

Redesigning and Renovation of an On-Campus Swimming Pool Facility: Addressing Educational and Logistical Challenges at MSU Marawi, Philippines

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ABSTRACT: This study examines the proposed redesign and renovation of the on-campus swimming pool facility at Mindanao State University (MSU) in Marawi, Philippines, in response to the growing educational, athletic, and community demands of the institution. The research addresses the limitations of the existing infrastructure, which has become outdated, unsafe, and inadequate for current university needs. Using semi-structured interview guides administered through face-to-face interviews and focus group discussions with three instructors and five students from CSPEAR, the study identifies critical issues related to safety, accessibility, and operational inefficiency. Participants emphasised the need for compliance with updated safety and accessibility standards, as well as the importance of creating a facility that promotes student wellness, supports physical education, and accommodates a diverse range of aquatic programs. The proposed redesign incorporates modern construction practices, sustainable materials, and inclusive design principles to deliver a functional, resilient, and culturally sensitive facility. Aligned with MSU's institutional goals and local socio-cultural contexts, the project aims to enhance the overall student experience while fostering greater community engagement. The findings of this research offer valuable insights for educational institutions undertaking similar infrastructure improvements, particularly in resource-constrained environments.

KEYWORDS: Physical Education, Facilities, Inclusive Design, Student Wellness, Campus Infrastructure.

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Introduction

Recreational and educational sports facilities are vital components of higher education institutions, contributing significantly to students' holistic development. Beyond promoting physical health, such facilities support mental wellness, social interaction, and character building. Among campus-based activities, swimming occupies a distinctive place as both a critical life-saving skill and a highly effective form of physical exercise. It improves cardiovascular fitness, muscular strength and endurance, flexibility, and mental well-being, while also fostering discipline, self-confidence, and lifelong engagement in health-promoting recreation (Harner, 2024; Srinivasan, 2025). Accordingly, swimming has been recognised as a core component of physical education programs worldwide (Pulatova, 2025), and access to aquatic facilities can enhance students' health, safety, and educational engagement (Mekkaoui et al., 2025).

Despite this recognised importance, university swimming pool facilities—particularly in developing countries—often face significant challenges related to design, maintenance, and operational efficiency. Research indicates that some institutions have pools that meet international standards for equipment and dimensions under Fédération Internationale de Natation (FINA) provisions and are thus capable of hosting formal competition. However, many of these facilities suffer from inadequate and inconsistent maintenance, resulting in environments that appear outdated and poorly cared for (Matse et al., 2022; Olusegun et al., 2015; Tantum et al., 2024). Other studies report that student participation in aquatic programs is frequently limited by restricted access, ageing infrastructure, and inadequate upkeep (Ruokanen, 2025). Instructors similarly face constraints such as overcrowded pools and substandard facilities, with negative consequences for the quality of swimming education (Latuheru, 2025).

These challenges are particularly acute in contexts where universities serve communities affected by socio-political instability and infrastructural damage. Mindanao State University (MSU) in Marawi City operates within such a setting, in a region still recovering from armed conflict and ongoing reconstruction efforts. In this environment, robust, inclusive, and resilient campus facilities take on added significance. The university's on-campus swimming pool is not merely a recreational space; it is an instructional facility for physical education, a potential training venue for competitive athletes, and a strategic resource for student wellness and community engagement. However, the current pool at MSU Marawi is underutilised due to deteriorating infrastructure, safety concerns, inadequate maintenance, and limited integration into the physical education curriculum. These issues collectively reduce student and faculty participation, weaken the delivery of aquatic education, and constrain opportunities for sports development and community outreach.

Existing literature has documented general issues associated with university sports facilities in the Philippines and other developing contexts. Yet, there remains a notable gap in understanding how the physical condition and design of aquatic infrastructure specifically affect participation, safety, and program success in higher education. In MSU Marawi's case, logistical obstacles—including the lack of trained lifeguards, irregular maintenance schedules, and disorganised access and scheduling systems—further limit effective use of the pool. Anecdotal evidence also suggests that some students and instructors prefer to travel outside the city to use better-maintained pools for class activities, implying that perceived risks, benefits, and barriers strongly influence facility utilisation (Middlestadt et al., 2015).

This study addresses these gaps by examining the educational, safety, and operational challenges posed by the existing swimming pool at MSU Marawi and exploring how its redesign and renovation could improve access, inclusivity, and curricular alignment. Three complementary lenses theoretically guide the work. The Universal Design for Learning (UDL) framework informs the goal of creating an inclusive aquatic facility that accommodates diverse learners, including those with disabilities and varying levels of swimming proficiency (Grant & Pérez, 2022). The Health Belief Model (HBM) offers a behavioural lens for understanding how perceived susceptibility, severity, benefits, barriers, cues to action, and self-efficacy shape students' decisions to use or avoid the pool (Alyafei & Easton-Carr, 2024; Kim et al., 2025).

Finally, Ecological Systems Theory (EST) positions the swimming pool within nested environmental systems—from the immediate microsystem of the campus to broader institutional and cultural structures—highlighting how policy, governance,

and community context influence student engagement (Foster, 2025).

Within this conceptual frame, the study investigates three core questions: (1) What challenges do students, faculty, and administrators face in using the current swimming pool facility at MSU Marawi? (2) How do infrastructural and logistical factors hinder the pool's usability and its integration into educational programs? Moreover, (3) What design and renovation strategies can be implemented to make the facility safer, more accessible, and better aligned with the university's physical education objectives? By foregrounding stakeholder perspectives—particularly those of students and physical education instructors—the research aims to generate context-sensitive recommendations for redesign and renovation that address both educational and behavioural realities.

The contribution of this study is twofold. Empirically, it provides one of the first focused, qualitative examinations of an aquatic facility in a Philippine state university situated in a conflict-affected region, detailing how infrastructure, logistics, and user perceptions interact to shape participation in aquatic physical education. Conceptually and practically, it illustrates how UDL, HBM, and EST can be integrated to guide the planning of inclusive, health-promoting sports facilities in higher education. In doing so, the study offers insights not only for MSU Marawi and comparable institutions, but also for policy-makers and sports commissions seeking to support equitable, resilient, and educationally meaningful investment in university sports infrastructure.

Methods

Research Design

This study employed a qualitative research design using an interpretative phenomenological approach (IPA). IPA was chosen to explore in depth how participants make sense of their personal and social worlds, and to capture the meaning they assign to their experiences with the MSU Marawi swimming pool facility. The approach enabled a detailed examination of participants' "lifeworlds," focusing on their lived experiences of educational and logistical challenges, rather than producing objective descriptions of the facility itself.

Participants and Settings

The study was conducted at Mindanao State University-Marawi (MSU-Marawi), Lanao del Sur, during the academic year 2024-2025. The setting included the College of Sports, Physical Education, and Recreation (CSPEAR), which is responsible for delivering swimming as part of the undergraduate physical education program.

Participants were selected through purposive sampling, complemented by instructor referrals (snowball sampling). Eight participants were included (Gaite, 2025): five students who had recently completed their swimming class at MSU-Marawi and three CSPEAR instructors with prior and ongoing experience teaching swimming. Inclusion criteria required that student participants be currently enrolled at MSU-Marawi and have completed a swimming course, and that instructor participants have direct teaching experience in swimming. Graduates were excluded. All participants provided informed consent and agreed to be interviewed.

Data Collection

Data were collected using a semi-structured interview guide (IGQ) developed by the researcher and validated by the adviser and panel/reading committee. Revisions based on their comments were incorporated prior to data collection. The IGQ was shared with participants in advance as an aide-mémoire.

Data collection involved individual face-to-face, one-on-one interviews and at least one focus group discussion (FGD) with selected participants. Interviews were scheduled at times and locations chosen by participants to minimise noise and distraction. With consent, interviews were audio-recorded, and participants were allowed to respond in the language(s) in which they were most comfortable. At the end of each interview, key points were summarised back to the participant to check for accuracy and clarify meanings (member checking) before transcription (Hartman & Squires, 2024).

Data Analysis

Data were transcribed using intelligent transcription tools and imported into NVivo for organisation and coding. Analysis followed the seven steps of interpretative phenomenological analysis (IPA): (1) repeated reading of transcripts, (2) initial noting of significant statements, (3) identifying emergent sub-themes and themes, (4) exploring connections among emergent themes, (5) moving to the next case, (6) looking for patterns across cases, and (7) developing deeper interpretive accounts of the themes (Tuffour, 2017).

Thematic analysis was used within the IPA framework to formulate meanings, cluster categories, and derive overarching themes related to the redesign and renovation of the MSU-Marawi swimming pool, addressing educational and logistical challenges. These themes informed a comprehensive description of the phenomenon and provided the basis for the study's proposed conceptual model (Naeem et al., 2023).

Trustworthiness was addressed through strategies of credibility, transferability, dependability, and confirmability. Member checking was conducted by sharing transcript summaries and thematic interpretations with participants for confirmation. The adviser and panel members reviewed and validated emergent themes through an iterative check-and-recheck process (Mero-Jaffe, 2011).

Ethical Considerations

Ethical clearance was obtained from the appropriate university ethics committee prior to data collection. The adviser and panel/reading committee endorsed the study and validated the IGQ. Permission to conduct the study was secured from the Dean of CSPEAR. Participants were briefed on the purpose of the study, procedures, potential risks and benefits, and their rights, including the right to voluntarily participate and to withdraw at any time without penalty. Written informed consent was obtained from all participants. Anonymity was maintained by omitting names and any identifying details from transcripts and reports. Audio recordings and transcripts were stored securely and used solely for research purposes. All sources and materials used in the study were properly cited to adhere to copyright and academic integrity standards (Potthoff et al., 2023).

Findings and Discussion

Using an interpretative phenomenological approach, the study identified five interrelated themes that describe how students and instructors experience the current MSU-Marawi swimming pool and what they perceive as necessary for its redesign and renovation:

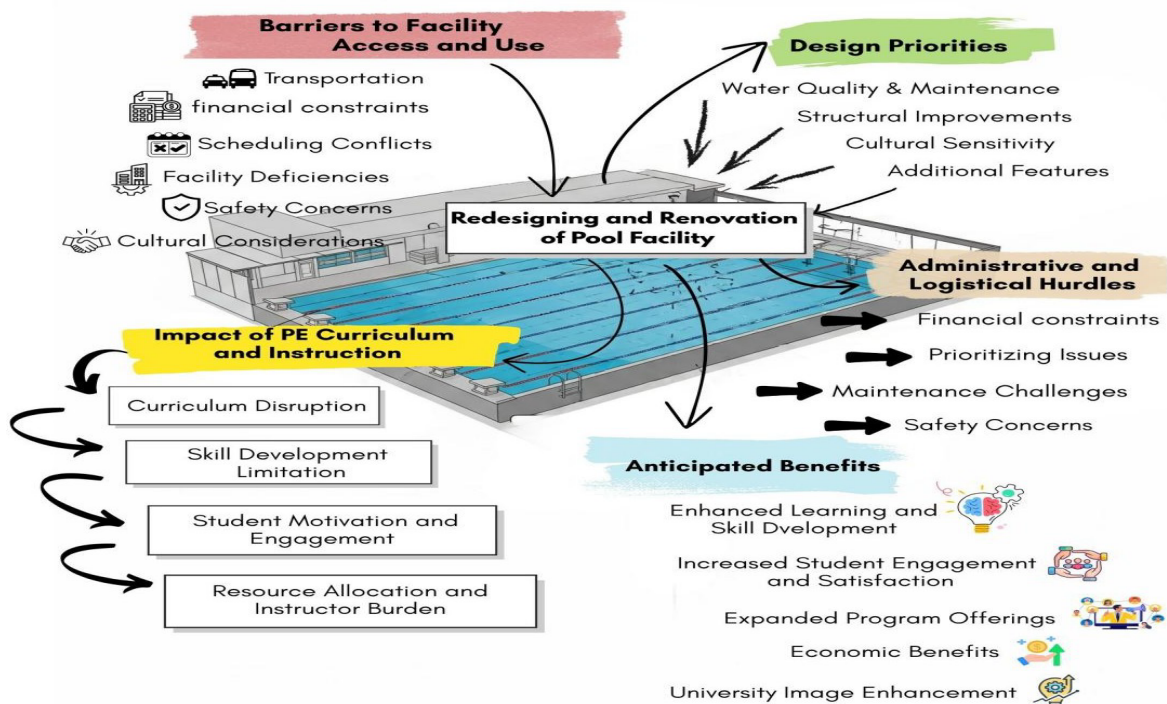
- (1) Barriers to facility access and use,
- (2) Impact on PE curriculum and instruction,
- (3) Design priorities for a functional pool facility,
- (4) Administrative and logistical hurdles, and
- (5) Anticipated benefits of a modernised pool.

These themes are integrated in the **Talib Concept Model**, which positions the swimming pool redesign at the centre of a system of constraints and opportunities: contextual barriers feed into the need for renovation, while an improved facility is expected to generate educational, institutional, and community benefits.

1. Barriers to Facility Access and Use

Figure 1

Talib Concept Model towards Redesigning and Renovation of MSU Marawi Swimming Pool



Participants consistently described the MSU-Marawi pool as largely non-functional and inaccessible, forcing classes to be held in pools located in Iligan City. This gave rise to multiple, overlapping barriers:

- Transportation and distance - Students and instructors reported the need to travel to Iligan for swimming classes, which they described as time-consuming and logistically demanding. Geographical distance and limited transport options made regular participation difficult, especially for those without private vehicles (Brownie et al., 2025; Cullinan et al., 2012).
- Financial constraints - Even when transport costs were shared, the combined burden of fares, entrance fees, and food expenses was described as “heavy” by many students, particularly those from less affluent backgrounds. These recurring weekly costs were a major deterrent to participation in aquatic activities and echo broader findings that financial barriers and underfunded facilities constrain student use of sports infrastructure (Abadinas et al., 2024; Willcox-Pidgeon et al., 2021).
- Scheduling conflicts - Travel time to off-campus pools created clashes with other academic requirements. Participants highlighted the difficulty of fitting swimming classes around dense timetables, leading many to prioritise academic courses over aquatic PE. This tension between curricular demands and facility access reduced both attendance and continuity in swimming instruction (Soares et al., 2021).
- Facility deficiencies - When referring to the on-campus pool, participants repeatedly described a “dilapidated” structure with problems in water supply, filtration, and chlorine levels, and a lack of basic amenities such as showers, restrooms, and lockers. Instructors also noted the absence of trained lifeguards or pool staff. These deficiencies rendered the facility unsafe and unattractive, directly undermining its educational purpose (Susnara & Curtner-Smith, 2022; Tan et al., 2022).
- Safety and security concerns - Poor water quality, inadequate treatment, and limited supervision were perceived as health

and accident risks. Participants emphasised the importance of clear safety protocols, trained personnel, and controlled access to build trust in the facility. Without these, students were reluctant to use the pool even if it was technically open (Mecrow et al., 2024).

- Cultural and contextual considerations - While less elaborated, participants also pointed to cultural norms and sensitivities (e.g., modesty, gender-related concerns, broader perceptions of safety in Marawi) as influencing comfort and willingness to use aquatic facilities (Fadare, 2026; Payán et al., 2019).

Taken together, these barriers support the first major component of the Talib Concept Model: structural, economic, and psychosocial obstacles converge to limit access to and use of facilities, particularly for students with fewer resources. This aligns with literature showing that distance, cost, and facility quality strongly shape participation in physical activity and aquatic programs, especially in under-resourced tertiary settings (Hu et al., 2021).

2. Impact on PE Curriculum and Instruction

The second theme shows how these access barriers cascade into **negative educational consequences:

- Curriculum disruption and reduced contact time - Inability to use the campus pool and the logistical burden of travelling off-campus limited actual time in the water, compressed lessons, and occasionally led to cancellations. Instructors reported difficulty in delivering the full intended swimming curriculum (Morbo et al., 2025).
- Limited skill development- Students had fewer opportunities for practice and progression, which constrained the development of basic aquatic competencies and confidence. In the context of swimming as a life-saving and lifelong skill, this shortfall is particularly problematic (Guignard et al., 2020).
- Decreased motivation and engagement - The effort and cost required to attend swimming sessions outside campus reduced students' motivation and engagement. Some participants reported frustration and fatigue, which undermined the potential of swimming to support well-being and stress relief (Morgan & Hansen, 2008).
- Increased instructor burden - Instructors described additional workload related to coordinating travel, negotiating pool access, managing safety in unfamiliar environments, and compensating for lost instructional time. These conditions limited their ability to innovate or deepen pedagogical practice (Morbo et al., 2025).

In the Talib Concept Model, these effects are captured under "Impact on PE Curriculum and Instruction," emphasising that facility conditions are not neutral backdrops but exert direct influence on teaching quality, learning outcomes, and student engagement.

3. Design Priorities for a Functional Pool Facility

Drawing on their lived experiences, participants articulated clear design and renovation priorities that would address the identified barriers:

- Reliable water quality and maintenance - Regular water supply, effective filtration, and proper chlorination were seen as non-negotiable for both safety and comfort. Participants linked water quality directly to trust and willingness to use the pool.
- Structural and functional upgrades - Repairing the pool shell, decking, and surrounding infrastructure, and providing adequate changing rooms, showers, restrooms, storage, and lockers were repeatedly mentioned as prerequisites for a usable teaching space (Staeger-Wilson et al., 2012).
- Accessibility and inclusive design - Participants implicitly echoed UDL principles by calling for a pool that is accessible to all students, including those with lower swimming skills and (by extension) those with disabilities. They stressed the need for user-friendly entry/exit points, clear signage, and spaces that respect privacy and cultural norms.

- Culturally sensitive and student-friendly features – While not always labelled as such, comments about comfort, modesty, and feeling “welcome” in the space indicate an expectation that the redesigned facility should reflect local cultural values and student needs, rather than replicate generic designs (Fiharsono et al., 2024).

These priorities map onto the “Design Priorities” node of the model and demonstrate how stakeholder input can translate into concrete, context-sensitive design criteria rather than purely technical specifications (Könings et al., 2017).

4. Administrative and Logistical Hurdles

Participants also highlighted institutional-level constraints that shape whether and how renovation can occur:

- Financial limitations and competing priorities – Budget constraints and the need to balance various institutional demands were acknowledged as major hurdles to upgrading the pool. Some participants perceived aquatic facilities as a lower priority compared to other infrastructure needs (Fadare et al., 2021).
- Maintenance systems and responsibility – The absence of a clear, sustained maintenance plan was identified as a root cause of the pool’s deterioration. Participants emphasised that renovation without a management and maintenance framework would only provide a temporary solution (Brown et al., 2006).
- Safety management and governance – Issues such as the absence of lifeguards, lack of formal safety protocols, and inconsistent oversight pointed to broader governance gaps. Participants suggested that clear roles, policies, and coordination mechanisms are essential for safe and sustainable operation (Di Vaio et al., 2021; Sotnikova, 2024).

In the conceptual model, these issues are captured under “Administrative and Logistical Hurdles,” underscoring that technical redesign must be accompanied by institutional reform in budgeting, maintenance planning, and safety governance.

5. Anticipated Benefits of a Modernised Pool

Despite current challenges, participants expressed a strong belief in the transformative potential of a renovated, on-campus swimming pool. Anticipated benefits clustered around:

- Enhanced learning and skill development – Ready access to a safe, functional pool would allow full implementation of the aquatic PE curriculum, support systematic skill progression, and better prepare students with essential water-safety competencies (Storm et al., 2017; Wahdi & August, 2025).
- Increased engagement and well-being – A modern, attractive facility on campus was expected to boost student motivation, provide a convenient outlet for stress relief, and support mental and social well-being through regular recreational use (Husain et al., 2024).
- Expanded programs and community outreach – Participants envisioned new offerings such as advanced swimming courses, lifeguard training, and community-based aquatic programs, potentially opening the facility to local barangays and supporting broader peace- and health-promotion efforts in post-conflict Marawi (Simangan, 2024).
- Institutional and economic gains – A renovated pool was also seen as enhancing the university’s image, supporting sports development, and potentially generating economic benefits through events, rentals, or partnerships, aligning with national agendas in sport and higher education development.

In the study Concept Model, these outcomes are represented as “Anticipated Benefits,” with arrows from the redesigned facility to educational, institutional, and community domains. They highlight that renovation is not an end in itself but a lever for multi-level gains in health, safety, learning, and community engagement.

Taken together, these themes illustrate that redesigning the MSU-Marawi swimming pool is a project that is simultaneously infrastructural, educational, behavioural, and organisational. The findings support the argument that any

renovation should be guided by (a) stakeholder-derived design priorities (UDL-informed), (b) an understanding of student beliefs and barriers (HBM-informed), and (c) attention to the multiple ecological layers—from individual users to institutional governance and community context (Ecological Systems Theory)—that shape facility use and impact.

Summary

This qualitative study used an Interpretative Phenomenological Approach (IPA) to explore how the redesign and renovation of the on-campus swimming pool at Mindanao State University–Marawi (MSU–Marawi) can address educational and logistical challenges. Eight purposively selected participants (five students who had recently completed a swimming class and three swimming instructors from the College of Sports, Physical Education, and Recreation) were interviewed through semi-structured, face-to-face and focus group discussions during AY 2024–2025.

Interviews were audio-recorded, transcribed, and thematically analysed using IPA. The analysis generated five overarching themes: (1) barriers to facility access and use (transportation, financial constraints, scheduling conflicts, facility deficiencies, safety and cultural concerns); (2) impact on PE curriculum and instruction (curriculum disruption, limited skill development, reduced motivation, increased instructor burden); (3) design priorities for a functional pool (water quality and maintenance, structural and accessibility improvements, cultural sensitivity, added features); (4) administrative and logistical hurdles (funding, low institutional prioritization, maintenance and staffing gaps, environmental safety risks); and (5) anticipated benefits of a modernized pool (enhanced learning, higher engagement, expanded programs, economic gains, and improved university image).

These themes informed the Talib Concept Model, a conceptual framework that illustrates how infrastructural, behavioural, curricular, and institutional factors interact around the swimming pool facility and how targeted redesign can produce multi-level benefits for MSU–Marawi and its surrounding community.

Conclusions

1. Access and equity: The current condition and location-dependent use of off-campus pools create substantial geographic, financial, and temporal barriers, disproportionately affecting students from lower socioeconomic backgrounds and limiting equitable access to aquatic education.
2. Educational impact: The substandard and underutilised on-campus pool has severely compromised the delivery of the PE curriculum, restricting students' opportunities to acquire essential swimming and water-safety skills, lowering motivation, and increasing instructional workload and safety risks.
3. Design requirements: Any redesign of the MSU–Marawi pool must be holistic, prioritising water quality, structural rehabilitation, safety and supervision, cultural sensitivity (including gender and privacy considerations), and accessibility, consistent with universal design principles.
4. Institutional capacity: Financial constraints, low administrative prioritisation, weak maintenance systems, and insufficiently trained personnel are key institutional barriers. Without reforms in governance, budgeting, and staffing, renovation efforts are unlikely to be sustainable.
5. Transformative potential: A modernised, well-managed campus pool has the potential to enhance learning and well-being, diversify PE and community programs, generate revenue, and strengthen the university's reputation—provided coherent policy, resources, and ongoing management support.

Recommendations

1. Facility and designs: Prioritize immediate remediation of critical issues (water supply, filtration, disinfection, and basic amenities) and develop a preventive maintenance plan.

- Redesign the facility using universal design and culturally sensitive principles, including accessible entries, gender-appropriate changing areas, privacy features, and, where feasible, a covered/indoor configuration.
2. Governance, finance, and staffing - Elevate the pool to a strategic institutional priority with a dedicated budget line, transparent financial management, and regular auditing.
 - Establish a small, representative pool management committee (administrators, faculty, students, community liaison) to oversee planning, operations, and maintenance.
 - Hire and train certified lifeguards and maintenance personnel, with periodic upskilling aligned to current safety and water-quality standards.
 3. Access, scheduling, and curriculum: While renovation is underway, formalise partnerships with nearby facilities on negotiated rates and transport arrangements; adjust PE scheduling to minimise clashes with core academic classes.
 - Review and adapt the PE curriculum to allow flexible modalities (e.g., theory modules, alternative activities) without abandoning core aquatic competencies.
 4. Engagement and future research - Use the Talib Concept Model as a planning tool for MSU-Marawi and as a reference for other institutions facing similar facility challenges.
 - Engage students, instructors, community stakeholders, and relevant government or sports bodies in co-designing pool policies and program offerings.
 - Future studies may assess changes in student participation, skill levels, and health/well-being outcomes before and after pool renovation, and compare experiences across campuses or institutions.

References

- Abadinas, E. A., Amesola, J., Alia, G., Booc, D. A., Arabis, K., Baulete, R., & Englatiera, B. (2024). Beyond the playground: Challenges in physical education (PE) for students with additional needs: A case study exploration. *American Journal of Arts and Human Science*, 3, 239-246. <https://doi.org/10.54536/ajahs.v3i3.3382>
- Alyafei, A., & Easton-Carr, R. (2024). The health belief model of behavior change. *StatPearls*.
- Brown, R. R., Sharp, L., & Ashley, R. M. (2006). Implementation impediments to institutionalising the practice of sustainable urban water management. *Water Science and Technology*, 54(6-7), 415-422.
- Brownie, S., Yan, A. R., Broman, P., Comer, L., & Blanchard, D. (2025). Geographic location of students and course choice, completion, and achievement in higher education: A scoping review. *Equity in Education & Society*, 4(1), 92-112. <https://doi.org/10.1177/27526461231200280>
- Cullinan, J., Flannery, D., Walsh, S., & McCoy, S. (2012). *Distance effects, social class and the decision to participate in higher education in Ireland* (ESRI Working Paper No. 444). Economic and Social Research Institute.
- Di Vaio, A., Trujillo, L., D'Amore, G., & Palladino, R. (2021). Water governance models for meeting sustainable development goals: A structured literature review. *Utilities Policy*, 72, 101255. <https://doi.org/10.1016/j.jup.2021.101255>
- Fadare, A. S., Paguia, B. D., & Fadare, C. M. (2021). Challenges, coping mechanisms, and success stories of neophyte principals: Impact on school leadership and management. *International Journal of Science and Management Studies*, 4(5), 182-194.
- Fadare, S. (2026). Beyond the scoreboard: A systematic narrative review of sport's influence on cultural norms and values. *Futurity Proceedings*, (6).

- Fiharsono, A., Carey, M., Hyde, M., Beazley, H., & Yektiningtyas-Modouw, W. (2024). Culturally based learning needs of Korowai students in a lowland-remote area of Indonesian Papua: School physical environment and building design. *The Australian Educational Researcher*, 51(2), 611–629. <https://doi.org/10.1007/s13384-023-00615-x>
- Foster, D. J. (2025). *Examining how policy and promise influence the social science doctoral student experience at a large public institution in the Midwest: A socio-ecological collective case study* [Doctoral dissertation, University of Cincinnati].
- Gaite, C. R. (2025). Academic goals and aspirations of the indigenous students. *Journal of Interdisciplinary Perspectives*, 3(8), 232–237.
- Grant, K., & Pérez, L. (2022). *Dive into UDL: Immersive practices to develop expert learners*. ASCD.
- Guignard, B., Button, C., Davids, K., & Seifert, L. (2020). Education and transfer of water competencies: An ecological dynamics approach. *European Physical Education Review*, 26(4), 938–953.
- Harner, T. (2024). The holistic approach integrating health physical education and recreation. *Health Science Journal*, 18(4), 1–3.
- Hartman, A., & Squires, V. (2024). Bridging perspectives: Utilizing interpretative phenomenological analysis (IPA) to inform and enhance social interventions. *International Journal of Qualitative Methods*, 23, 16094069241306284.
- Hu, D., Zhou, S., Crowley-McHattan, Z. J., & Liu, Z. (2021). Factors that influence participation in physical activity in school-aged children and adolescents: A systematic review from the social ecological model perspective. *International Journal of Environmental Research and Public Health*, 18(6), 3147.
- Husain, H., Samsudin, S., Ayub, A. F. M., Ahmad, M. F., & Afwan, N. S. Z. S. (2024). A systematic literature review on the impact of participation in sport and physical activities on psychological resilience. *International Journal of Public Health Science*, 13(4), 1727.
- Kim, S., Kim, Y., & Min, S. (2025). Understanding student engagement in campus recreation: A theory-based investigation using the health belief model. *Tourism and Hospitality Management*, 6(1), 91–107.
- Könings, K. D., Bovill, C., & Woolner, P. (2017). Towards an interdisciplinary model of practice for participatory building design in education. *European Journal of Education*, 52(3), 306–317.
- Latuheru, R. V. (2025). Analysis of swimming pool facilities and infrastructure needs to support effective and safe physical education learning in schools. *COMPETITOR: Jurnal Pendidikan Kepelatihan Olahraga*, 17(3), 3237–3248.
- Matse, N., Mashwama, N. X., Thwala, D., & Aigbavboa, C. (2022). A theoretical assessment of the impacts of poor maintenance of public infrastructure. *IOP Conference Series: Materials Science and Engineering*, 1218(1), 012018. IOP Publishing.
- Mecrow, T., Abrahams, J. F., Said, M., Baker, S., Bonney, J., Rahman, A., & Peden, A. E. (2024). Provision of basic swimming and water safety skills in low-resource environments: Barriers and facilitators of use of WHO practical guidance. *Injury Prevention*. <https://doi.org/10.1136/ip-2024-045300>
- Mekkaoui, L., Vogt, T., Camporelli, F., Costa, A. M., Costa, M. J., De Martelaer, K., & Potdevin, F. (2025). Improving water safety and long-term engagement in aquatic physical activity: The aquatic literacy framework. *Journal of Teaching in Physical Education*, 1(aop), 1–11.
- Mero-Jaffe, I. (2011). 'Is that what I said?' Interview transcript approval by participants: An aspect of ethics in qualitative research. *International Journal of Qualitative Methods*, 10(3), 231–247.
- Middlestadt, S. E., Anderson, A., & Ramos, W. D. (2015). Beliefs about using an outdoor pool: Understanding perceptions of place in the context of a recreational environment to improve health. *Health & Place*, 34, 1–8.

- Morbo, E., & Pangilan, S. (2025). Untold struggles and triumphs of PE teachers in resource-strapped public secondary schools. *Psychology and Education: A Multidisciplinary Journal*, 40(9), 1.
- Morgan, P. J., & Hansen, V. (2008). Classroom teachers' perceptions of the impact of barriers to teaching physical education on the quality of physical education programs. *Research Quarterly for Exercise and Sport*, 79(4), 506-516.
- Naeem, M., Ozuem, W., Howell, K., & Ranfagni, S. (2023). A step-by-step process of thematic analysis to develop a conceptual model in qualitative research. *International Journal of Qualitative Methods*, 22, 16094069231205789. <https://doi.org/10.1177/16094069231205789>
- Olusegun, O., Dabara, D. I., & Guyimu, J. (2015). Design inadequacies and the maintenance of university buildings in Ilf-Ife, Nigeria. *Journal of Environment and Earth Science*, 5(ISSN 2224-3216).
- Payán, D. D., Sloane, D. C., Illum, J., & Lewis, L. B. (2019). Intrapersonal and environmental barriers to physical activity among Blacks and Latinos. *Journal of Nutrition Education and Behavior*, 51(4), 478-485.
- Potthoff, S., Hempeler, C., & Scholten, M. (2023). Research ethics in qualitative health research. *International Journal of Qualitative Methods*, 22, 16094069231189335.
- Pulatova, G. (2025). Classification of swimming sports and their teaching methodology. *American Journal of Social Sciences and Humanities*, 7, 17-27.
- Ruokanen, A. (2025). *Participation and its diminishing factors in aquatic lessons* [Doctoral dissertation, University of Jyväskylä].
- Simangan, D. (2024). Challenges and prospects for urban peacebuilding in post-siege Marawi City, Philippines: People, places, and practices. *Journal of Current Southeast Asian Affairs*, 43(3), 452-471. <https://doi.org/10.1177/18681034241251864>
- Soares, J., Dias, C., Fernandes, E., & Antunes, H. (2021). Incongruences in the scheduling of physical education classes. *Journal of Physical Education and Sport*, 21(4), 1935-1942.
- Sotnikova, Y. V. E. (2024). On safety issues at water transport facilities. *NB: Administrative Law and Administrative Practice*, (4), 29-43. <https://doi.org/10.7256/2306-9945.2024.4.72302>
- Srinivasan, J. D. (2025). The role of physical education in promoting lifelong fitness: A review of contemporary. *AG Volumes*, 41-49.
- Staeger-Wilson, K., Barnett, C., Mahoney, S., & Sampson, D. H. (2012). Planning for an inclusive campus recreation facility and program. *Recreational Sports Journal*, 36(1), 37-44.
- Storm, M. K., Williams, K. N., Shetter, E. M., Kaminsky, J., Lowery, C. M., Caldas, S. V., & Winch, P. J. (2017). Sink or swim: Promoting youth development through aquatics programs in Baltimore, Maryland. *Journal of Park & Recreation Administration*, 35(1). <https://doi.org/10.18666/JPRA-2017-V35-I1-7295>
- Susnara, D. M., & Curtner-Smith, M. (2022). "It's up to us:" Factors influencing the perspectives and practices of instructors working in an out-of-school swimming program for underserved children and youth. *International Journal of Aquatic Research and Education*, 13(4), 3. <https://doi.org/10.25035/ijare.13.04.03>
- Tan, S., Hon, C. Y., Young, I., & Sekercioglu, F. (2022). An analysis of health and safety audits of aquatic facilities in Ontario: 2002-2020. *Environmental Health Review*, 65(1), 11-16. <https://doi.org/10.5864/d2022-002>
- Tantum, L. K., Mahamane, E., Bauza, V., Mahamadou, K. O. B., Sanoussi, E. Y., Salzberg, A., & Anderson, D. M. (2024). Environmental infrastructure maintenance bottlenecks in healthcare facilities and coping strategies among healthcare workers in Niger. *Environmental Health Insights*, 18, 11786302241271554.

- Tuffour, I. (2017). A critical overview of interpretative phenomenological analysis: A contemporary qualitative research approach. *Journal of Healthcare Communications*, 2(4), 52.
- Wahdi, A. H., & Agust, K. (2025). The impact of health swimming program management on students' physical and mental fitness. *Journal Management of Sport*, 4(1), 22-31. <https://doi.org/10.55081/jmos.v4i1.4608>
- Willcox-Pidgeon, S. M., Peden, A. E., & Scarr, J. (2021). Exploring children's participation in commercial swimming lessons through the social determinants of health. *Health Promotion Journal of Australia*, 32(2), 172-181. <https://doi.org/10.1002/hpja.335>