



## Pacu Jalur as a traditional sport heritage: physical, cultural, and pedagogical dimensions of Indonesia's indigenous boat race

*Pacu Jalur como patrimonio deportivo tradicional: dimensiones físicas, culturales y pedagógicas de la carrera de botes indígena de Indonesia*

### Authors

Solahuddin Nasution<sup>1</sup>  
Walid Musthafa Sembiring<sup>2</sup>  
Femmy Indriany Dalimunthe<sup>3</sup>  
Edi Sumarno<sup>4</sup>  
Fajar Utama Ritonga<sup>5</sup>  
Mujahid Widian Saragih<sup>6</sup>  
Emi Triani<sup>7</sup>  
Sofiari Ananda<sup>8</sup>

<sup>1, 4, 5, 6, 7, 8</sup> Universitas Sumatera  
Utara, Medan, Indonesia  
<sup>2</sup> Universitas Medan Area, Medan,  
Indonesia  
<sup>3</sup> Politeknik Pariwisata Negeri  
Medan, Medan, Indonesia

Corresponding author:  
Solahuddin Nasution  
[solahuddin.nst@usu.ac.id](mailto:solahuddin.nst@usu.ac.id)

### How to cite in APA

Nasution, S., Sembiring, W. M., Dalimunthe, F. I.,  
Sumarno, E., Ritonga, F. U., Saragih, M. W., ...  
Ananda, S. (2025). Pacu Jalur as a traditional  
sport heritage: physical, cultural, and pedagogical  
dimensions of Indonesia's indigenous boat  
race. *Retos*, 70, 1496-1511.  
<https://doi.org/10.47197/retos.v70.117064>

### Abstract

**Introduction:** Pacu Jalur, a traditional rowing festival from Kuantan Singingi, Indonesia, is more than a cultural event; it represents a confluence of physical, cultural, and educational values. Despite its cultural prominence, scholarly exploration of its interdisciplinary educational relevance remains limited.

**Objective:** This study aims to explore Pacu Jalur as a holistic form of traditional sport heritage, examining its physical, cultural, and pedagogical dimensions through a systematic literature review.

**Methodology:** Guided by the PRISMA protocol, the review synthesized fourteen peer-reviewed articles published between 2015 and 2025. Data were extracted using standardized forms and analyzed thematically, focusing on physical benefits, cultural transmission, and educational integration.

**Discussion:** Findings reveal that Pacu Jalur promotes physical fitness, reinforces local identity, and holds pedagogical potential in character education, science, and mathematics. However, current literature is largely descriptive, lacking empirical data and inclusivity perspectives.

**Conclusion:** Pacu Jalur exemplifies a valuable educational and cultural asset. Integrating it into formal curricula and policy could strengthen Indonesia's educational goals and cultural preservation. Future research should explore its application in inclusive and interdisciplinary contexts.

### Keywords

Traditional sport heritage, Pacu Jalur, cultural education, indigenous physical activity, pedagogical integration.

### Resumen

**Introducción:** Pacu Jalur, un festival de remo tradicional de Kuantan Singingi, Indonesia, representa una convergencia entre valores físicos, culturales y educativos. A pesar de su prominencia cultural, la investigación académica sobre su relevancia educativa interdisciplinaria sigue siendo limitada.

**Objetivo:** Este estudio tiene como objetivo explorar Pacu Jalur como una forma integral de patrimonio deportivo tradicional, examinando sus dimensiones físicas, culturales y pedagógicas a través de una revisión sistemática de la literatura.

**Metodología:** Guiado por el protocolo PRISMA, se sintetizaron catorce artículos revisados por pares publicados entre 2015 y 2025. Los datos se extrajeron mediante formularios estandarizados y se analizaron temáticamente con enfoque en los beneficios físicos, la transmisión cultural y la integración educativa.

**Discusión:** Los hallazgos revelan que Pacu Jalur promueve la condición física, refuerza la identidad local y posee potencial pedagógico en la educación del carácter, ciencias y matemáticas. Sin embargo, la literatura actual es mayoritariamente descriptiva, con escasa evidencia empírica y pocas perspectivas inclusivas.

**Conclusión:** Pacu Jalur es un recurso valioso para la educación y la cultura. Su integración en el currículo formal y las políticas educativas podría fortalecer los objetivos nacionales de Indonesia y la preservación cultural.

### Palabras clave

Patrimonio deportivo tradicional, Pacu Jalur, educación cultural, actividad física indígena, integración pedagógica.

## Introduction

Traditional sports are increasingly acknowledged as vital components of intangible cultural heritage, serving to promote identity, community cohesion, and cultural diversity globally (Budiman et al., 2024; Sunanto et al., 2024). These activities not only represent a significant aspect of cultural memory but also enhance social interaction and foster a sense of belonging within communities (Bisa, 2023; Irfan et al., 2024). By engaging participants in cultural practices, traditional sports contribute to the maintenance and evolution of cultural identity, reflecting the values and customs of specific communities (Cao, 2023; Hou, 2024).

This recognition aligns with a growing global academic movement aimed at decolonizing sport, which integrates Indigenous knowledge systems into the study of physical culture (Nofrizal et al., 2024). Recent literature points to the importance of reinterpreting traditional sports, now through a framework that acknowledges and respects their cultural contexts (which can be interpreted as a turn towards inclusivity and representation in sports studies (Held, 2020). It is also maintained by academics that the recognition and maintenance of aboriginal forms of practice in sport contributes to maintaining cultural authenticity and challenging the hegemonic status of the discourse of modern sports which sometimes submerges local traditions (Irfan et al., 2024).

Furthermore, the resurgence of interest in traditional sports is linked to their educational and therapeutic potentials; they offer opportunities for physical activity that are accessible to diverse populations (Alcaraz-Muñoz et al., 2020). The integration of these sports into educational curricula cultivates both physical fitness and social and emotional learning, reinforcing the positive influence of traditional sports in developing well-rounded individuals (Alcaraz-Muñoz et al., 2020; Bisa, 2023).

Sport heritage, encompassing the intertwining of cultural memory, physical activity, and ritual practices, has gained critical attention as communities endeavor to preserve their historical significance while adapting to contemporary demands (Hou, 2024; Nikravan et al., 2019). Traditional sports provide a tangible link to cultural practices that orient individuals within their community and history (Cao, 2023; Deng et al., 2024). These sports serve educational purposes, transmitting skills, values, and cultural norms, thereby enriching participants' understanding of their heritage (Chu et al., 2022).

However, the challenge lies in maintaining authenticity amid pressures for modernization and commercialization associated with tourism and global sporting events (Irfan et al., 2024; Ribeiro & Couto, 2022; Wang, 2021). As traditional sports are increasingly commodified, preserving their cultural integrity while embracing opportunities for broader engagement becomes essential (Irfan et al., 2024; Zhanjiang, 2018). There is a growing discourse on how traditional sports can adapt to modern contexts without losing their foundational cultural elements, thus facilitating cultural continuity while appealing to new audiences (Hou, 2024; Ribeiro & Couto, 2022).

Moreover, contemporary research highlights the wellness benefits of participating in traditional sports, noting their contributions to physical health, emotional regulation, and social cohesion (Deshmukh et al., 2024; Chu et al., 2022). Additionally, educational programs utilizing traditional sports can harness their cultural significance to enhance students' character development, promoting virtues such as teamwork and respect (Bisa, 2023; Chu et al., 2022). Consequently, the pedagogical implications of these sports underscore their relevance in fostering holistic educational environments that celebrate cultural diversity while promoting active participation (Bisa, 2023; Hou, 2024).

The Pacu Jalur, a discipline of traditional boat racing from Kuantan Singingi Regency of Riau in Sumatra, Indonesia reflects how indigenous sports have connections to historic local ceremonies and festivities. Traditionally, the race is associated with agricultural traditions and communities used to bid farewell to the harvesting season with such colourful and competitive water event (Bakri, 2022; Erlisnawati et al., 2023). The ritualistic relevance in terms of giving praise to water sources and agricultural fertility reflects the cultural topography and collective memory of the community (Hastuti et al., 2022). Pacu Jalur, from an agrarian event to a festive competition that attracted the floor of both local and foreign tourists, helps to ensure continuity to the values of tradition found in the community (Maharani & Raflesia, 2023).



The cultural significance of Pacu Jalur lies not only in its historical context but also in the visual spectacles it produces. The event features large, elaborately decorated boats that represent both artistic expression and community identity (Erlisnawati et al., 2023). Participants engage in synchronized teamwork, essential for success in this competitive racing environment. This aspect of the race fosters values such as cooperation and honor among participants, reinforcing local cultural identity through shared experiences (Dahlberg et al., 2018). The festivities surrounding the event enhance community pride, fostering connections between various ethnic groups and encouraging cultural exchange (Hastuti et al., 2022). The decoration of boats and the rituals associated with the event encapsulate the essence of local traditions while promoting Indonesia's diverse cultural heritage (Bakri, 2022; Erlisnawati et al., 2023; Maharani & Raflesia, 2023).

From a physical and cultural perspective, Pacu Jalur requires a great deal of muscular endurance, strength, and coordination, some of which fall under the realm of what kinesiology and performance studies would examine (Hastuti et al., 2022). Training for the race is rigorous and the community participates, promoting physical fitness for participants as well as viewers. Integration of Pacu Jalur into educational curricula provides fertile ground for student character development and social inclusion and contributes to educational approaches that promote the holistic development of the child (Dubnewick et al., 2018). It becomes not only about sport; Pacu Jalur as a local sport is a tool itself to teach about the spirit of teamwork and hard work into young learners, and also building a pride of the local culture as well as keeping the connection to indigenous heritage (Firmanyah & Masunah, 2019).

Previous studies have explored various dimensions of the Pacu Jalur tradition. Afrison and Masunah (2021) emphasized the social values embedded in Jalur dance, which draws inspiration from the activities surrounding the Pacu Jalur tradition, such as wood gathering, boat crafting, and racing. The dance serves as an artistic representation of daily communal practices, highlighting how traditional sport can also inspire performance art.

Bakri (2022) investigated the values of Pancasila and citizenship reflected in the Pacu Jalur tradition, particularly those related to religious devotion, unity, deliberation, community participation, and love for the homeland. His findings suggest that the tradition plays a significant role in reinforcing national character and cultural identity in the face of rapid modernization.

Chairani et al. (2022) documented the historical continuity and cultural significance of Pacu Jalur as a local heritage that has survived for over a century. They advocated for revitalization and cultural preservation strategies, including proper documentation and legal recognition of the tradition as part of Indonesia's national heritage assets.

From the perspective of cultural literacy, (Erlisnawati et al., 2023) identified the core value of cooperation within the Pacu Jalur tradition. This value is reflected in every stage of the practice from boat construction to the actual race demonstrating how community collaboration is essential for sustaining cultural practices over time.

In addition, (Firmanyah & Masunah, 2019) explored the choreographic elements of Jalur dance performed during the opening ceremony of the Pacu Jalur Festival. Although this dance has not been regularly performed since 2005, it retains significant historical and performative value, symbolizing the cultural preparation and communal spirit embedded in the boat race.

Despite having strong cultural and regional values and having become a local spectacle, the intensity of the scholar and global attentions towards Pacu Jalur remains fragmented and partial. The existing studies focus for the most part on its cultural tourism and performance, they tend to stereotype its folk art and show the "beautiful" and "ritualized" dancing of the dancers as a living fossil. However, through this narrow approach fails to account the corporeal aspect of the sport and the arduous intensity in which sport is performed (Afrison & Masunah, 2021; Zulirfan et al., 2023). Furthermore, there is little in the way of inter-disciplinary analysis of Pacu Jalur with a unified approach, integrating physical and cultural issues with pedagogical dimensions of value. As such, the race is seldom set within global narratives on indigenous sport heritage, nor critically examined with respect to what it could contribute to educational and other developmental narratives.

In response to these lacunae this article argues for a holistic conceptualization of Pacu Jalur within traditional sport heritage. More specifically, I will seek to operate at the crossroads of physical performance, cultural symbolism and pedagogical potential inherent to the indigeneous canoe race. The study becomes relevant to larger discussions of inclusive physical education, cultural sustainability, and identity development through sport by employing interdisciplinary methods. It also provides implications for culturally sensitive educational policy formulation and for the revival of indigenous games in South-east Asia. By doing so, this paper locates Pacu Jalur as more than just a regional festival; rather, it is a culturally significant and active artifact that provides a link to emerging scholarly and pedagogical debates.

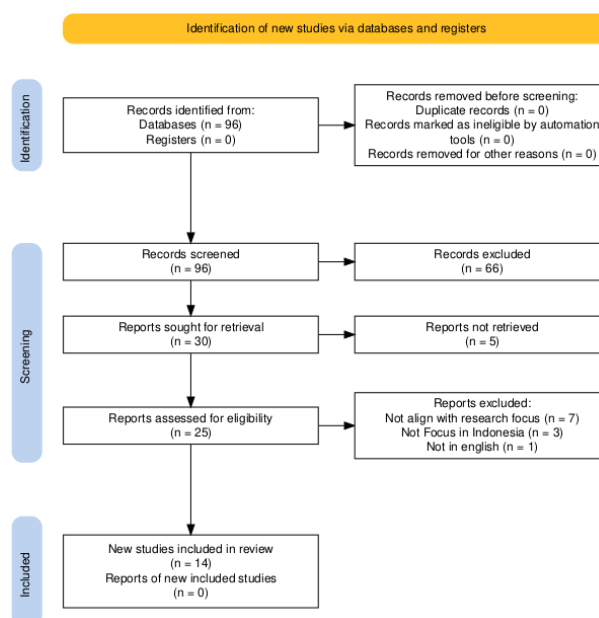
## Method

This study adopted a Systematic Literature Review (SLR) approach guided by the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) protocol to ensure methodological transparency and replicability. The purpose of this review was to synthesize scholarly literature that critically examines traditional sport heritage specifically the case of Pacu Jalur through its physical, cultural, and pedagogical dimensions within the broader discourse of indigenous sports in Southeast Asia.

A structured and comprehensive search was conducted across five major academic databases: Scopus, Web of Science, Taylor & Francis Online, SAGE Journals, and Google Scholar. The review focused on peer-reviewed articles published between 2019 and 2025, capturing both historical foundations and contemporary developments in the study of traditional sports. Only scholarly articles written in English or Bahasa Indonesia (with English abstracts) were considered.

To identify relevant studies, a combination of Boolean operators and controlled vocabulary was used. The search terms included: "Traditional sports in Indonesia", "Traditional sport heritage," "Indigenous sports in Indonesia," "Pacu Jalur," "Cultural identity and sports," "Traditional boat race in Indonesia," "Physical education and local culture".

Figure 1. PRISMA 2020 Flow Diagram Illustrating the Selection Process of Studies Included in the Systematic Review



The screening process followed the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) 2020 guidelines to ensure a transparent and structured selection of studies for inclusion. A total of 96 records were initially identified through database searches (Scopus, Web of Science,

Taylor & Francis, SAGE Journals, and Google Scholar). No additional records were retrieved from registers, and no duplicates or ineligible records were removed prior to screening.

During the screening phase, 66 records were excluded based on title and abstract review due to lack of relevance to the study's objectives. The remaining 30 reports were sought for retrieval, of which 5 could not be retrieved due to access limitations or incomplete documentation.

A total of 25 reports were assessed for eligibility through full-text review. From these, 11 studies were excluded based on the following reasons: 7 studies were not aligned with the research focus, 3 studies did not focus on Indonesia context and 1 study was not written in English.

Ultimately, 14 studies met all eligibility criteria and were included in the final synthesis. No additional studies were identified during the inclusion phase. The process is visually summarized in Figure 1.

Table 1. Eligibility Criteria for Study Selection

| Criteria Type      | Description   |
|--------------------|---|
| Inclusion Criteria | Published between 2019 and 2025 in peer-reviewed journals   |
|                    | Written in English or Bahasa Indonesia with English abstract  |
|                    | Focused on traditional/indigenous sports, sport heritage, or cultural performances related to physical activity |
|                    | Engages with physical, cultural, or educational/pedagogical aspects of traditional sports in Indonesia          |
| Exclusion Criteria | Studies examining <i>Pacu Jalur</i>   |
|                    | Studies limited to physiological or biomechanical aspects without cultural or pedagogical discussion            |
|                    | Articles focused solely on tourism or event management without addressing heritage or educational significance  |
|                    | Non-peer-reviewed publications (e.g., blogs, opinion pieces, magazine articles)                                 |
|                    | Non-English publications  |
|                    | Sports studies unrelated to tradition, heritage, or cultural significance                                       |

Data analysis followed a thematic synthesis process, allowing the identification of recurring patterns related to: the embodied physicality and training dimensions in traditional sports; the cultural and symbolic meanings embedded in Pacu Jalur; and the pedagogical implications, such as local knowledge transmission, community-based education, and character development through sport.

The studies were also classified according to their dominant disciplinary perspective (e.g., sport studies, anthropology, education), type of traditional sport examined, and the contextual setting (e.g., formal education, community festivals, cultural preservation programs). Since this review relied solely on publicly available academic literature, no ethical clearance was required. All cited works adhere to proper academic citation and integrity standards.

## Results

### Overview Selected Studies

Table 2. Overview of Selected Studies on Traditional Sport Heritage and Related Contexts

| No. | Author(s) / Year         | Context   | Focus Area            | Methodology   | Key Findings   |
|-----|--------------------------|---|-----------------------|---|--|
| 1   | (Suroyo et al., 2023)    | Character education values in Pacu Jalur aligned with the Pancasila Student Profile           | Pedagogical, Cultural | Descriptive qualitative; interviews, observation, documentation | Pacu Jalur embodies philosophical and ancestral values that align with Pancasila student character traits such as integrity, cooperation, and social awareness. These values position Pacu Jalur as a meaningful tool for character education in contemporary Indonesia. |
| 2   | (Chairani et al., 2022)  | Cultural history and preservation of Pacu Jalur as a traditional festival in Kuantan Singingi | Cultural              | Descriptive qualitative; observation, interview, documentation  | Pacu Jalur has deep historical roots and is a source of cultural pride in Kuantan Singingi. The study emphasizes the importance of documenting and revitalizing the tradition as part of community identity and cultural copyright protection.                           |
| 3   | (Zulirfan et al., 2023b) | Exploration of students' ethnoscientific literacy in relation to Pacu Jalur tradition         | Pedagogical           | Quantitative; survey of 480 high school students using          | Students showed generally low levels of ethnoscientific literacy, though the festive atmosphere of Pacu Jalur  |





|    |                               |   |                       |  |  |
|----|-------------------------------|---|-----------------------|--|--|
|    |                               |   |                       | ethnoscience literacy test   | events had a positive effect. No significant gender differences were observed. The study highlights the potential of integrating local traditions into science education.  |
| 4  | (Erlisnawati et al., 2023)    | Cultural literacy and the core value of cooperation in the Pacu Jalur tradition of Teluk Kuantan                    | Cultural, Pedagogical | Qualitative; ethnographic approach   | The value of cooperation is deeply embedded in the Pacu Jalur tradition—from boat construction to racing—emphasizing community unity and collective effort. This reflects the tradition's strong cultural literacy potential in daily life and education.  |
| 5  | (Fendrikfendrik et al., 2020) | Use of Pacu Jalur in ethnomathematics-based learning to improve elementary students' mathematical connection skills | Pedagogical           | Qualitative; realist ethnography; descriptive narrative                      | The Pacu Jalur game helps develop mathematical connection skills, particularly in geometry (e.g., tube concepts). Integrating cultural games into learning makes mathematics more meaningful and engaging for students.  |
| 6  | (Nofrizal et al., 2024)       | Role of traditional sports (e.g., Pacu Jalur) in preserving regional culture in the digital era (Society 5.0)       | Cultural, Pedagogical | Qualitative; observation, in-depth interviews, documentation                 | Traditional sports are widely recognized and supported across communities. Revitalization efforts include digital promotion, annual festivals, and intergenerational education. Traditional sports serve as tools to teach social values and connect culture to global audiences in the digital age. |
| 7  | (Irfandi, 2022)               | Integration of Pacu Jalur culture into chemistry learning (ethnochemistry)  | Pedagogical           | Qualitative; ethnographic; observation, interview, documentation             | Cultural elements of Pacu Jalur are relevant to chemistry topics such as reaction rates, elemental structure, periodic system, and chemical bonding. The study supports using local culture to contextualize abstract scientific concepts.   |
| 8  | (Febrian* & Jumadi, 2022)     | Identification of scientific concepts in Pacu Jalur for science learning materials development                      | Pedagogical           | Qualitative; descriptive analysis; observation, interview, literature review | Pacu Jalur contains scientific elements based on local wisdom that can enrich science curricula. It helps promote indigenous knowledge, fosters preservation, and supports culturally relevant education for junior and senior high school students.   |
| 9  | (Nofrizal et al., 2023)       | Sustainable development of Tual Sagu and Golek Sagu as traditional sports of the Meranti Archipelago                | Cultural              | Qualitative; observation, interview, word cloud analysis                     | Successful development of traditional sports depends on infrastructure, promotion, and intergenerational transmission. Traditional games are not only entertainment but function as cultural heritage that requires government support for preservation and growth.                                  |
| 10 | (Purwanto & Perdani, 2023)    | Anthropological exploration of sensory dimensions in maenpo Cikalong, a traditional martial art in West Java        | Cultural              | Qualitative; in-depth interviews, participant observation, literature review | Maenpo Cikalong has evolved from aristocratic combat to philosophical practice emphasizing sensory awareness. Rather than becoming a modern sport, it is maintained as a cultural and artistic tradition grounded in local philosophy and sensory experience.  |
| 11 | (Sukmana et al., 2025)        | Role of Pencak Silat in constructing and negotiating masculine identities in Indonesia                              | Cultural              | Scoping review; qualitative content analysis                                 | Pencak Silat reinforces dominant masculine ideals through discipline and leadership. Gender performativity shows masculinity is enacted through ritual and mentorship. Traditional norms are being challenged by younger athletes influenced by global gender discourse.                             |
| 12 | (Damanik et al., 2025)        | Gender inequality in Indonesian sports from sociological perspectives   | Cultural              | Systematic literature review; thematic and content analysis                  | Gender disparities in Indonesian sports stem from institutional neglect, cultural norms, and media bias. Addressing this requires funding reforms, inclusive policies, and advocacy for female athletes to create an equitable and inclusive sports environment.                                     |
| 13 | (Jariono et al., 2024)        | Impact of circuit game-based traditional sports therapy on  | Physical              | Quantitative; experimental (pretest-posttest control group)                  | Traditional sports therapy using circuit games improved students' physical fitness over 12 weeks. The  |

|    |                          |  |             |  |  |
|----|--------------------------|--|-------------|--|--|
|    |                          | physical fitness of elementary students  |             |  | intervention model is effective and adaptable for physical education programs, though limited to male participants. Broader research with larger, more diverse samples is recommended.   |
| 14 | (Ginanjari et al., 2023) | Systematic review of sports participation and impact in early childhood in Indonesia | Pedagogical | Systematic literature review (41 SINTA-indexed articles) | Gymnastics is most applied in early childhood, followed by football and basketball. Traditional sports are underrepresented. Further studies using Scopus-indexed sources and experimental designs are needed to deepen insights on physical, social, and psychological impacts. |

The synthesis of the 14 selected studies reveals a growing scholarly interest in traditional sports in Indonesia, particularly regarding their cultural, pedagogical, and physical dimensions. Traditional sports such as Pacu Jalur, Pencak Silat, Maenpo Cikalong, and other region-specific games (e.g., Tual Sagu and Golek Sagu) are increasingly recognized not only as physical activities or entertainment but as rich repositories of cultural values, local wisdom, and educational potential. Several studies (Erlisnawati et al., 2023; Suroyo et al., 2023) demonstrate that these traditional activities encapsulate important social values such as cooperation, discipline, and character formation, which align with national educational objectives, such as the Pancasila Student Profile.

From a pedagogical standpoint, traditional sports are found to be valuable tools for culturally responsive learning. Studies by (Fendrikfendrik et al., 2020), (Irfandi, 2022), and (Febrian & Jumadi, 2022) provide compelling evidence that integrating traditional games like Pacu Jalur into subjects such as mathematics, chemistry, and science can significantly enhance conceptual understanding and student engagement. Moreover, (Zulirfan et al., 2023) and (Ginanjari et al., 2023) argue that while modern sports dominate early childhood education, traditional sports offer untapped potential for fostering scientific literacy, motor development, and socio-emotional growth.

Culturally, the reviewed studies consistently underscore the importance of preserving traditional sports as part of Indonesia's intangible cultural heritage. Chairani et al. (2022), Nofrizal et al. (2023), and Purwanto & Perdani (2023) highlight the threats posed by modernization and globalization, suggesting the need for formalized revitalization strategies, including documentation, infrastructure development, and promotion through digital media. These efforts not only preserve heritage but also foster identity, pride, and intergenerational cultural transmission within local communities.

In terms of sociological and gender perspectives, the studies by (Sukmana et al., 2025) and (Damanik et al., 2025) emphasize that traditional sports can both reinforce and challenge existing gender norms. While Pencak Silat tends to affirm dominant masculine ideals, the ongoing reinterpretation of gender roles within sports indicates a gradual shift toward more inclusive practices. However, gender inequality in access, representation, and recognition persists, calling for policy reforms and more gender-sensitive program implementation.

Physically, traditional sports have proven benefits for health and fitness. Jariono et al. (2024) present empirical evidence on how circuit-based traditional games improve physical fitness in school-aged children, reinforcing the relevance of traditional movement forms in physical education. Nonetheless, the majority of experimental and quantitative research remains limited, with a noted imbalance between descriptive-qualitative inquiries and controlled intervention-based studies.

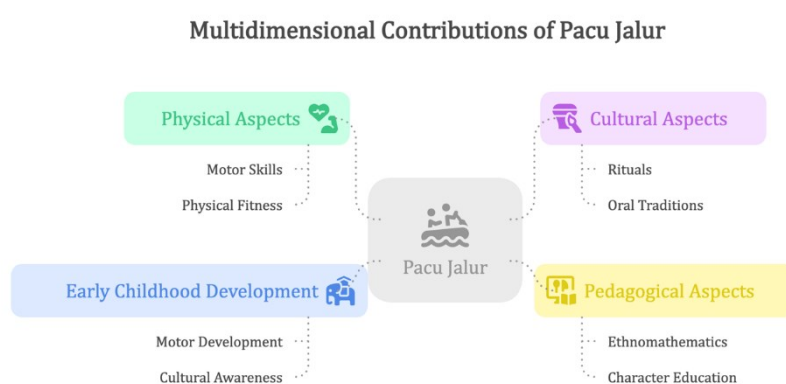
Taken together, the literature reviewed offers a multi-layered understanding of how traditional sports in Indonesia function as educational tools, cultural symbols, and physical health interventions. However, a critical gap remains in longitudinal and comparative studies, particularly those that assess the long-term impact of traditional sports integration into formal education and public policy. Future research should prioritize interdisciplinary designs that connect anthropology, education, sport science, and digital innovation to ensure traditional sports remain relevant, dynamic, and inclusive in the era of globalization and Society 5.0.

## ***Interconnectedness of Physical, Cultural, and Pedagogical Aspects***

The analysis of fourteen selected studies reveals that Pacu Jalur, as a form of traditional sport heritage, embodies a multifaceted role that extends beyond physical activity into cultural transmission and pedagogical innovation. Rather than being viewed solely as a rowing competition or local festivity, Pacu Jalur emerges as a holistic educational, cultural, and health-related practice embedded within the social fabric of the Kuantan Singingi community and beyond. Its practice integrates movement, ritual, identity, and learning in ways that reflect the dynamic interplay between heritage and contemporary development.

The tradition of Pacu Jalur is more than a rowing competition it represents a multifaceted cultural practice with deep significance in physical development, cultural preservation, and educational innovation. Drawing from a synthesis of fourteen scholarly studies, the following visual summarizes the multidimensional contributions of Pacu Jalur, highlighting its interconnected roles in promoting physical fitness, cultural identity, pedagogical enrichment, and early childhood development.

Figure 2. Multidimensional Contributions of Pacu Jalur



Physically, traditional sports like Pacu Jalur offer a lot in the realm of exercise, physical fitness, and motor skills. Jariono et al. (2024) illustrate how circuit-based conventional sports therapy can overcome physical inactivity among primary school children within a 12-week intervention. While the research was not focused specifically on Pacu Jalur, it highlights the potential for indigenous games to support health outcomes, the implication being that structured physical activity based on traditional behaviour can be 'invented' in accordance with modern educational objectives. Hereby, Pacu Jalur, designed in particular according to the principles of strength and coordination and to a lesser extent endurance, could represent an example of a community-based type of physical education that is simultaneously close to local values.

Culturally, Pacu Jalur serves as a means for identity, social unity, as well as passing- down traditions to future generations. Chairani et al. (2022), and (Nofrizal et al., 2024) emphasise the deep sense of symbolism present in Pacu Jalur, not merely as an event, but as living heritage of collective pride of the Kuantan Singingi. Its practice includes rituals, folk music, oral history and local craftsmanship to protect and strengthen cultural continuity. The festival is a place to fuse the regeneration of traditional ballads combined with educational development and creating unity to embody the river as identity of the local community, as well as act as a vehicle for the young to be in touch with their ancestral tradition and history.

From pedagogical point of view, pacu jalur also regarded as source of cultural learning. Various studies have investigated its incorporation in formal learning contexts. For example, (Fendrikfendrik et al., 2020) demonstrate the use of Pacu Jalur for mathematics' education using an ethnomathematical approach to help students learning of geometrical concepts using the analogy that punts and pins are in the shape of certain local or cultural shapes) (Irfandi, 2022) shows that elements in the boat race (such as movement, friction, and chemical content of boat-making) could be integrated in the teaching and



learning of chemistry, and thus becomes ethnochemistry. Such practices are not just effective for cognitively advancing learning goals, but they are also affirming of students' life ways, spanning the abstract nature of what is learned in academic environments with lived experiences in community.

The pedagogical dimension also includes value-oriented education. Suroyo et al. (2023) suggest that the character values of Pacu Jalur, where values of teamwork, striving perseverance, and appreciating elders play a significant role, are also coherent with Pancasila Student Profile, maintained by the Indonesian Ministry of Education. This alignment places Pacu Jalur as a source of moral and character education, with schools having the possibility to build students' citizenship and character training using indigenous sports. Erlisnawati et al. (2023) further contribute to this perspective by explaining how Pacu Jalur generates cultural literacy, especially cooperation as a fundamental community value that is echoed as the race is done collectively for preparation and competition.

Pacu Jalur was also introduced in science learning. Zulirfan et al. (2023) indicate that the Kuantan Singingi students have poor ethnoscientific literacy despite being close to traditional knowledge. Yet, the researchers also see that involvement in cultural activities like the Pacu Jalur help generate interest in science as a contextual-teaching material. Febrian and Jumadi (2023) contribute to this by highlighting scientific aspects of Pacu Jalur, fluid mechanics and energy conversion, that may provide inroads for local-based science education. These results also validate the potential of Pacu Jalur as a mediator between indigenous knowledge and formal education in the field of sciences and mathematics.

Pacu Jalur or sports in general have not fully exploited their potential as an early childhood development program. Ginanjar et al. (2023) argue that traditional games are rarely the focus of much of early childhood physical education in Indonesia, which tends to concentrate on gymnastics and modern sports such as soccer and basketball. The marginalization of such activities diminishes early exposure to culture, as well as the additional growth offered by traditional sports. The introduction of Pacu Jalur-based models into the early years classroom may enhance motor skill development and a sense of cultural appreciation at an early age.

While the pedagogical and cultural aspects are well-documented in the selected studies, there is limited empirical research exploring the long-term impact of Pacu Jalur on physical health and social development. Additionally, gendered participation remains an underexplored dimension. Damanik et al. (2025) and (Sukmana et al., 2025) both emphasize how traditional sports in Indonesia, including Pencak Silat, are often framed within masculine norms, potentially marginalizing female participation. Although Pacu Jalur is predominantly male-dominated due to its physical nature, future studies must address how inclusivity can be promoted through adaptive roles and gender-sensitive community participation.

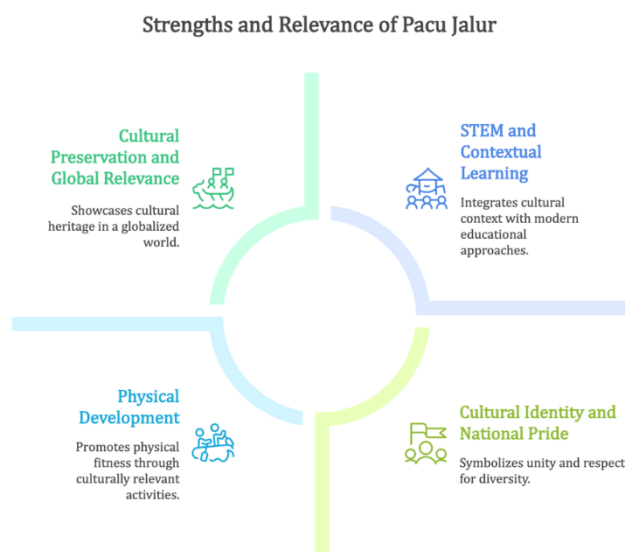
Collectively, these outcomes provide evidence that Pacu Jalur is not simply a sport but a system of knowledge and social practice. Its versatility in physical education, culture heritage and curriculum development so far has made it a treasure for every local community and nation's education. By embedding Pacu Jalur in physical education as well as in education more widely, a culturally based, context sensitive and holistic approach to education and development in Indonesia may be possible.

#### Strengths and Relevance of Pacu Jalur as a Heritage Sport

Pacu Jalur, as a heritage sport, embodies more than just a traditional rowing race it serves as a vital instrument for cultural preservation, physical education, and character formation. Rooted in the identity of the Kuantan Singingi people, its integration into educational settings aligns with national goals of fostering unity, promoting cultural pride, and nurturing well-rounded future citizens. The following visual highlights the key strengths and relevance of Pacu Jalur across cultural, pedagogical, and physical dimensions.



Figure 3. Strengths and Relevance of Pacu Jalur



Pacu Jalur is a strongman of Indonesian culture, especially in context with curriculum in local context, nation character, and nation formation. Life on board in the Pacu Jalur Only a few decades ago the Pacu Jalur was a part of the culture of the region Kuantan Singingi in the island of Riau and it was as much about the community as it was about the sport. The presence of this national sport in educational curricula can assist in fostering greater awareness of cultural heritage, which leads to the development of national pride and unity (Munajad et al., 2024).

By incorporating Pacu Jalur into its local educational systems it is in line with the national policies in Indonesia which are more focused on the preservation of heritage and nation building. This background especially in the Pancasila ideology that accommodates the appearances of mutual assistance, respect to diversity and solidarity (Jana et al., 2024). The initiative strengthens social values and indigenous wisdom and is an effective platform in molding character among students. Studies have shown that the participation in traditional sports such as Pacu Jalur not only fosters students' social growth, but also reinforces their identity through engagement in such culturally significant activities, where they gain an appreciation of values such as cooperation and honor (Munajad et al., 2024).

Chairani et al. (2022) and (Nofrizal et al., 2024) further confirm these arguments by highlighting the fact that Pacu Jalur is an expression of the local identity and cultural memory. Their research shows how Pacu Jalur helps to keep the culture alive and connects generations through common practices and expresses the identity of the Kuantan Singingi people. Such findings underline the sport's role as a living tradition which represents both tangible and intangible heritage and its dynamic place within modern cultural contexts and culture education.

From a pedagogical viewpoint, the corporeal demands for strength, stamina, and coordination that the game of Pacu Jalur demands are invaluable learning opportunities that may help to develop students' physical literacy. Reusing traditional sports to teach physical education serves two purposes: increased fitness and opportunities for developing lifelong skills such as resilience to challenge and goal setting. It has been proposed that traditional sport participation could result in physical proficiency and personal character such as confidence and persistence which are important aspects of character development (Dubnewick et al., 2018; Yurissa, 2022). This connection between physical education and character development has become increasingly important as educators seek to cultivate well-rounded, resilient future citizens.

Consistent with this view, the findings of (Jariono et al., 2024) empirical study demonstrated that traditional CDC games known as sport-based circuit games produced significant increases in physical fitness as measured by primary school students. While their research focused on all traditional games, the idea of inducing culturally-based physical activities in formal academic settings can be applied to Pacu Jalur.

The coordinated rhythmic team race can be used as a physical education unit to help develop the body and cooperation.

Moreover, Pacu Jalur could be used as a springboard for more general reflection on Indonesian cultural diversity, encouraging the appreciation of a great variety of traditions and practices that inform the national composite. When students understand the history and meaning of Pacu Jalur, coincide with the narrative of cultural identity and heritage, it will be robust to understand the position in the midst of a variety nation (Fatmawati, 2021). In engaging that way, I have no doubt such students would gain a greater appreciation for diversity, which no doubt could lead to greater national harmony.

Zulirfan et al. (2023) and (Febrian & Jumadi, 2022) are to be considered within this framework that show the potential of Pacu Jalur in nurturing ethnoscientific literacy and contextual learning science. Their results demonstrate that infusing traditional practices into classroom teaching not only stimulates cognitive engagement but also validates students' cultural heritage. These approaches help to make learning experiences more inclusive and relevant, especially for students who live in remote or indigenous communities.

The festive nature of Pacu Jalur celebrates the relevance of cultural rituals in the modern world. At a time when globalization often imperils local traditions, the event offers an important venue for the expression and preservation of culture. Highly decorated canoe and synchronized paddling showcase creativity and communal cooperation, instilling local awareness and pride (Hiswara et al., 2023). This link to their cultural heritage lets students experience how their own cultural history is relevant in a globalised world and strengthens their sense of national identity.

Furthermore, research conducted by (Fendrikfendrik et al., 2020) and (Irfandi, 2022) proved that Pacu Jalur could not only be used for social and physical education but also for STEM learning. Ethnomathematics and ethnochemistry applications that apply components of Pacu Jalur provide means to abstract theoretical scientific concepts in concrete cultural context. This cross-curricular approach increases the educational value of Pacu Jalur, facilitating inter-disciplinary collaboration that strengthens the national curriculum priorities and culture conservation.

To address the 21st-century education and social problems that are becoming more and more complex, character education should not be ignored when it comes to the traditional sport of Pacu Jalur, for example. Collective cooperation of teacher, family, and community can promote character education in physical education curriculum (Yu, 2024). By these programs, the values taught in more traditional sports can cross over from the classroom to the marketplace to establish a solid foundation of knowledge that a person can draw on for life as well as an established sense of right and wrong.

Moreover, introducing Pacu Jalur in schools reflects an educational ethos which promotes not just physical health, but moral and social obligation. Teachers can use the positive qualities displayed in the race like teamwork, integrity and respect to teach students how to engage in relationships in a positive way in their communities. This comprehensive approach to education is congruent with Indonesia's national interest in raising a "Golden Generation" that can cope with national future of challenges (Munajad et al., 2024; Nurlaili, 2023).

In summary, the physical, cultural and educational apparatuses of Pacu Jalur as a heritage sport are multi-fold. Its immersion into regional syllabuses can be an effective means of fostering national unity and character. Through the appreciation and acknowledgment of these traditions, educators may foster a sense of pride and social responsibility in their students, and prepare them not to just be readers of history but to contribute to and add another chapter to the never-ending story of Indonesia's culture. This combined approach to teaching, informed by tradition but reflecting modern concerns, could be a model for culturally sensitive learning throughout the region.

## Discussion

The findings of this systematic literature review illuminate the multidimensional character of Pacu Jalur as a traditional sport that bridges physical activity, cultural identity, and pedagogical value. Physically, Pacu Jalur is rooted in rigorous coordination, strength, and endurance qualities central to youth development and traditional physical education. This aligns with research by (Jariono et al., 2024), which



demonstrated that traditional sport-based interventions significantly improved the physical fitness of elementary school students. The competitive and cooperative aspects of rowing in Pacu Jalur offer opportunities to develop both individual and collective physical competence.

Culturally, Pacu Jalur functions as a living heritage that embodies regional pride, collective memory, and community identity. Studies by (Chairani et al., 2022) and (Nofrizal et al., 2023) emphasize how this annual festival is more than spectacle it is a communal ritual involving intergenerational knowledge transfer and local symbolism. The tradition sustains shared values, such as discipline and harmony, that are expressed through ceremonial elements and festive collaboration. These aspects reflect the event's deeply rooted significance within the Kuantan Singingi community and its potential as a medium of cultural preservation.

The pedagogical dimension of Pacu Jalur becomes evident in its integration into interdisciplinary learning. As demonstrated by (Zulirfan et al., 2023) and (Irfandi, 2022), traditional practices like Pacu Jalur have been employed as entry points for teaching science concepts, fostering ethnoscientific literacy, and contextualizing chemistry content. Likewise, (Fendrikfendrik et al., 2020) have shown that the use of ethnomathematical contexts enhances mathematical connection skills, especially in the geometry of real-life objects like traditional boats. These studies highlight the potential of traditional sports to serve as culturally responsive learning tools that make abstract academic content more tangible and meaningful.

Character education is another vital contribution of Pacu Jalur within pedagogical settings. Research by (Suroyo et al., 2023) and (Erlisnawati et al., 2023) emphasized that the values embedded in Pacu Jalur, such as cooperation, integrity, and community solidarity, align with the national Pancasila Student Profile. These values are not only visible in the sport itself but also in its preparation process, which demands collective effort and shared responsibility. This makes Pacu Jalur an effective platform for teaching moral and civic education within Indonesia's broader educational goals.

Despite these promising insights, the current body of literature reveals several limitations. Most of the studies are qualitative and descriptive, with limited empirical validation or longitudinal perspectives. For example, while several articles document the cultural richness of Pacu Jalur, such as (Chairani et al., 2022), they stop short of measuring its actual educational or social impacts on participants. This restricts the generalizability of findings and limits the potential for programmatic scaling in formal education.

There is also a noticeable lack of inclusive or gender-sensitive perspectives. None of the reviewed studies, including those addressing character or pedagogical outcomes (Febrian & Jumadi, 2022; Suroyo et al., 2023), provide disaggregated data on gender or other intersectional identities. This absence suggests a need to examine how access to Pacu Jalur is mediated by social factors such as gender, age, and socio-economic status. Without this dimension, the holistic value of Pacu Jalur as a democratic educational practice remains underexplored.

However, literature on policy-level integration of traditional sports such as Pacu Jalur is limited. A few studies, including (Nofrizal et al., 2023) suggest the hand of government intervention in regenerating local sport, but a lack of examination also extends to how Pacu Jalur could be integrated in the national curricula or even to be included in the formal education policy. Lastly, the absence of inter-disciplinary work between teachers, anthropologists and policy makers further constrains the translation of this traditional sport into comprehensive educational policies.

These findings carry significant implications. Embedding Pacu Jalur in educational systems can support the Indonesian aspirations for safeguarding the intangible cultural heritage, as well as enhancing physical literacy and civic engagement. For this to occur, curricular providers and teacher training agencies will need to work together in developing curricula and training offerings that reconcile cultural with formal competences. Moreover, to embed Pacu Jalur into Pancasila-based civic education as (Suroyo et al., 2023) suggests, could give us a culturally rooted way to suggest Pacu Jalur as an alternative to character development. Future studies need to develop stronger, more comprehensive, and more policy-making studies with respect to the full utilization of Pacu Jalur in national education and cultural sustainability.

## Conclusions

Pacu Jalur represents more than a traditional rowing competition; it is a multidimensional heritage practice that embodies physical endurance, cultural continuity, and pedagogical value. This systematic literature review synthesizes evidence from fourteen peer-reviewed studies, revealing the sport's relevance to educational innovation, identity formation, and health promotion. As a culturally embedded physical activity, Pacu Jalur facilitates intergenerational knowledge transfer and strengthens regional identity, while its physical demands support fitness and character development among youth.

The review identifies promising applications of Pacu Jalur in formal education through interdisciplinary approaches such as ethnoscience, ethnomathematics, and character-based curricula. However, current scholarship is limited in empirical scope and lacks inclusive or gender-sensitive frameworks. There is a clear need for expanded research utilizing mixed-methods approaches and broader regional comparisons.

To fully realize the transformative potential of Pacu Jalur, educators, policymakers, and cultural stakeholders must collaborate in integrating traditional sports into curricula, teacher training, and public policy. This will ensure the preservation of intangible heritage while enriching learning outcomes for future generations. Pacu Jalur, therefore, stands as a vital resource for building a resilient, culturally literate, and nationally connected citizenry in 21st-century Indonesia.

## References

- Afrison, J., & Masunah, J. (2021). Social Values in *Jalur* Dance. *Proceedings of the 3rd International Conference on Arts and Design Education (ICADE 2020)*. <https://doi.org/10.2991/AS-SEHR.K.210203.048>
- Alcaraz-Muñoz, V., Cifo Izquierdo, M. I., Gea García, G. M., Alonso Roque, J. I., & Yuste Lucas, J. L. (2020). Joy in Movement: Traditional Sporting Games and Emotional Experience in Elementary Physical Education. *Frontiers in Psychology*, 11. <https://doi.org/10.3389/FPSYG.2020.588640>
- Bakri, A. H. (2022). Nilai Pancasila dan Kewarganegaraan dalam Tradisi Pacu Jalur di Kabupaten Kuantan Singingi Provinsi Riau. *De Cive : Jurnal Penelitian Pendidikan Pancasila Dan Kewarganegaraan*, 2(4), 165–170. <https://doi.org/10.56393/DECIVE.V2I4.1665>
- Bisa, M. (2023). Sports Education as a Means of Building Student Character: Values and Benefits. *AL-ISHLAH: Jurnal Pendidikan*, 15(2), 1581–1590. <https://doi.org/10.35445/ALISHLAH.V15I2.3889>
- Budiman, A., Nopembri, S., & Supriadi, D. (2024). Sundanese traditional sports: level of knowledge among 21st century adolescents. *Retos*, 51, 449–454. <https://doi.org/10.47197/RETOS.V51.100567>
- Cao, J. (2023). Implementation of Chinese Traditional Sports Affecting Students' Attitude towards Sportsmanship. *International Journal of Social Science and Human Research*, 6(12). <https://doi.org/10.47191/IJSSHR/V6-I12-47>
- Chairani, S., Jafra, R. A., & Meliza, D. (2022). Tradition of Pacu Jalur in Kuantan Singingi. *Lakhomi Journal Scientific Journal of Culture*, 3(3), 122–131. <https://doi.org/10.33258/LAKHOMI.V3I3.756>
- Chu, Y., Chen, C., Wang, G., & Su, F. (2022). The Effect of Education Model in Physical Education on Student Learning Behavior. *Frontiers in Psychology*, 13. <https://doi.org/10.3389/FPSYG.2022.944507>
- Dahlberg, E. E., Hamilton, S. J., Hamid, F., & Thompson, S. C. (2018). Indigenous Australians Perceptions' of Physical Activity: A Qualitative Systematic Review. *International Journal of Environmental Research and Public Health*, 15(7). <https://doi.org/10.3390/IJERPH15071492>
- Damanik, F. H. S., Sukmana, O., & Dwi Susilo, R. K. (2025). Sociological Perspectives on Gender Inequality in Indonesian Sports: A Systematic Literature Review. *Retos*, 67, 607–623. <https://doi.org/10.47197/RETOS.V67.114332>
- Deng, C., Liu, Y., & Cheng, L. (2024). Research on the focus of national traditional sports culture inheritance based on weighted function algorithm. *Applied Mathematics and Nonlinear Sciences*, 9(1). <https://doi.org/10.2478/AMNS.2023.2.00543>





- Dubnewick, M., Hopper, T., Spence, J. C., & McHugh, T. L. F. (2018). "There's a Cultural Pride Through Our Games": Enhancing the Sport Experiences of Indigenous Youth in Canada Through Participation in Traditional Games. *Journal of Sport and Social Issues*, 42(4), 207–226. <https://doi.org/10.1177/0193723518758456>
- Erlisnawati, Marhadi, H., & Ibrahim, B. (2023). Cultural Literacy: Understanding the Cooperation Value in Pacu Jalur Tradition. *Proceedings of the Fifth Sriwijaya University Learning and Education International Conference (SULE-IC 2022)*, 122–127. [https://doi.org/10.2991/978-2-38476-010-7\\_15](https://doi.org/10.2991/978-2-38476-010-7_15)
- Fatmawati, E. (2021). Strategies to grow a proud attitude towards Indonesian cultural diversity. *Linguistics and Culture Review*, 5(S1), 810–820. <https://doi.org/10.21744/LINGCURE.V5NS1.1465>
- Febrian\*, A., & Jumadi, J. (2022). Identification of Science Concepts and Principles Based on Local Wisdom of Pacu Jalur to Develop Science Learning Materials. *Jurnal Pendidikan Sains Indonesia*, 10(2), 355–379. <https://doi.org/10.24815/JPSI.V10I2.24011>
- Fendrikfendrik, M., Marsigit, & Wangid, M. N. (2020). Analysis of riau traditional game-based ethnomathematics in developing mathematical connection skills of elementary school students. *Elementary Education Online*, 19(3), 1605–1618. <https://doi.org/10.17051/ILKONLINE.2020.734497>
- Firmanyah, A., & Masunah, J. (2019). Jalur Dance in the Opening Ceremony of Pacu Jalur Festival in Kuantan Singingi Regency of Riau Province, Indonesia. *Proceedings of the International Conference on Arts and Design Education (ICADE 2018)*. <https://doi.org/10.2991/ICADE-18.2019.18>
- Ginanjari, S., Widyawan, D., & Faruqi, H. (2023). Systematic Literature Review: Sports in Early Childhood in Indonesia. *International Journal of Human Movement and Sports Sciences*, 11(5), 1140–1149. <https://doi.org/10.13189/SAJ.2023.110523>
- Hastuti, K. P., Arisanty, D., Rahman, A. M., & Angriani, P. (2022). Indigenous knowledge values of bahuma as a preservation of the national culture of indonesia. *IOP Conference Series: Earth and Environmental Science*, 1089(1). <https://doi.org/10.1088/1755-1315/1089/1/012061>
- Held, B. S. (2020). Epistemic violence in psychological science: Can knowledge of, from, and for the (othered) people solve the problem? *Theory & Psychology*, 30(3), 349–370. <https://doi.org/10.1177/0959354319883943>
- Hiswara, A., Aziz, A. M., & Pujowati, Y. (2023). Cultural Preservation in a Globalized World: Strategies for Sustaining Heritage. *West Science Social and Humanities Studies*, 1(03), 98–106. <https://doi.org/10.58812/WSSHS.V1I03.250>
- Hou, J. (2024). Inheritance and development of traditional sports culture in college physical education in the context of deep learning. *Applied Mathematics and Nonlinear Sciences*, 9(1). <https://doi.org/10.2478/AMNS-2024-0396>
- Irfan, M., Hariadi, H., Hasibuan, M. A., & Usman, K. (2024). Analysis of the Sport Industry for Educational Tourism based on Traditional Sports. *Proceedings of the 5th International Conference on Innovation in Education, Science, and Culture, ICIESC 2023, 24 October 2023*. <https://doi.org/10.4108/EAI.24-10-2023.2342089>
- Irfandi, I. (2022). Ethnochemistry: Analysis Relevance Of Cultural "Pacu Jalur" In Chemical Materials As Learning Sources. *Proceeding of International Conference on Science and Technology*, 56–61. <https://doi.org/10.36378/INTERNATIONALCONFERENCEUNIKS.V0I0.2824>
- Jana, J., Hammidah, H., Chand, R., & Haselkorn, J. (2024). Community Spirit and Local Wisdom: Strengthening Character Education through the Ngarot Tradition in Social Studies Learning. *Journal of Social Knowledge Education (JSKE)*, 5(1), 9–20. <https://doi.org/10.37251/JSKE.V5I1.888>
- Jariono, G., Nurhidayat, N., Syaekani, A. A., Sudarmanto, E., Nugroho, H., Gontara, S. Y., & Maslikah, U. (2024). Circuit Game-Based Traditional Sports Therapy: Can It Improve the Physical Fitness of Elementary School Students? *International Journal of Human Movement and Sports Sciences*, 12(6), 909–918. <https://doi.org/10.13189/SAJ.2024.120603>
- Maharani, T., & Raflesia, C. (2023). Tradisi Pacu Jalur sebagai Penguat Nilai-Nilai Karakter. *Kaganga: Jurnal Pendidikan Sejarah Dan Riset Sosial Humaniora*, 6(2), 467–472. <https://doi.org/10.31539/KAGANGA.V6I2.7689>
- Munajad, S. K., Yudianto, Y., & Nuryani, N. (2024). The Value and Benefits of Physical Education and Sports in Building the Character of Students towards the Golden Generation. *International Journal of Multidisciplinary Research and Analysis*, 07(06). <https://doi.org/10.47191/IJMRA/V7-106-67>



- Nikravan, M., Safania, A. M., & Zareii, A. (2019). Physical Education Method: Effects on Physical Fitness and Competency of the Students. *Annals of Applied Sport Science*, 7(4), 17–26. <https://doi.org/10.29252/AASSJOURNAL.698>
- Nofrizal, D., Sari, L. P., Purba, P. H., Utaminingsih, E. S., Nata, A. D., Winata, D. C., Syaleh, M., Munawar, A. Al, Kurniawan, E., Permana, R., Yunitaningrum, W., & Meilina, F. (2024). The role of traditional sports in maintaining and preserving regional culture facing the era of society 5.0. *Retos*, 60, 352–361. <https://doi.org/10.47197/RETOS.V60.108181>
- Nofrizal, D., Setijono, H., Setyawati, H., & Nasuka. (2023). The Tual Sagu and Golek Sagu: Traditional Sports of the Meranti Archipelago Community, Indonesia. *International Journal of Human Movement and Sports Sciences*, 11(2), 285–291. <https://doi.org/10.13189/SAJ.2023.110204>
- Nurlaili, L. (2023). Religious Character Building in SMIT Daarul Qur'an South Tangerang. *Interdisciplinary Journal and Hummanity (INJURITY)*, 2(11), 900–909. <https://doi.org/10.58631/INJURITY.V2I11.138>
- Purwanto, S. A., & Perdani, A. S. (2023). Playing with the Senses. A traditional Martial Art in West Java, Indonesia. *Ido Movement for Culture*, 23(1), 19–28. <https://doi.org/10.14589/IDO.23.1.3>
- Ribeiro, S. P., & Couto, A. C. P. (2022). Professional Training in Educational Sports in Brazil: The Collaborating Teams of the Programa Segundo Tempo (PST) – Federal Government. *Research, Society and Development*, 11(1), e0311124269. <https://doi.org/10.33448/RSD-V11I1.24269>
- Sukmana, O., Anshar, Masrur, Sumedi, G. R., Susilo, R. K. D., & Damanik, F. H. S. (2025). Reconstructing masculinity: the role of traditional sports in shaping gender identities in Indonesia. *Retos*, 68, 485–502. <https://doi.org/10.47197/RETOS.V68.115182>
- Sunanto, Tuasikal, A. R. S., Indahwati, N., Suryanti, Himawan, A., & Purwoto, S. P. (2024). Models of traditional games in physical education and sports: its effect on increasing the motor development of elementary school students. *Retos*, 61, 722–727. <https://doi.org/10.47197/RETOS.V61.107121>
- Suroyo, S., Putra, B. M., Ibrahim, B., & Soriente, A. (2023). Philosophy of Pacu Jalur: Sustainable of Character Development in Pacu Jalur Values on the Pancasila Student Profile. *Salus Cultura: Jurnal Pembangunan Manusia Dan Kebudayaan*, 3(1), 37–44. <https://doi.org/10.55480/SALUSCULTURA.V3I1.89>
- Wang, B. (2021). Probe into the Pre-class Preparation Skills of College Physical Education Teachers under the Background of Li Nationality's Traditional Sports Culture Inheritance. *International Journal of New Developments in Education*, 3(7). <https://doi.org/10.25236/IJNDE.2021.030702>
- Yu, Z. (2024). Integrating Artificial Intelligence into Traditional Sports: A Case Study of the Asian Games and Future Directions for Modernization. *Lecture Notes in Education Psychology and Public Media*, 64(1), 162–169. <https://doi.org/10.54254/2753-7048/64/20241075>
- Yurissa, P. N. (2022). Instilling Religious and Honest Character Education at MIN 3 Jombang: Using the Hompimpa Alaium Gambreng Game. *ETDC: Indonesian Journal of Research and Educational Review*, 1(4), 471–478. <https://doi.org/10.51574/IJRER.V1I4.426>
- Zhanjiang, F. (2018). Comparative Analysis of the National Traditional Physical Education and Modern Physical Education Teaching. *2018 International Conference on Education, Psychology, and Management Science (ICEPMS 2018)*. <https://doi.org/10.25236/ICEPMS.2018.124>
- Zulirfan, Z., Yennita, Y., Maaruf, Z., & Sahal, M. (2023a). Ethnoscience literacy in Pacu Jalur tradition: Can students connect science with their local culture? *Eurasia Journal of Mathematics, Science and Technology Education*, 19(1). <https://doi.org/10.29333/EJMSTE/12773>
- Zulirfan, Z., Yennita, Y., Maaruf, Z., & Sahal, M. (2023b). Ethnoscience literacy in Pacu Jalur tradition: Can students connect science with their local culture? *Eurasia Journal of Mathematics, Science and Technology Education*, 19(1). <https://doi.org/10.29333/EJMSTE/12773>

**Authors' and translators' details:**

|                           |                                      |         |
|---------------------------|--------------------------------------|---------|
| Solahuddin Nasution       | solahuddin.nst@usu.ac.id             | Autor/a |
| Walid Musthafa Sembiring  | walidmusthafa@staff.uma.ac.id        | Autor/a |
| Femmy Indriany Dalimunthe | femmydalimunthe@poltekparmedan.ac.id | Autor/a |
| Edi Sumarno               | edi8@usu.ac.id                       | Autor/a |
| Fajar Utama Ritonga       | fajar.utama@usu.ac.id                | Autor/a |
| Mujahid Widian Saragih    | mujahid.widian@usu.ac.id             | Autor/a |
| Emi Triani                | emi.triani@usu.ac.id                 | Autor/a |
| Sofiari Ananda            | sofiariananda@usu.ac.id              | Autor/a |