

## INPLASY

## Applying self-determination theory in physical education: A Systematic Review

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**ADMINISTRATIVE INFORMATION****Support** - ICE-XINTERAC05/2023.**Review Stage at time of this submission** - Completed but not published.**Conflicts of interest** - None declared.**INPLASY registration number:** INPLASY202530101**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 24 March 2025 and was last updated on 24 March 2025.**INTRODUCTION**

**Review question / Objective** First, while SDT has evolved considerably since its inception, the mechanisms and implications of theoretical additions and refinements specific to PE contexts have not been comprehensively mapped.

Second, the development and validation of SDT-specific measurement tools for PE settings remain fragmented, limiting cross-study comparability.

Third, the developmental trajectories of SDT constructs across educational stages (primary through secondary) have not been systematically analyzed, creating uncertainty about age-appropriate interventions.

Finally, cultural differences in SDT applications within PE remain underexplored.

**Background** Physical Education (PE) aims to cultivate the physical and mental well-being of students and shape their holistic character development. Through structured PE learning programs, students engage in high-level physical activities that promote not only fitness but also

cognitive and social development. High-quality PE combined with meaningful PE activities has resulted in not only students' physical and mental health improving, fundamental motor skills and cognitive (Siedentop & Van der Mars, 2022; Vazou et al., 2019). As educational theories, programs and practices continue to evolve, students have explored a myriad of PE educational settings addressed to enhance their self-identity, self-knowledge, and making connections between experience and knowledge (Lodico et al., 2010; Meltzer, 2018).

Among diverse theoretical frameworks, Self-Determination Theory (SDT) has gained considerable attention. Initially proposed by psychologists Edward L. Deci and Richard M. Ryan in 1985, SDT provides insights into individual motivation, human behavior, and the intrinsic sense of control within motivation (Deci & Ryan, 2012b). The theory posits that individuals have an innate drive to explore, grow, while simultaneously seeking to satisfy three fundamental psychological needs: autonomy, competence, and relatedness. Recent meta-analyses confirm that supporting these basic needs significantly predicts positive

educational outcomes across diverse contexts (Vasconcellos et al., 2020; Liu et al., 2023).

In educational settings, SDT has become a highly-regarded framework, providing educators with evidence-based strategies to enhance students' self-management and intrinsic motivation. The application of SDT in PE contexts holds particular promise given the unique experiential nature of physical education. As Chen et al., (2020) note, SDT-informed PE practices foster greater enjoyment, engagement, and long-term adherence to physical activity outcomes that extend well beyond the classroom setting. As a means of improving physical fitness and psychological abilities, sports and physical activities not only provide a constructive learning platform for students but also have a positive impact on socialization (Owen et al., 2014). However, the reality is that in most PE overemphasize outcome goals, thus neglecting students' intrinsic motivation and basic psychological needs, leading to many students developing aversions to sports activities (Pangrazi & Beighle, 2012).

The application of SDT has proven to be particularly valuable in explaining motivation for sport participation, physical activity persistence, health behaviours, and performance in different contexts (Di Domenico et al., 2024; Namaziandost et al., 2024). And, with the widespread use of artificial intelligence, SDT has begun to incorporate ChatGPT (Li et al., 2024; to facilitate students' self-regulated learning as well as to further explain students' STEM interests and identity development (Chiu, 2024).

**Rationale** This systematic review represents a significant contribution to the field by synthesizing fragmented research strands into a coherent framework that can guide future investigations. Unlike previous reviews that focused on isolated aspects of SDT in PE (e.g., de Bruijn et al., 2022; White et al., 2021), the present study adopts a comprehensive approach that integrates theoretical developments, measurement issues, and practical applications across educational levels. By identifying patterns, inconsistencies, and unexplored territories in the existing literature, this review will help researchers, educators, and practitioners efficiently navigate the potential benefits and remaining challenges of applying SDT principles in PE instruction.

## METHODS

**Strategy of data synthesis** We started with a simple string with the main search formula: TS= ("Self-Determination Theory" AND "Physical Education"), with a timeframe set from 1900 to July

15, 2023. This search retrieved a total of 953 records.

**Eligibility criteria** Inclusion criteria(IC) were essential for assessing the validity, applicability and comprehensiveness of the reviews (Page et al., 2021). Notably, the exclusion criteria were designed to be incremental. For example, if an article is rejected by exclusion criterion 1, it is automatically excluded, and no further validation of the other exclusion criteria takes place.

For inclusion criteria(IC), the title, abstract, or keywords of the paper contained one of the following terms: "SDT" or "self-determination theory" (IC-1), "Physical Education" or "PE"(IC-2). Exclusion criteria(EC), not a dissertation(EC-1), not written in English(EC-2), this study does not consider theories outside of SDT(EC-3), this study does not consider scenarios outside of the physical education setting(EC-4), this study does not consider qualitative studies (studies without supporting data) (EC-5).

## Source of evidence screening and selection

The first stage of the search strategy consisted of retrieving data from the major core databases, Web of Science, which are recognised as important and reliable sources of high quality publications in the field of physical education (Zhou, 2023), by entering search strings constructed on the basis of IC-1 in the following databases.

**Data management** The results of the specific review can be found in the supplementary document at <https://1drv.ms/x/c/90e4a6cebfb942d9d/EbPfeM7uhCFOhLPn7MXQJSUBctGhw04urbsGhCALvxDKjg?e=QlroRU>.

**Language restriction** English and Spain.

**Country(ies) involved** Republic of Korea.

**Keywords** self-determination theory; physical education; intrinsic motivation; extrinsic motivation; autonomy.

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