesian higher education PE contexts remain limited. Existing research in Indonesian PE tends to focus either on physical skill outcomes, motor development, or broad cultural preservation advocacy without systematically investigating the specific pedagogical mechanisms that link traditional game participation to sociolinguistic, civic, and social outcomes (Priyadi et al., 2024; Julianti et al., 2024). This gap is particularly pronounced in South Sulawesi, where the exceptional diversity and richness of traditional games — from the coastal Makassar communities to the highland Toraja and the maritime Bugis — has not been systematically harnessed as an educational resource at the university PE level.

Several related international studies provide theoretical and empirical orientation for the present research. Wardiah et al. (2026) demonstrated that sport experience-based creative writing instruction significantly improved academic competence among PE students at Universitas PGRI Palembang, establishing a compelling precedent for the integration of experiential physical activities with broader academic outcomes. Similarly, Panyawong et al. (2026) showed that a structured, culturally grounded folk play intervention significantly improved social interaction, communication, and cooperation among primary school students in Thailand, providing a closely analogous precedent for culturally embedded traditional games as a mechanism for social and communicative development in PE. Cappello et al. (2025) showed that movement-based performing arts effectively developed PE teacher identity by engaging embodied, cultural, and reflective dimensions of professional learning simultaneously. Azevedo et al. (2022) systematically reviewed reflective skill development in PE teacher education, confirming that structured reflection on physical experience is a powerful mechanism for professional and personal growth. Building on this converging body of evidence, the present study extends the inquiry to traditional games as a specifically culturally grounded form of embodied physical experience.

Therefore, this study was designed to empirically investigate the role of traditional game-based embodied cultural pedagogy in fostering language interaction, civic identity, and social cohesion among Physical Education students at universities in South Sulawesi, Indonesia. The research employed a mixed-methods sequential explanatory design to capture both the quantitative magnitude and qualitative depth of these relationships, thereby contributing to the growing international literature on culturally responsive PE pedagogy and to the specific educational discourse on traditional games in Indonesian higher education.

The specific objectives of this study are: (1) to examine the relationship between participation in traditional game-based embodied cultural pedagogy and students' language interaction competence; (2) to

investigate the impact of traditional game-based learning on civic identity development among PE students; and (3) to analyze the effect of traditional game engagement on social cohesion within culturally diverse student groups in South Sulawesi.

Research Hypotheses

H₀₁: Traditional game-based embodied cultural pedagogy does not significantly affect language interaction among Physical Education students in South Sulawesi.

H_{a1}: Traditional game-based embodied cultural pedagogy significantly affects language interaction among Physical Education students in South Sulawesi.

H₀₂: Traditional game-based embodied cultural pedagogy does not significantly affect civic identity development among Physical Education students.

H_{a2}: Traditional game-based embodied cultural pedagogy significantly affects civic identity development among Physical Education students.

H₀₃: Traditional game-based embodied cultural pedagogy does not significantly affect social cohesion among Physical Education students in South Sulawesi.

H_{a3}: Traditional game-based embodied cultural pedagogy significantly affects social cohesion among Physical Education students in South Sulawesi..

Method

Research Design

This study employed a sequential explanatory mixed-methods design, in which quantitative data were collected and analyzed first, followed by a qualitative phase designed to explain and contextualize the statistical findings (Creswell, 2022). This design was selected because the primary research questions required both measurement of relationship magnitudes across a sufficiently large sample and deeper interpretive understanding of the mechanisms and lived experiences underlying those relationships — objectives that cannot be simultaneously achieved through a single-method approach (Neuman, 2019).

The quantitative phase followed a cross-sectional correlational design using Structural Equation Modeling-Partial Least Squares (SEM-PLS) to examine the hypothesized relationships among traditional game participation, language interaction, civic identity, and social cohesion. The qualitative phase adopted a phenomenological orientation to capture the essence of participants' subjective experiences with embodied cultural pedagogy, particularly their interpretations of how traditional game participation shaped their communicative, civic, and social development during the one-semester program. Integration of findings occurred at the interpretation stage, where qualitative themes were used to elaborate and contextualize the quantitative path coefficients.

Participants

The study involved 150 third-semester students enrolled in Physical Education Study Programs at three state universities in South Sulawesi, Indonesia: Universitas Bosowa Makassar (n = 52), Universitas Negeri Makassar (n = 50), and Universitas Islam Negeri Alauddin Makassar (n = 48). The participants included 87 males and 63 females, with ages ranging from 19 to 22 years (M = 20.3 years, SD = 0.84). Approximately 61% identified as Bugis, 24% as Makassar, 9% as Toraja, and 6% from other regional backgrounds, reflecting the ethnocultural composition of the South Sulawesi student population.

Participants were selected using purposive stratified sampling to ensure representation across institutions, gender, and regional cultural backgrounds (Ahmed, 2024; Makwana et al., 2023). The inclusion criteria required participants to: (1) be enrolled in their third semester of PE study; (2) have no prior formal exposure to the specific traditional games included in the intervention; and (3) provide written informed consent. Students with chronic physical conditions that prevented full participation in game activities were excluded from the sample.

For the qualitative phase, 18 participants were purposively selected from the quantitative sample using maximum variation sampling to ensure diversity in terms of traditional game participation scores, ethnic backgrounds, gender, and home institutions. This subsample included six participants from each institution, composed of three high-participation students (top tercile on the TGPS) and three moderate-participation students (middle tercile), to capture a range of engagement experiences.

Description of Traditional Games Used in the Intervention

Three traditional games from South Sulawesi were selected for the intervention based on their cultural significance, physical accessibility, and pedagogical potential for generating communicative and civic learning experiences.

Tari Paraga is a traditional Makassar group game in which players form a circle and use various body parts feet, knees, shoulders, and head to keep a rattan ball (paraga) aloft without it touching the ground. The game emphasizes coordination, creativity, mutual encouragement, and communal aesthetics. In the Makassar cultural tradition, Tari Paraga is performed at community celebrations and represents values of collective harmony, skillful self-expression, and respect for communal enjoyment. Its collaborative structure naturally generates rich verbal communication as players call out strategies, celebrate each other's moves, and coordinate through both verbal and nonverbal signals.

Massempe is a traditional Bugis competitive game in which two participants sit facing each other with legs extended and attempt to use their legs to flip or unbalance the opponent. The game is governed by strict cultural codes of conduct, including respect for the opponent, acceptance of fair defeat, and adherence to agreed rules. Massempe embodies the Bugis value system of *siri'* (honor and dignity), which requires participants to compete with full effort while maintaining dignity and respect. The negotiation of rules, the cultural protocols surrounding the game, and the post-game reconciliation practices create particularly rich conditions for civic learning.

Egrang is a traditional stilts game found across multiple South Sulawesi communities, in which participants walk on bamboo stilts of varying heights across obstacle courses, competing for balance, speed, and grace. Egrang cultivates patience, persistence, and mutual encouragement, as students typically assist each other in mounting the stilts and coach one another through difficult terrain. The game's requirement for sustained peer coaching creates extensive communicative interaction and naturally builds supportive social relationships among participants.

Research Instrument

The quantitative data collection instrument consisted of a structured questionnaire with four validated scales. (1) The Traditional Game Participation Scale (TGPS, 15 items) measured the frequency, depth, and quality of engagement with the three traditional games across the intervention period, including items on cultural orientation, embodied practice, reflective dialogue, and civic reflection sessions. (2) The Language Interaction Scale (LIS, 12 items) assessed the diversity, frequency, and perceived meaningfulness of communicative exchanges generated during game participation, including items on vernacular language use, code-switching, negotiation, and collaborative verbal strategy. (3) The Civic Identity Scale (CIS, 14 items) measured students' sense of civic belonging, internalization of shared civic values (particularly Pancasila principles), and commitment to civic participation in their community contexts. (4) The Social Cohesion Scale (SCS, 13 items) assessed interpersonal trust, group solidarity, mutual support, and sense of shared cultural ownership developed through game participation. All items were rated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) (Robinson, 2024; Miall & Kuiken, 2019).

Content validity was established through expert review involving five specialists in Physical Education, civic education, cultural studies, educational measurement, and applied linguistics. Each expert independently evaluated the relevance, clarity, and cultural appropriateness of all items using a four-point rating scale. Items receiving mean expert ratings below 3.0 were eliminated, and items with ratings between 3.0 and 3.4 were revised based on written feedback. This process resulted in the elimination of 2 items and the revision of 8 items from the initial pool of 56 items, yielding a 54-item pilot instrument.

Construct validity and reliability were assessed through a pilot study with 40 PE students from Universitas Hasanuddin Makassar, who were outside the main research sample. The pilot data were analyzed using Pearson correlation for item-total correlations (validity threshold: $r > 0.30$) and Cronbach's Alpha



for internal consistency (reliability threshold: $\alpha > 0.70$). Items failing the validity criterion were removed, resulting in the final 54-item instrument used in the main study.

Table 1. Results of Instrument Validity and Reliability Testing

Scale	Items (Final)	Item Validity (r-value)	Criteria	Cronbach's α	Interpretation
TGPS	15	0.51 – 0.78	$r > 0.30$	0.87	Reliable
LIS	12	0.48 – 0.81	$r > 0.30$	0.85	Reliable
CIS	14	0.53 – 0.79	$r > 0.30$	0.89	Reliable
SCS	13	0.49 – 0.76	$r > 0.30$	0.86	Reliable

Source: Processed research data. TGPS = Traditional Game Participation Scale; LIS = Language Interaction Scale; CIS = Civic Identity Scale; SCS = Social Cohesion Scale.

Research Procedure

The implementation of traditional game-based embodied cultural pedagogy was conducted over one full semester (16 weeks) integrated within the PE curriculum at each of the three participating universities. The intervention was approved by the institutional review boards of all three institutions, and all participants provided written informed consent prior to enrollment. Each week, students engaged in two 90-minute sessions focused on the selected traditional games, for a total of 32 sessions across the semester. The games were introduced in three progressive phases aligned with their complexity and cultural depth.

Phase 1 (Weeks 1–4): Egrang was introduced first because of its relatively accessible physical demands and its strong peer-coaching requirement, which helped establish early communicative habits and supportive group norms. Students began with short stilt heights (20 cm) and progressively increased to 50 cm by the end of Phase 1. Cultural orientation sessions in this phase focused on the geographic distribution of Egrang across South Sulawesi communities and its role as a marker of childhood cultural identity.

Phase 2 (Weeks 5–9): Massempe was introduced, requiring more nuanced cultural orientation due to its embeddedness in Bugis siri' values. Students first studied the cultural protocols of Massempe through video documentation of community performances before practicing the game itself. The cultural orientation sessions in this phase explicitly connected Massempe's codes of fair competition and dignified defeat to the Pancasila principles of humanity and social justice, creating a direct bridge between traditional game culture and civic education.

Phase 3 (Weeks 10–16): Tari Paraga was introduced as the culminating game, given its complexity, collective nature, and strong aesthetic dimension. Students worked in groups of 8–10 to develop and perform their own Tari Paraga sequences, integrating individual skills into collective artistic expression. This phase included the most extensive reflective dialogue sessions, as students were asked to connect the collective creativity of Tari Paraga to broader civic themes of unity in diversity (Bhinneka Tunggal Ika) and cultural pride.

Each session followed a consistent four-phase pedagogical sequence: (a) Cultural Orientation (15 minutes) a brief contextualization of the game's historical, social, and civic significance, facilitated by the PE lecturer using culturally specific materials; (b) Embodied Practice (50 minutes) structured physical engagement with the game, progressively building from individual skill acquisition to collaborative game play; (c) Reflective Dialogue (15 minutes) structured peer discussion in groups of five to six students using guided prompts focused on their communicative, social, and cultural experiences during that session's game play; and (d) Civic Reflection (10 minutes) a brief written or oral reflection connecting the cultural values embedded in the game to principles of Pancasila and civic life in contemporary Indonesian society.

The traditional games were facilitated by PE lecturers who had received a two-day professional development workshop on embodied cultural pedagogy principles and facilitation techniques prior to the study. Lecturers were provided with a standardized facilitator guide developed by the research team, which included session plans, cultural background materials, reflective dialogue prompts, and civic reflection frameworks. Weekly coordination meetings among lecturers from the three institutions were conducted via video conference to ensure cross-institutional consistency in implementation.

Data Analysis



Quantitative data were analyzed using Structural Equation Modeling-Partial Least Squares (SEM-PLS) via SmartPLS 4.0 software. SEM-PLS was selected for its robustness with non-normal data distributions, its suitability for exploratory research with complex constructs, and its capacity to simultaneously assess both measurement model quality (outer model) and structural relationships (inner model) (Creswell, 2022). The outer model assessment included evaluation of factor loadings (threshold: > 0.50), Composite Reliability (CR; threshold: > 0.70), Average Variance Extracted (AVE; threshold: > 0.50), and discriminant validity using the Heterotrait-Monotrait Ratio of Correlations (HTMT; threshold: < 0.85). The inner model was evaluated through bootstrapping with 5,000 resamples to generate path coefficients (β), t-values, p-values, R^2 values, and predictive relevance (Q^2) through blindfolding procedures. A significance level of $p < 0.05$ was applied throughout.

Prior to SEM-PLS analysis, normality was assessed using the Shapiro-Wilk test and descriptive statistics (skewness and kurtosis). Given the non-normal distribution of several variables, PLS-SEM was confirmed as the appropriate analytical choice over CB-SEM. Multicollinearity among predictor variables was assessed through Variance Inflation Factor (VIF) scores, with values below 3.3 indicating acceptable levels.

Qualitative data from 18 in-depth interviews (each lasting 45–60 minutes) were audio-recorded with participant consent, transcribed verbatim in Bahasa Indonesia, and translated into English by a certified bilingual translator. The translated transcripts were analyzed using thematic analysis following the six-phase framework of Braun and Clarke (2019): (1) familiarization with the data through repeated reading; (2) generating initial codes; (3) searching for themes; (4) reviewing themes against the full dataset; (5) defining and naming themes; and (6) producing the thematic report. NVivo 14 software was used to manage coding and theme development. Intercoder reliability was established by having a second researcher independently code 30% of the transcripts, yielding a Cohen's Kappa of 0.82, indicating strong agreement. Member checking was conducted with six interview participants to verify the accuracy and fairness of the emerging themes.

Ethical Clearance

This study was approved by the Research Ethics Committee of the Research and Community Service Institute of Makassar State University, number 3289/UN36.11/TU/2025.

Results

Descriptive Statistics

Table 2 presents the descriptive statistics for all four constructs across the full sample ($n = 150$). The mean scores indicate that students reported moderate to high levels across all variables, with Social Cohesion recording the highest mean ($M = 3.92$, $SD = 0.61$) and Civic Identity the lowest ($M = 3.64$, $SD = 0.73$). The Shapiro-Wilk test confirmed that all variables deviated significantly from normality ($p < 0.05$), validating the choice of SEM-PLS over covariance-based SEM.

Table 2. Descriptive Statistics for All Study Constructs ($n = 150$)

Construct	Min	Max	Mean	SD	Skewness	Kurtosis
Traditional Game Participation (TGPS)	2.20	5.00	3.78	0.68	-0.31	0.14
Language Interaction (LIS)	2.00	5.00	3.71	0.72	-0.28	0.09
Civic Identity (CIS)	1.80	5.00	3.64	0.73	-0.19	-0.11
Social Cohesion (SCS)	2.40	5.00	3.92	0.61	-0.42	0.27

Source: Processed research data. SD = Standard Deviation.

Outer Model Assessment

The outer model results confirmed that all measurement scales achieved satisfactory validity and reliability. Factor loadings for all retained items ranged from 0.51 to 0.81, exceeding the threshold of 0.50. Composite Reliability (CR) values for all constructs ranged from 0.86 to 0.91, indicating strong internal consistency. Average Variance Extracted (AVE) values ranged from 0.52 to 0.61, meeting the convergent validity criterion of $AVE > 0.50$. The results are summarized in Table 3.



Table 3. Outer Model Assessment Results (Measurement Model)

Construct	Items Retained	Factor Loading Range	CR	AVE	Cronbach's α
Traditional Game Participation (TGPS)	13	0.53 – 0.78	0.89	0.57	0.87
Language Interaction (LIS)	11	0.51 – 0.81	0.87	0.54	0.85
Civic Identity (CIS)	12	0.55 – 0.79	0.91	0.61	0.89
Social Cohesion (SCS)	11	0.51 – 0.76	0.86	0.52	0.86

Source: Processed research data. CR = Composite Reliability; AVE = Average Variance Extracted.

Discriminant validity was assessed using the Heterotrait-Monotrait Ratio of Correlations (HTMT). All HTMT values fell below the conservative threshold of 0.85 (range: 0.61–0.79), confirming that the four constructs are empirically distinct from one another. Multicollinearity assessment yielded VIF values ranging from 1.12 to 2.34, all well below the threshold of 3.3, indicating no problematic collinearity among the predictor variables. These results collectively confirm that the measurement model demonstrates adequate reliability, convergent validity, and discriminant validity, providing a sound foundation for structural analysis.

Inner Model: Structural Path Analysis

The inner model was assessed through bootstrapping procedures (5,000 resamples) to generate path coefficients, t-values, and significance levels for each hypothesized structural relationship. The results of the structural path analysis are presented in Table 4.

Table 4. Structural Path Analysis Results (Inner Model)

Hypothesized Path	β	SE	t-value	p-value	R ²	Decision
TGPS → Language Interaction (H ₁)	0.61	0.07	8.71	< 0.001	0.372	Accepted
TGPS → Civic Identity (H ₂)	0.58	0.08	7.25	< 0.001	0.336	Accepted
TGPS → Social Cohesion (H ₃)	0.65	0.06	10.83	< 0.001	0.423	Accepted

Source: Processed research data. β = standardized path coefficient; SE = standard error; R² = variance explained; TGPS = Traditional Game Participation Scale.

The results in Table 4 indicate that traditional game participation significantly and positively predicted all three outcome variables. The path from TGPS to Language Interaction was the second strongest (β = 0.61, t = 8.71, p < 0.001), explaining 37.2% of the variance in students' language interaction scores. The path to Civic Identity was slightly weaker (β = 0.58, t = 7.25, p < 0.001), accounting for 33.6% of variance. The path to Social Cohesion was the strongest among all hypothesized relationships (β = 0.65, t = 10.83, p < 0.001), explaining 42.3% of variance in social cohesion scores. All three null hypotheses were therefore rejected in favor of the alternative hypotheses, confirming the central role of traditional game participation in predicting language, civic, and social outcomes. The predictive relevance Q² values — 0.19 for language interaction, 0.17 for civic identity, and 0.22 for social cohesion — all exceeded zero, confirming the structural model's predictive accuracy.

Qualitative Findings: Thematic Analysis

The thematic analysis of 18 in-depth interviews generated four overarching themes that elaborated, confirmed, and in some cases nuanced the quantitative findings. The themes were: (1) Cultural Embodiment as Communicative Catalyst; (2) Traditional Games as Civic Classrooms; (3) Solidarity Through Shared Cultural Practice; and (4) Language as Cultural Boundary Marker.

Theme 1: Cultural Embodiment as Communicative Catalyst. Participants consistently described how traditional game participation prompted them to communicate in ways that did not occur in conventional PE classes. The physical demands of Tari Paraga — requiring constant adjustment of body positions in response to teammates — generated a high density of verbal and nonverbal communicative exchanges that participants experienced as qualitatively different from the communications typical of competitive sport settings. One participant from Universitas Bosowa described: 'During Paraga, we have to talk all the time — calling each other's names, shouting strategies, encouraging each other — and we start using local words that we never use in class. It feels more real, more natural.' This spontaneous emergence of regional language use was reported by 14 of the 18 participants, suggesting that the cultural authenticity of the games created conditions for linguistic authenticity that conventional PE activities did not.



Theme 2: Traditional Games as Civic Classrooms. Participants described how the cultural protocols embedded in Massempé — particularly the ritualized respect for opponents, the acceptance of fair defeat, and the communal witnessing of competition — functioned as informal civic education that resonated more deeply than formal lecture-based Pancasila instruction. Several participants articulated explicit connections between the Bugis concept of *siri'* (honor) embedded in Massempé and the Pancasila principle of humanity: 'In Massempé, you have to lose with dignity. You cannot cheat. You cannot complain. This is exactly what Pancasila says about how we should treat each other as human beings.' These narratives suggest that traditional games provided an experiential context in which abstract civic principles became tangible, personally meaningful, and socially enacted.

Theme 3: Solidarity Through Shared Cultural Practice. The theme of solidarity emerged across all three game phases but was particularly pronounced during the Tari Paraga group performance development in Phase 3. Participants from different ethnic backgrounds — Bugis, Makassar, and Toraja — described a process of initially feeling unfamiliar with a game belonging primarily to the Makassar cultural community, followed by a gradual sense of cultural adoption and shared ownership. This process of cultural boundary crossing through embodied shared practice mirrors the mechanism identified by Panyawong et al. (2026) in the context of culturally grounded folk play, wherein shared physical challenge and culturally familiar cooperative tasks create durable interpersonal bonds that transcend initial group boundaries.

Theme 4: Language as Cultural Boundary Marker. Participants described how the traditional vocabulary associated with each game — specific terms for Paraga moves, Massempé positions, and Egrang techniques — served as linguistic markers of cultural identity that students actively sought to learn and transmit to peers from different cultural backgrounds. This voluntary investment in cross-cultural linguistic exchange was interpreted by participants as a form of cultural respect and civic engagement: 'When I learn the Makassar words for Paraga moves, I am showing respect for Makassar culture. And when my Makassar friends learn the Bugis words I use, we are building something together — a common language that belongs to all of us.' This emergent shared lexicon of traditional game vocabulary constitutes a microcosm of the broader intercultural language dynamics characteristic of South Sulawesi society.

Discussion

The findings of this study provide robust empirical support for the integration of traditional game-based embodied cultural pedagogy into Physical Education programs in South Sulawesi, Indonesia. The significant path coefficients connecting traditional game participation to language interaction ($\beta = 0.61$), civic identity ($\beta = 0.58$), and social cohesion ($\beta = 0.65$) demonstrate that culturally grounded physical activity functions as a multidimensional pedagogical vehicle that substantially extends the educational reach of PE beyond physical skill development. These results contribute to the growing international body of evidence linking embodied, culturally contextualized learning with holistic educational outcomes.

The relationship between traditional game participation and language interaction is particularly noteworthy and warrants careful theoretical interpretation. Traditional games in South Sulawesi inherently require rich verbal communication — negotiating rules, developing collective strategies, responding to evolving game situations, and processing shared cultural experiences — all in culturally specific linguistic registers that carry social meaning extending beyond their immediate referential function. This finding corroborates the work of Saddhono et al. (2025), who established that traditional games requiring verbal interaction and strategic negotiation stimulate richer, more durable language development than decontextualized language instruction. Furthermore, the qualitative finding of spontaneous code-switching between Bahasa Indonesia and regional languages during game sessions supports the broader sociolinguistic literature on cultural authenticity as a language activation mechanism. This finding also resonates with Panyawong et al.'s (2026) demonstration that culturally grounded folk play created repeated, structured opportunities for peer communication that significantly improved students' social communication competence, suggesting that the mechanism may operate across diverse forms of culturally embedded physical activity.



The significant effect of traditional game participation on civic identity ($\beta = 0.58$) aligns with both theoretical predictions from embodied cognition theory (Varela et al., 2017) and empirical findings from culturally responsive education research (Cappello et al., 2025; Azevedo et al., 2022). The qualitative Theme 2 — Traditional Games as Civic Classrooms — provides particularly compelling evidence for the embodied mechanism of civic identity development. When students engage bodily with the cultural protocols of Massempe, the civic principles of fair competition, dignified defeat, and mutual respect are not merely understood intellectually but are enacted physically and socially, creating what embodied cognition theorists call somatic markers of value — bodily memories of how civic principles feel when lived (Varela et al., 2017). This embodied mode of civic learning appears to produce more personally resonant civic identity than traditional didactic Pancasila instruction, a finding consistent with the broader civic education literature demonstrating the superiority of experiential over didactic approaches to civic value development (Caena & Redecker, 2019; PISA, 2021; Agus et al., 2025).

The strongest path coefficient was observed for social cohesion ($\beta = 0.65$), and this finding deserves particular attention. Several converging explanations can be offered for why traditional game participation produced the largest effect on social cohesion relative to language interaction and civic identity. First, the collaborative and team-based structure of all three games — requiring sustained peer interdependence over weeks of practice — created particularly dense networks of positive interpersonal experience. Second, the cultural novelty of some games for students from different ethnic backgrounds created conditions for what intercultural contact theory (Allport, 2018) describes as positive contact under conditions of equal status, common goals, intergroup cooperation, and institutional support — all conditions that characterized the intervention design. Third, the qualitative Theme 3 narratives revealed a distinctive mechanism of cultural adoption, in which students from non-Makassar backgrounds actively chose to invest in learning Makassar cultural practices, a process that generated reciprocal feelings of being honored and valued among Makassar-background students. This dynamic of voluntary cross-cultural investment and reciprocal appreciation may constitute a particularly powerful mechanism for inter-ethnic social cohesion in multicultural educational contexts. These findings resonate with and extend the work of Purnomo et al. (2024), who demonstrated that collaborative physical challenges in PE enhance group solidarity, and Julianti et al. (2024), who showed that intentionally structured psychosocial engagement through folk games and traditional sports produces stronger interpersonal outcomes than routine PE instruction.

The R^2 values obtained in this study — 37.2% for language interaction, 33.6% for civic identity, and 42.3% for social cohesion — indicate that traditional game participation is a substantive predictor of these outcomes, though it is clearly not the sole determinant. Other factors — including the quality of facilitation, students' prior intercultural experience, institutional climate for cultural diversity, and individual disposition toward cultural engagement — likely contribute to the unexplained variance. The Q^2 values (0.19, 0.17, and 0.22) confirm the model's predictive accuracy and suggest that the structural relationships identified are not artifacts of sample characteristics. Future studies would benefit from incorporating these potential moderating and mediating variables to develop a more comprehensive explanatory model.

From a practical and policy perspective, the four-phase pedagogical framework implemented in this study — cultural orientation, embodied practice, reflective dialogue, and civic reflection — proved effective across three institutionally diverse contexts, suggesting that it possesses sufficient flexibility to be adapted without losing its essential pedagogical logic. This structured approach directly addresses the critique raised by Priyadi et al. (2024) and Julianti et al. (2024) that traditional games are frequently incorporated into PE curricula without systematic pedagogical scaffolding, thereby limiting their potential to generate outcomes beyond physical skill. The success of the two-day pre-study professional development workshop for facilitators further suggests that this pedagogical framework is learnable and implementable without requiring facilitators to possess deep prior expertise in all aspects of the traditional game cultures represented.

The findings carry important implications for PE curriculum policy in Indonesia, particularly in the context of the Merdeka Belajar–Kampus Merdeka (MBKM) framework, which actively encourages higher education institutions to integrate local cultural content into study programs as a means of developing culturally grounded graduates capable of contributing to diverse communities. Traditional game-based embodied cultural pedagogy, as demonstrated in this study, offers a concrete, empirically validated, and

academically rigorous modality for fulfilling MBKM's cultural integration objectives while simultaneously advancing language, civic, and social cohesion outcomes that the framework also prioritizes. The replicability of the approach across three institutions with distinct institutional cultures and student demographics further supports its potential for broader adoption across Indonesian higher education PE programs.

Conclusions

This study examined the role of traditional game-based embodied cultural pedagogy in fostering language interaction, civic identity, and social cohesion among Physical Education students at three universities in South Sulawesi, Indonesia. Employing a mixed-methods sequential explanatory design with 150 students in the quantitative phase and 18 students in the qualitative phase, the study generated converging evidence that participation in culturally grounded traditional games specifically Tari Paraga, Massempa, and Egrang produces significant positive outcomes across all three targeted educational dimensions.

The SEM-PLS structural path analysis confirmed all three alternative hypotheses: traditional game participation significantly predicted language interaction ($\beta = 0.61$, $p < 0.001$), civic identity ($\beta = 0.58$, $p < 0.001$), and social cohesion ($\beta = 0.65$, $p < 0.001$). The strongest effect was observed for social cohesion, suggesting that the collaborative, culturally embedded nature of traditional game participation is particularly effective in building inter-student solidarity across ethnic and linguistic backgrounds. The qualitative thematic analysis generated four themes Cultural Embodiment as Communicative Catalyst, Traditional Games as Civic Classrooms, Solidarity Through Shared Cultural Practice, and Language as Cultural Boundary Marker that elaborated the mechanisms through which traditional game participation produced its effects, confirming and enriching the quantitative findings.

The study makes several original contributions to the literature. Theoretically, it extends embodied cognition theory to the specific domain of multicultural civic and linguistic education through PE, demonstrating that bodily engagement with culturally meaningful movement forms constitutes a distinctive and powerful mode of learning that cannot be replicated through didactic instruction. Empirically, it provides the first SEM-PLS structural model specifically linking traditional game participation to language interaction, civic identity, and social cohesion outcomes in Indonesian higher education PE. Methodologically, it demonstrates the value of mixed-methods sequential explanatory design for capturing both the quantitative magnitude and qualitative texture of complex educational relationships in multicultural PE contexts.

The four-phase pedagogical framework developed and validated in this study cultural orientation, embodied practice, reflective dialogue, and civic reflection represents a practical and replicable contribution for PE practitioners seeking to integrate traditional cultural practices into their instructional repertoire in ways that generate demonstrable educational outcomes beyond physical skill. The successful implementation across three institutionally diverse universities, supported by a two-day professional development workshop and standardized facilitator guide, suggests that the framework can be adopted at scale with appropriate institutional support.

Future research directions recommended based on this study include: (1) longitudinal designs to assess the sustainability and long-term development of language interaction, civic identity, and social cohesion gains beyond the intervention semester; (2) investigation of potential moderating variables, including gender, ethnic background, degree of prior cross-cultural exposure, and individual cultural orientation; (3) extension of the framework to secondary school PE contexts, where formative civic and social development processes may be even more sensitive to pedagogical influence; (4) comparative studies involving traditional games from other culturally rich regions of Indonesia — such as Kalimantan, Papua, or Nusa Tenggara — to assess the generalizability of embodied cultural pedagogy findings across diverse cultural contexts; and (5) exploration of the long-term civic and social impacts of traditional game-based learning beyond the educational context, including students' civic participation in community settings after graduation.



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