



# Toward a Relational Theory of Inclusive Physical Education: A Conceptual Framework for Interpersonal Interaction in Sports Pedagogy

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## ABSTRACT

Inclusive physical education research has long prioritised curriculum reform and institutional policy, while ignoring micro-level interpersonal relational mechanisms that determine real classroom inclusion. This conceptual article proposes a relational theoretical framework for inclusive physical education from the perspective of relational sociology and interpersonal interaction theory. The model constructs a serial pathway in which teacher–student relational interaction shapes peer reciprocal interaction, further fostering students' sense of belonging and promoting inclusive participation behaviours, with classroom inclusive climate serving as a critical moderating condition. A set of testable theoretical propositions is formulated. This framework shifts the inclusive PE paradigm from technical instruction to relational social dynamics, bridges the interdisciplinary gap between social interaction theory and sport pedagogy, and provides novel pedagogical strategies and future research directions for inclusive and equitable physical education, especially for multicultural educational contexts.

## 1. Introduction

Inclusive physical education has emerged as a global educational priority, aiming to guarantee equal, dignified participation opportunities for all students regardless of ability, physical condition, ethnicity, skill level, or socioeconomic background (Hodge et al., 2023). In practice, however, inclusive sports classrooms frequently encounter persistent barriers. Overt exclusion, subtle peer marginalisation, unequal teacher attention, and low psychological belonging continue to undermine the implementation of inclusive policies. Many schools formally adopt inclusive physical education curricula yet fail to foster sustained positive engagement among vulnerable student groups (Goodwin & Watkinson, 2021). Such gaps reveal a critical disconnect between top-down institutional policies and day-to-day interpersonal dynamics unfolding within physical education lessons.

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Existing scholarship on inclusive physical education predominantly concentrates on curriculum design, policy advocacy, adaptive equipment, and teacher training competencies. While these lines of inquiry deliver valuable practical guidance, most frameworks treat inclusive practice as an instructional technique rather than an ongoing relational process (Armour, 2022). A substantial body of literature overlooks how repeated interpersonal exchanges between teachers and students, and among peers, construct inclusive or exclusive classroom environments. Although prior studies have separately documented teacher–student interaction and peer relationships in physical activity, few efforts integrate these multi-layered relational systems into a unified theoretical structure. At present, there lacks a relational framework that explains how interconnected interpersonal interactions jointly shape inclusive participation and students’ sense of belonging in physical education settings.

This conceptual article develops a relational theory of inclusive physical education by centering interpersonal interaction as the core mechanism of inclusive practice. The primary purpose is to construct an integrated conceptual framework that unpacks how teacher–student relationships, peer reciprocal interactions, and classroom interaction climate collectively predict inclusive behavioural participation and psychological belonging. Drawing on inclusive education theory, relational sociology, and sport pedagogy research, this work clarifies definitions of core constructs, elaborates their causal pathways, and generates testable theoretical propositions to guide future empirical inquiry.

The present framework delivers two major theoretical contributions. First, it shifts dominant research paradigms from policy and curriculum-focused perspectives toward a relational lens, offering a new analytical angle for inclusive physical education scholarship. Second, it bridges relational sociological theories and sport pedagogy, consolidating fragmented interaction research into a coherent system. Practically, the framework yields actionable strategies for physical educators, pre-service training programmes, and school administrators to cultivate inclusive relational climates. Given the author’s research context in Southeast Asia, this model further creates foundations for cross-cultural comparative investigations of inclusive sport pedagogy.

The remainder of this article proceeds as follows. Section 2 reviews core theoretical underpinnings grounding the relational framework. Section 3 defines all central constructs, elaborates interactive mechanisms, presents a visual conceptual model, and puts forward formal theoretical propositions. Section 4 articulates the theoretical contributions of this relational theory. Section 5 discusses pedagogical and social implications. Section 6 acknowledges conceptual limitations and outlines a detailed agenda for follow-up research. Finally, Section 7 concludes the whole discussion.

## **2. Theoretical Underpinnings**

### **2.1 Core Principles of Inclusive Education**

Inclusive education advocates the full participation, acceptance, and belonging of every learner within mainstream classroom environments, rejecting segregated educational arrangements for marginalised student populations (Florian, 2021). The core philosophy moves beyond superficial equal access to curriculum resources and emphasises the removal of structural, attitudinal, and social barriers that hinder equitable engagement. Traditional inclusive education research initially prioritised legislative frameworks, curriculum adaptation and differentiated teaching strategies. Nevertheless, contemporary scholarship highlights that inclusive policy cannot

be fully realised without positive social dynamics among classroom members.

When extended to physical education, inclusive sport pedagogy focuses on accommodating students with diverse motor abilities, physical limitations, cultural backgrounds and skill disparities (Hodge et al., 2023). Existing models mostly centre on instructional adjustments for individual learners. What remains underdeveloped is recognition that inclusion is not merely a teaching strategy, but a social experience constructed through continuous interpersonal encounters.

## **2.2 Relational Sociology and Interpersonal Interaction Theory**

Relational sociology provides the foundational ontological perspective for this study. Unlike individualist paradigms that treat students as isolated actors, relational sociology argues that individual attitudes, behaviour and identity are generated and reshaped within ongoing social relationships (Crossley, 2022). All classroom outcomes, including inclusion and exclusion, emerge from repeated interactions rather than existing intrinsically within each person.

Interpersonal interaction theory further distinguishes one-way authoritative communication and reciprocal exchange. Sustainable inclusive environments require mutual respect, feedback and mutual recognition between participants. As applied to physical education contexts, this perspective directs attention away from individual student traits toward dyadic and group-level relational processes.

## **2.3 Peer and Teacher–Student Interaction in Sport Pedagogy**

A substantial body of sport pedagogy research has separately investigated teacher–student interaction and peer relationships. Teachers’ supportive communication, fair treatment and emotional responsiveness reduce student anxiety during physical activity, while biased evaluation and dismissive language create feelings of alienation (Armour, 2022). Peer dynamics exert equally powerful influences: peer acceptance facilitates continuous participation, whereas teasing, comparison and clique formation trigger avoidance of movement tasks.

Notably, most existing studies treat teacher–student relations and peer relations as independent variables. Few frameworks explain how these two layers interact. For instance, hostile peer exclusion may be mitigated by consistent teacher support; conversely, negative teacher attitudes can amplify peer discrimination. The absence of an integrated multi-layered relational model creates critical fragmentation within the literature.

## **2.4 Limitations Arising from Fragmented Research**

Taken collectively, the three theoretical domains outlined above lay essential groundwork, yet three key gaps persist. First, inclusive physical education theories insufficiently integrate relational perspectives and tend to overlook micro-level daily interaction. Second, sport pedagogy interaction research lacks a unifying theoretical structure to connect relational processes with inclusive learning outcomes. Third, scholars rarely identify shared classroom climate as a cross-cutting boundary condition that shapes the strength of relational effects.

This article addresses these limitations by synthesising the above theories to build a coherent relational framework, systematically linking multi-agent interpersonal interactions to inclusive participation and student belonging in physical education.

## **3. Construction of Relational Framework for Inclusive Physical Education**

### **3.1 Definition of Core Constructs Within the Relational Framework**

Based on the theoretical underpinnings of inclusive education and relational sociology, this section operationalises all core constructs embedded in the proposed inclusive physical education relational model. Precise construct definition establishes clear theoretical boundaries and supports the development of rigorous testable propositions.

**Teacher–student relational interaction.** Teacher–student relational interaction refers to the ongoing dyadic exchange of emotion, feedback, behavioural support, and instructional communication between physical education teachers and individual students (Armour, 2022). Positive interactions include equitable treatment, emotional encouragement, corrective guidance, and inclusive instructional accommodation. Negative interactions include differential attention, judgmental feedback, and neglect of marginalised students. In this framework, teacher–student interaction functions as the primary exogenous relational predictor that shapes classroom inclusive dynamics.

**Peer reciprocal interaction.** Peer reciprocal interaction represents bidirectional social exchanges among classmates during physical activity tasks, including collaborative support, teamwork communication, peer encouragement, as well as exclusionary behaviours such as teasing, comparison, and activity isolation (Goodwin & Watkinson, 2021). Unlike one-way behavioural influence, this construct emphasises reciprocity, whereby peer relational patterns continuously reinforce or weaken inclusive group norms throughout PE activities.

**Classroom inclusive interaction climate.** Classroom inclusive interaction climate is defined as the shared collective psychological atmosphere characterised by mutual respect, equal participation tolerance of difference, and low interpersonal discrimination within PE lessons (Hodge et al., 2023). Serving as the key contextual moderator in this model, the classroom climate shapes the magnitude and direction of relational effects. A positive inclusive climate amplifies the benefits of supportive interactions, whereas a hostile climate strengthens exclusionary relational patterns.

**Student sense of belonging.** Student sense of belonging refers to students' subjective psychological perception of acceptance, connection, and security within PE classroom communities (Florian, 2021). Belonging reflects the internalised inclusive outcome of relational experiences.

**Inclusive participation behaviour.** Inclusive participation behaviour serves as the final behavioural outcome variable, encompassing active task engagement, persistent movement participation, willingness to cooperate with diverse peers, and reduced avoidance behaviour in physical education activities.

### **3.2 Mechanisms Underpinning the Integrated Relational Model**

This framework establishes a layered relational mechanism explaining how multi-agent interpersonal interactions foster inclusive physical education outcomes. The core logical pathway follows a multi-level relational influence sequence: teacher–student relational interactions shape peer interaction patterns; combined teacher–student and peer interactions predict students' sense of belonging; and belonging further promotes sustainable inclusive participation behaviours. The whole pathway is conditionally moderated by classroom inclusive interaction climate.

First, teacher relational behaviours structure peer group dynamics. Physical education classrooms are highly interactive and visible social environments where teacher attitudes and

treatment serve as implicit normative cues. When teachers consistently demonstrate equitable support and inclusive accommodation, students learn to recognise diversity and exhibit more tolerant and collaborative peer interactions (Crossley, 2022). In contrast, teacher bias, differential praise, or selective neglect legitimises peer exclusion, encouraging cliques, comparison, and marginalisation of less athletic or physically diverse students.

Second, dual-layer relational interactions (teacher–student and peer interaction) jointly construct students’ psychological belonging. Students do not form inclusive perceptions based on a single relationship; instead, sustained positive exchanges with both teachers and peers generate cumulative feelings of acceptance and integration. If students receive teacher support but experience persistent peer exclusion, their belonging remains fragile. Similarly, positive peer relations cannot fully compensate for chronic teacher neglect or differential treatment (Hodge et al., 2023). This dual relational mechanism explains why many policy-level inclusive reforms fail to improve student subjective experience.

Third, psychological belonging functions as the proximal driver of inclusive behavioural participation. When students feel accepted and valued within the PE community, they exhibit greater task persistence, higher willingness to participate in challenging movement activities, and stronger motivation to cooperate with diverse peers. Conversely, low belonging induces self-withdrawal, activity avoidance, and disengagement from group physical tasks (Goodwin & Watkinson, 2021).

Crucially, the classroom inclusive climate acts as a cross-level moderator. In a high-inclusive climate, relational advantages are amplified: supportive teacher and peer interactions generate stronger belonging and participation gains. In a low-inclusive climate marked by competition, prejudice, and ability stereotyping, even sporadic negative relational encounters may trigger severe exclusionary outcomes, weakening the effectiveness of inclusive pedagogy.

### **3.3 Formal Theoretical Propositions**

Based on the above relational mechanism reasoning, five formal testable propositions are established to guide future empirical research:

Proposition 1. Positive teacher–student relational interaction positively predicts positive peer reciprocal interaction in physical education classrooms. Negative teacher–student interaction increases peer exclusionary behaviours.

Proposition 2. Teacher–student relational interaction and peer reciprocal interaction sequentially and jointly predict students’ sense of belonging in physical education. Dual positive relational experiences produce the strongest belonging outcomes.

Proposition 3. Student sense of belonging positively mediates the relationship between multi-layered relational interactions and inclusive participation behaviours in physical education.

Proposition 4. Classroom inclusive interaction climate moderates the relationship between relational interactions and student belonging. The positive relational effect is significantly stronger under a high-inclusive classroom climate.

Proposition 5. The conditional indirect effect of relational interactions on inclusive participation (via belonging) is moderated by classroom climate, such that the mediated pathway is

more robust in inclusive classroom environments.

### 3.4 Visual Model Overview

The present study establishes a multi-layered conditional relational framework for inclusive physical education. The complete structural pathways and boundary conditions are visually demonstrated in Figure 1.

As illustrated in Figure 1, the model presents a serial mediation structure: teacher–student relational interaction serves as the primary exogenous predictor, influencing peer reciprocal interaction, which sequentially shapes students’ sense of belonging and ultimately promotes inclusive participation behaviours in physical education. Classroom inclusive interaction climate functions as a cross-level moderating variable that conditions the strength of the entire relational pathway.

This visual conceptual model clarifies the hierarchical relational mechanisms, mediating psychological process, and contextual boundary conditions of inclusive physical education. All theoretical propositions proposed in this article can be empirically verified through structural equation modeling, multilevel analysis, or qualitative longitudinal observation in future research.

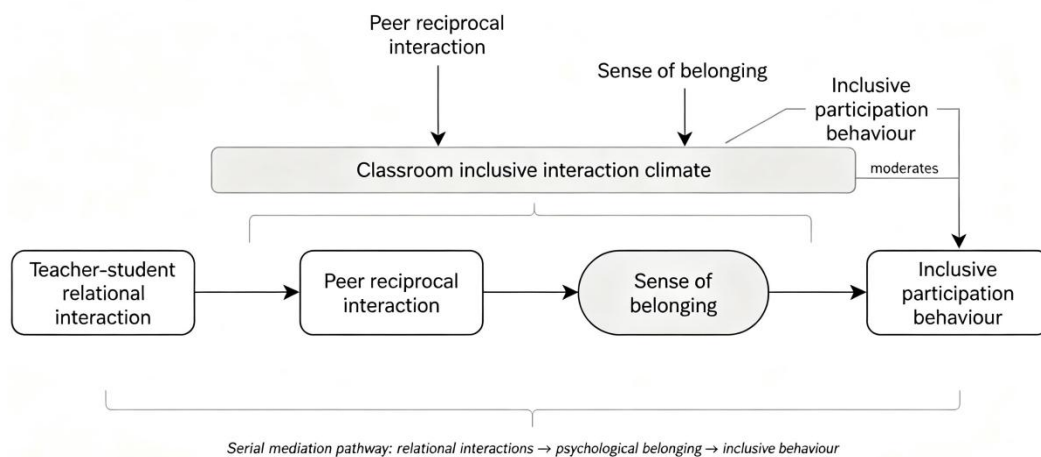


Figure 1. Conceptual Relational Framework of Inclusive Physical Education

## 4. Theoretical Contributions

This relational theory of inclusive physical education delivers three distinct, interconnected theoretical advances to sport pedagogy, inclusive education, and relational sociology research, addressing the critical literature gaps outlined in prior sections.

First, the framework shifts the dominant research paradigm of inclusive physical education from an instructional-policy perspective to a relational micro-interaction lens. Existing inclusive PE scholarship predominantly centres on curriculum adjustment, adaptive equipment, institutional policy, and teacher professional training (Hodge et al., 2023). Such work frames inclusion as a technical teaching practice determined by school top-down arrangements. By contrast, the current study treats inclusion as an ongoing social product generated through daily interpersonal exchanges between teachers and peers. This paradigm shift reframes core research questions: rather than only

investigating “what inclusive lessons teachers should design”, scholars can further examine “how sustained relational interactions build inclusive classroom environments”. This reconceptualisation expands the analytical scope of inclusive sport pedagogy and provides an alternative theoretical angle for subsequent research.

Second, the model integrates separate strands of interaction research within physical education into a unified serial mediation system. Past studies often explore teacher–student relationships and peer interactions as isolated predictors of student outcomes (Armour, 2022), ignoring their sequential causal linkage. This work clarifies that teacher relational behaviours act as the foundational antecedent shaping peer group norms, which together cultivate students’ sense of belonging before translating into observable inclusive participation. By identifying this layered serial relational pathway, the theory resolves the fragmentation of interaction research and establishes a coherent causal logic linking multi-agent social dynamics to inclusive learning outcomes.

Third, the present framework realises interdisciplinary integration between relational sociology and sport inclusive pedagogy. Relational sociology emphasises that individual attitudes and behaviours are constructed within continuous social relations (Crossley, 2022), yet this ontological viewpoint has rarely been systematically imported into physical education research. This paper operationalises abstract relational sociological concepts into measurable classroom constructs (teacher–student interaction, peer reciprocal exchange, group climate) and embeds them within a testable structural model. The cross-disciplinary dialogue bridges the gap between sociological relational theories and applied sport pedagogy, offering a transferable interdisciplinary analytical tool for scholars researching classroom equity and inclusion across educational fields.

Additionally, the five formal theoretical propositions proposed in Section 3.3 provide clear, falsifiable hypotheses for quantitative and qualitative follow-up research. Unlike descriptive conceptual discussions without testable logic, this theory delivers concrete directional predictions about variable relationships, laying rigorous theoretical groundwork for future empirical validation.

## **5. Social & Pedagogical Implications**

This relational framework generates actionable classroom strategies for physical educators, teacher educators, and school administrators, alongside broader social implications for equitable education development, particularly applicable to multicultural Southeast Asian school contexts.

### **5.1 Pedagogical Implications for In-Service PE Teachers**

First, teachers should recognise their daily relational communication as the foundational driver of inclusive peer culture. Rather than only relying on modified sports equipment or differentiated lesson plans, educators need to standardise equitable interaction routines: distributing equal speaking chances to students of all athletic abilities, delivering encouraging feedback to marginalised learners, and publicly intervening when peer teasing or exclusion occurs (Armour, 2022). Consistent positive teacher-student exchanges set normative cues that guide peer reciprocal behaviours, which cannot be replaced by one-off inclusive curriculum lectures.

Second, PE lessons should embed structured collaborative peer interaction tasks to build reciprocal supportive relationships. Competitive individual drills easily amplify ability-based comparison and cliques, while paired adaptive sports, mixed-ability group challenges, and peer

coaching activities encourage mutual assistance (Goodwin & Watkinson, 2021). Teachers can design task rules requiring every group member's participation, breaking pre-existing exclusionary peer dynamics and fostering bidirectional positive interactions.

Third, educators need to continuously monitor and optimise the classroom inclusive climate as a core moderating condition. Teachers should establish regular brief reflection segments to discuss respect and diversity within sports, eliminating stereotypes linking motor skill level to student value. When the classroom atmosphere becomes highly competitive or discriminatory, instructors can adjust task structures to weaken the negative impact of poor interpersonal relationships on students' sense of belonging.

## **5.2 Implications for Pre-Service Physical Education Training**

University teacher education programmes should integrate relational interaction training into inclusive pedagogy modules. Current training mostly focuses on technical inclusive teaching skills, with insufficient practice on emotional communication and conflict mediation (Hodge et al., 2023). Trainer educators can adopt role-play simulations of biased student treatment, peer exclusion scenarios, to help pre-service teachers master relational strategies for building inclusive classroom connections.

## **5.3 School Administrative Implications**

School administrators should shift inclusive education evaluation indicators from merely curriculum coverage to classroom relational quality. Schools can conduct regular classroom observations recording teacher-student interaction equity and peer exclusion incidents, rather than only assessing inclusive lesson materials. Administrators may organise cross-grade sharing sessions for PE teachers to exchange relational management experience, forming a school-wide inclusive relational culture.

## **5.4 Broader Social Implications**

From a social perspective, inclusive physical education built on equal interpersonal relations advances educational equity and reduces social stratification rooted in physical ability differences. For multicultural regions such as Southeast Asia, the relational framework provides a culturally adaptable lens: schools with multi-ethnic, multilingual student bodies can prioritise respectful bidirectional interaction to mitigate ethnic or cultural marginalisation during sports activities (Florian, 2021). By cultivating inclusive relational habits in adolescence, physical education contributes to long-term socially tolerant citizen development, aligning with the core scope of *The Journal of Interactive Social Sciences*.

# **6. Limitations and Directions for Subsequent Research**

## **6.1 Conceptual Limitations of the Proposed Framework**

Although this relational theory enriches the theoretical system of inclusive physical education by establishing an interpersonal interaction-oriented model, several inherent conceptual limitations must be acknowledged to maintain academic transparency and boundary clarity.

First, consistent with the nature of conceptual articles, the present framework is deductive and theoretical rather than empirically validated. All relational pathways and moderating mechanisms are logically derived from inclusive education theory and relational sociology, without quantitative statistical verification or qualitative thematic evidence. Therefore, the model currently serves as a

heuristic framework for interpretation rather than a statistically confirmed structural model (Hodge et al., 2023).

Second, this study focuses primarily on general K-12 mainstream physical education classrooms and does not differentiate between student subgroups. The model does not separately discuss students with intellectual disabilities, physical impairments, gifted athletic students, or culturally migrant student groups. Different student populations may exhibit distinct sensitivity to teacher–student relationships and peer exclusion behaviours, which creates boundary limitations for the current universal framework (Goodwin & Watkinson, 2021).

Third, the present relational model simplifies classroom interactive systems by focusing on teacher–student interaction, peer interaction, and collective climate. It excludes external structural variables such as school inclusive policy support, parental sports attitudes, and cultural value systems. Although this simplification enhances theoretical clarity, it inevitably overlooks macro contextual factors that shape inclusive classroom dynamics (Florian, 2021).

Fourth, the framework does not address temporal dynamic changes. This static relational model cannot explain how negative interaction patterns accumulate over time, how exclusionary relational cycles form, or how inclusive relational climates evolve across a semester or academic year.

## **6.2 Future Quantitative and Qualitative Research Directions**

To overcome the above limitations, this section proposes a structured multi-method research agenda for future scholars.

First, future research can adopt quantitative structural equation modeling (SEM) to verify the serial mediation and moderation pathways proposed in this study. Researchers can test whether student belonging significantly mediates relational interaction and inclusive participation, and validate the moderating effect of classroom inclusive climate. Multilevel modeling is particularly recommended, as classroom climate is a group-level variable while interaction behaviours and belonging are individual-level variables.

Second, qualitative phenomenological research is encouraged to explore students' lived relational experiences. In-depth interviews with marginalised students can reveal subtle, invisible exclusion mechanisms that quantitative surveys cannot capture (Armour, 2022). Observational studies can further record real-time interaction patterns in authentic PE classrooms to supplement the theoretical logic of this framework.

## **6.3 Cross-Cultural Expansion**

One of the most promising research extensions is cross-cultural comparative research. Most existing inclusive PE theories originate from Western individualistic educational cultures. In contrast, Southeast Asian schools feature collectivist values, multi-ethnic classrooms, religious cultural diversity, and unique teacher authority structures. Future research can test whether the relational pathways proposed in this study remain consistent within Malaysian, Indonesian, and other multicultural educational contexts. Cross-cultural validation will significantly improve the global generalizability of relational inclusive theory and highlight the cultural contribution of non-Western sport pedagogy research.

## **6.4 Longitudinal and Intervention Research**

Future studies can conduct longitudinal tracking research to explore the cumulative effects of relational interaction. Examining how early positive teacher relational support prevents long-term peer exclusion and disengagement can further enrich the dynamic mechanism of inclusive education. Additionally, intervention research can design relational climate training programmes for PE teachers and verify whether optimised interpersonal interaction strategies effectively improve classroom inclusive outcomes.

## **6.5 Model Expansion**

Subsequent theoretical optimisation can integrate macro-level variables, including school inclusive policy, parental involvement, and cultural inclusiveness, to build a more comprehensive multi-layered nested model of inclusive physical education.

## **7. Conclusion**

Inclusive physical education has long been recognised as an essential component of equitable educational development, yet existing theoretical frameworks have predominantly focused on institutional policy, curriculum adaptation, and technical teaching strategies while neglecting micro-level interpersonal relational dynamics. This conceptual article constructed a relational theory of inclusive physical education to address persistent theoretical fragmentation within sport pedagogy and inclusive education research. By synthesising relational sociology, interpersonal interaction theory, and inclusive education principles, this study established an integrated conditional model that systematically explains how teacher–student relational interaction and peer reciprocal interaction shape students’ sense of belonging and ultimately promote inclusive participation behaviours in physical education classrooms, with classroom inclusive climate functioning as a critical contextual moderator.

The core theoretical contribution of this framework lies in its paradigm shift toward a relational interaction perspective. This study demonstrated that inclusive physical education is not merely a top-down institutional achievement but a continuously constructed social process rooted in daily teacher–student and peer exchanges. By clarifying the serial causal pathways among multi-layered relational variables and psychological and behavioural outcomes, the present work unifies previously isolated research findings and provides a coherent theoretical system for interpreting inclusive classroom dynamics. Furthermore, the formal testable propositions proposed in this study offer clear guidance for future quantitative modelling, qualitative exploration, and cross-cultural validation research.

Practically, this relational framework provides actionable pedagogical strategies for physical educators, teacher training programmes, and school administrators. It highlights the necessity of optimising teacher relational practice, designing collaborative peer interaction tasks, and cultivating positive classroom inclusive climates to reduce ability-based exclusion and enhance student belonging. Particularly for multicultural educational contexts such as Southeast Asia, this interaction-centred inclusive model offers culturally flexible theoretical guidance to address ethnic diversity, classroom stratification, and interpersonal marginalisation in physical education.

Although this conceptual model advances relational and inclusive sport pedagogy, it remains theoretically deductive without empirical verification and does not incorporate macro institutional and cultural variables. Future research is encouraged to validate the proposed pathways through multilevel modelling, longitudinal designs, and cross-cultural comparative studies. Overall, this

relational theory enriches the theoretical foundation of inclusive physical education, promotes interdisciplinary dialogue between social science and sport pedagogy, and contributes to the development of more equitable, interactive, and student-centred inclusive physical education practices worldwide.

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