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Effective Implementation of the Sport Education Model in Physical Education: A Meta-Analysis of Participant and Intervention Characteristics

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ADMINISTRATIVE INFORMATION

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Review Stage at time of this submission - Formal screening of search results against eligibility criteria.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 2 March 2025 and was last updated on 2 March 2025.

INTRODUCTION

Review question / Objective This study investigates the facilitative effects of SEM on students' physical education learning and examines the Participant and Intervention Characteristics that modulate its impact.

Condition being studied There is a significant knowledge gap regarding the moderating variables that affect the effectiveness of SEM.

METHODS

Participant or population Students in PE learning.

Intervention The Sport Education Model (SEM) is a distinctive and well-structured pedagogical framework designed to provide students with authentic and developmentally appropriate experiences in physical education.

Comparator Traditional teaching method.

Study designs to be included RCT and quasi-experiment.

Eligibility criteria The inclusion criteria followed the PICOS framework: (a) no gender, age, or disability restrictions, and no prior SEM participation required; (b) interventions in both groups must be described, with a duration over two weeks; (c) control group intervention should match the experimental group; (d) at least one objective outcome must be measured; (e) the study must be a randomized controlled trial or quasi-experimental study. Exclusion criteria included: (a) irrelevant populations, (b) non-SEM

interventions, (c) non-randomized designs, (d) non-English publications, and (e) insufficient data.

Information sources Web of Science, Scopus, PubMed, and EBSCOhost (CINAHL with Full Text and SPORTDiscus with Full Text).

Main outcome(s) Cognitive factors (academic performance, motor skills, physical fitness, theoretical knowledge, and practical skills) and non-cognitive (learning motivation, learning interest, learning attitudes, and mental health).

Quality assessment / Risk of bias analysis The RoB-2 for randomised controlled trials and the ROBINS-I tool was used to assess quasi-experimental studies.

Strategy of data synthesis If three or more studies had sufficient data, a meta-analysis was performed using Hedges' g for effect size (ES). Data were adjusted for pooled standard deviation, and a random-effects model was applied. ES values were classified as large (>0.8), moderate (0.5-0.8), or small (0-0.5). Heterogeneity was assessed with I^2, and publication bias was tested using Egger's test. Statistical significance was set at $p < 0.05$. Analyses were conducted using Comprehensive Meta-Analysis software (Version 3.0). Missing data were addressed by contacting authors; studies with insufficient data were excluded.

Subgroup analysis Participant characteristics (learning stages, SEM experience, and class sizes) and Intervention characteristics (frequency, duration of each session, and experimental period).

Sensitivity analysis Not applicable.

Language restriction Only English.

Country(ies) involved Malaysia.

Keywords Sport Education Model, Physical Education, meta-analysis, participant characteristics, intervention characteristics.

Contributions of each author

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