

Designing a Curriculum Model Based on Artificial Intelligence and Purposeful Physical Activity to Enhance Learning Self-Regulation, Mental Health, and Psychological Well-Being among Students

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E d i t o r	R e v i e w e r s
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1. Round 1

1.1. Reviewer 1

Reviewer:

In the Introduction paragraph discussing “the teacher’s role in the age of artificial intelligence,” the statement that the teacher changes “from a transmitter of information to a designer of learning experiences, facilitator of inquiry, interpreter of data, guide for ethical technology use, and supporter of students’ cognitive and emotional development” is important, but it should be linked more directly to the curriculum model. The article should clarify whether teacher competencies are treated as a main dimension, contextual factor, implementation condition, or mediating mechanism in the model. If teacher readiness is part of the “supportive learning environment,” this should be explicitly stated and later reflected in the questionnaire items and model validation.

In the Data Collection Tools section, the paragraph on the researcher-made curriculum model validation questionnaire states that “The content validity of the questionnaire was assessed using expert judgment, and the content validity ratio and content validity index were calculated.” This is appropriate, but the manuscript should report the actual CVR and CVI thresholds, the

number of experts involved in content validation, the number of deleted or revised items, and the final number of items per dimension. Without these details, readers cannot evaluate the quality of the newly developed instrument.

In the Data Collection Tools section, the sentence “Learning self-regulation was measured using a standardized self-regulated learning questionnaire adapted for student populations” is too vague for a scientific manuscript. The authors should identify the exact instrument, its developer, year of development, number of items, dimensions, scoring procedure, interpretation of scores, and previous validity and reliability evidence. The same issue applies to the “General Health Questionnaire” and the “standardized psychological well-being scale.” These measures should be named precisely, especially because the validity of the structural model depends on the psychometric adequacy of the instruments.

In the Data Analysis section, the authors state that “Confirmatory factor analysis was used to evaluate the measurement model, and structural equation modeling was applied to test the fit of the proposed curriculum model.” This is appropriate, but the manuscript should specify the software used, estimation method, treatment of missing data, assessment of multivariate normality, and criteria for model modification. Since the findings report modified model fit indices, the authors should explain whether modifications were based on theory, modification indices, correlated error terms, or removal of weak items.

Authors uploaded the revised manuscript.

1.2. Reviewer 2

Reviewer:

In the Introduction paragraph beginning with “Purposeful physical activity represents a second major foundation,” the concept of “purposeful physical activity” requires stronger theoretical clarification. The sentence “Physical activity in education should not be regarded only as a separate sport or physical education subject, but as a purposeful component of learning, mental health, self-regulation, and psychological well-being” is persuasive, but the authors should distinguish purposeful physical activity from general physical education, sport participation, classroom movement breaks, embodied learning, mindfulness-based movement, and structured exercise. This distinction is essential because the empirical model depends on measuring purposeful physical activity as a specific curriculum construct.

In the Introduction paragraph on well-being, the manuscript states that “psychological well-being should be treated as a legitimate curriculum outcome, not merely as a secondary or external consequence of schooling.” This is a strong theoretical position, but the article should provide a clearer rationale for selecting psychological well-being, mental health, and learning self-regulation as the three central outcomes. The distinction between mental health and psychological well-being should be made more explicit, because the manuscript appears to treat mental health as psychological adjustment and reduced distress, while psychological well-being is treated as positive functioning. This conceptual distinction should be clearly stated before the aim of the study.

In the Methods and Materials section, the paragraph beginning “The present study was conducted using an applied developmental research design with an exploratory sequential mixed-methods approach” needs further methodological precision. The authors should clarify the exact sequence of the mixed-methods process: qualitative exploration, extraction of dimensions, questionnaire construction, expert validation, pilot testing, quantitative validation, and final model modification. At present, the design is named, but the procedural logic connecting the qualitative and quantitative phases is not sufficiently detailed. This is especially important because the study claims to design and validate a curriculum model.

In the Methods paragraph on participants, the sentence “The qualitative phase continued until theoretical saturation was achieved, and a total of 20 experts participated in semi-structured interviews” should be strengthened by explaining how saturation was determined. The authors should specify whether saturation was assessed through repetition of codes, absence of new themes, expert agreement, or saturation grids. Additionally, because thematic analysis rather than grounded theory is reported, the phrase “theoretical saturation” may need to be replaced with “data saturation” or “thematic saturation” unless the authors explicitly used a theory-building grounded approach.

In the Methods paragraph describing the quantitative sample, the statement “The final student sample consisted of 384 students, which was considered adequate for validating the proposed model and examining the relationships among the main

constructs” requires a statistical justification. The authors should report how the sample size was determined, for example based on Cochran’s formula, power analysis, minimum requirements for structural equation modeling, or the ratio of participants to estimated parameters. Since the study uses confirmatory factor analysis and structural equation modeling, a clear justification of 384 participants is necessary for methodological rigor.

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2. Revised

Editor’s decision after revisions: Accepted.

Editor in Chief’s decision: Accepted.