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Development of a Preservice Training Program on Integration of Physical Activities for Preschool Teachers

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Abstract

Background and Aims: Preschool teachers often lack the competencies needed to effectively integrate physical activities with other learning domains. This study aimed to develop and evaluate a five-day pre-service training program on integrated physical activities for early childhood education teachers.

Methodology: A mixed-methods design with three phases was employed. Phase 1 involved a needs analysis using questionnaires (n=150: 100 pre-service teachers, 50 novice in-service teachers) and semi-structured interviews (n=27) to identify competency gaps and industry demands. Phase 2 focused on program development based on these findings and expert validation through a focus group of seven specialists. Phase 3 employed a one-group pre-test/post-test experimental design with 30 preservice teachers to evaluate the program's effectiveness. The training program's content validity was established using the Index of Item-Objective Congruence (IOC). Data were analyzed using descriptive statistics, paired t-tests, and the E1/E2 efficiency index.

Results: 1) The efficiency of the program (E1/E2) was 79.7/78.48 which met the established evaluation criteria (70/70), 2) The post-test scores were significantly higher than pre-test scores across all six competency dimensions, including activity organization, integrated implementation, physical development assessment, safety protection, game design, and home guidance; 3) Participants reported high levels of satisfaction with the training content and its practical applicability (4.39 ± 0.54~4.72 ± 0.38).

Conclusion: The developed five-day training program effectively enhanced preservice teachers' integrated physical activity competencies. The findings provide an evidence-based, practical model for improving teacher preparation in early childhood physical education and supporting the implementation of integrated educational approaches in kindergarten settings.

Keywords: Integrated Physical Activities; Pre-Service Training; Early Childhood Teachers; Competence Development

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Introduction

In recent years, national policies have increasingly emphasized the foundational role of physical activity in early childhood development. The Guidelines for the Learning and Development of Children Aged 3-6 (Ministry of Education, 2012) positioned "health" as the primary domain among the five key developmental areas, explicitly stating that "a well-developed body, coordinated movements, and good health habits are important indicators of children's physical and mental health, and also the foundation for learning and development in other domains." The guidelines further mandate that daily outdoor activity for preschool children should not be less than two hours, with structured physical activity accounting for at least one hour. Subsequently, the Outline for Building a Leading Sports Nation (General Office of the State Council, 2019) called for promoting early childhood sports development and establishing systematic curriculum frameworks and teacher training mechanisms. Most recently, the Outline for the Construction of an Education-Strong Nation (2024-2035) (Central Committee of the Communist Party of China & State Council, 2025) proposed expanding access to inclusive kindergartens and advancing the integration of childcare and preschool education, further elevating professional expectations for preschool teachers.

Despite this strong policy orientation, significant gaps remain between policy expectations and teachers' actual competencies. Zhang Mo (2022) found that courses directly targeting children's physical activity guidance accounted for less than five percent of the curriculum in many preschool education programs. Wang et al. (2025), through a large-scale survey of 300 kindergartens, reported that both pre-service and novice in-service teachers demonstrated notably weak performance in key areas such as scientifically designing age-appropriate physical activities, assessing children's physical development, managing safety risks, and integrating physical education with other learning domains. Gu and Xie (2024) further observed that expectations for teachers' physical education competence have evolved from simply "being able to organize simple games" to encompassing a comprehensive set of abilities including scientific activity design, developmental assessment, safety management, and educational integration.

The concept of "five-education integration" (moral, intellectual, physical, aesthetic, and labor education) has become a central theme in contemporary Chinese educational policy. Scholars have argued that physical education possesses unique structural advantages for achieving this integration, as physical activities naturally incorporate moral norms, cognitive engagement, aesthetic expression, and cooperative labor (Zha & Liang, 2024; Jia & Cao, 2025). However, Xiang (2024) noted that while the theoretical value of integration is well-established, teachers often lack concrete strategies for translating this concept into practice. Wang et al. (2025) emphasized that although integration ability is frequently included as a dimension of

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professional competence, research rarely specifies how teachers can systematically acquire such abilities through structured training.

Existing research has several limitations. First, most studies focus on conceptual advocacy or policy interpretation, with few translating policy objectives into operable training frameworks. Second, research on preschool teachers' physical education competencies has primarily emphasized structural analysis and status surveys, while empirical studies on targeted training interventions remain limited. Third, existing training models often rely on long-term curriculum reform or fragmented skill instruction, which may not be feasible for addressing immediate competency gaps faced by pre-service and novice teachers.

Therefore, this study aimed to develop and evaluate a five-day, competency-based pre-service training program on integrated physical activities for preschool education teachers. The program was designed based on systematic needs analysis, grounded in theories of child motor development and five-education integration, and validated through expert review and experimental testing. The findings are expected to provide an evidence-based, practical model for improving teacher preparation in early childhood physical education, offering direct applications for university curriculum reform, kindergarten novice teacher training, and implementation of national health strategies at the preschool level.

Objectives

1. To investigate the current competency levels of pre-service and novice in-service preschool teachers regarding integrated physical activities and to identify the core demands of the early childhood education industry.

2. To develop a five-day, competency-based integrated physical activity training program for pre-service preschool teachers, grounded in a six-dimensional competency framework.

3. To examine the effectiveness of the training program by comparing participants' competencies before and after the intervention across all six dimensions.

4. To evaluate the efficiency (E1/E2) and participant satisfaction of the training program, thereby confirming its applicability and potential for scalability in preschool teacher education.

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Conceptual Framework

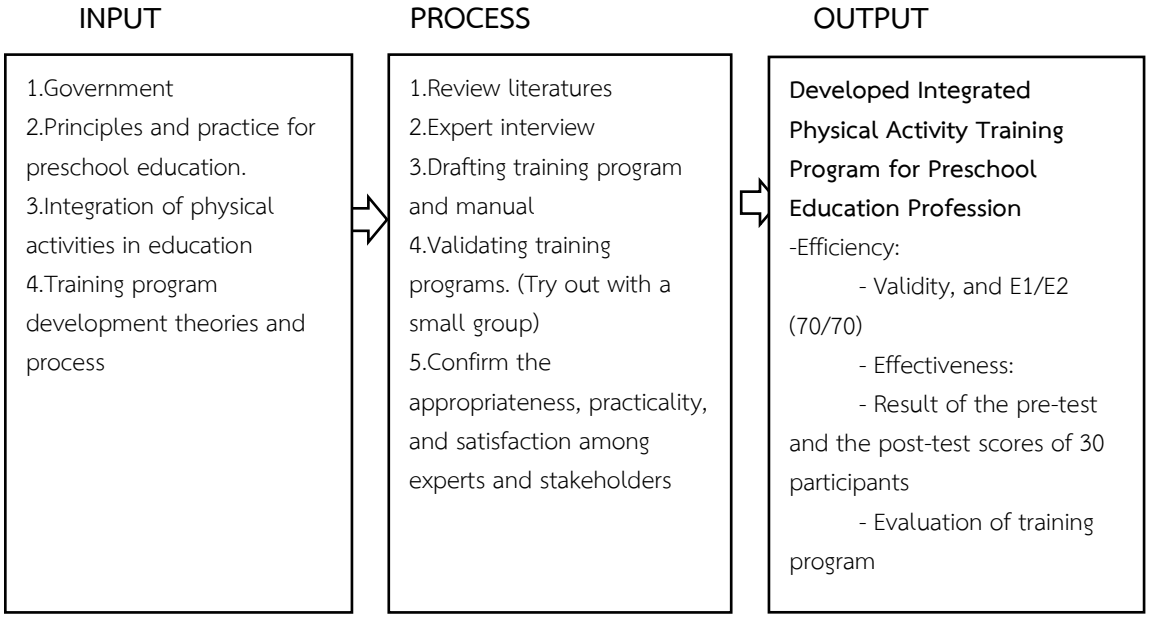


Figure 1 Conceptual Framework

Methodology

Research Design

This study adopted a mixed-methods research design with three sequential phases: (1) needs analysis, (2) program development and expert validation, and (3) experimental evaluation. The mixed-methods approach was selected to comprehensively examine current competency status, identify industry demands, and evaluate training effectiveness through both quantitative and qualitative evidence.

Participants and Sampling

The study involved three participant groups across different phases.

Phase 1 (Needs Analysis): The pre-service teacher group consisted of 100 fourth-year undergraduate students majoring in preschool education at Guangdong University of Business and Technology (aged 20-25; 10 males, 90 females). The sample size was determined using Krejcie and Morgan's (1970) table, and participants were selected through stratified random sampling based on the cohort's gender distribution (approximately a 1:9 male-to-female ratio). The novice in-service teacher group comprised 50 teachers from 10 registered kindergartens in Zhaoqing City (aged 26 and above; 5 males, 45 females), including 30 from public kindergartens and 20 from private institutions. Two-stage stratified sampling was employed: first by kindergarten type (3:2 public-to-private ratio), then by teaching experience (4:3:3 ratio for 1, 2, and 3 years of experience, respectively). Additionally, 27 semi-structured interviews were conducted with 7 university experts, 5 kindergarten principals, and 15 frontline teachers, purposively selected to ensure representation across research, management, and teaching

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practice.

Phase 2 (Expert Validation): A focus group of seven experts was purposively selected, including three university professors specializing in preschool education and physical education, two kindergarten principals, and two early childhood physical education researchers. All experts had over 10 years of professional experience.

Phase 3 (Experimental Evaluation): Thirty pre-service teachers from the Phase 1 sample were purposively selected based on voluntary participation and availability to complete the five-day intensive training.

Research Instruments

Questionnaire on Integrated Physical Activity Competence: A structured 25-item questionnaire was developed based on the six-dimensional competency framework identified through literature review (activity organization, integrated implementation, physical development assessment, safety protection, game design, and home guidance). Each item was rated on a five-point Likert scale (1=strongly disagree to 5=strongly agree). Content validity was established by the expert panel using the Index of Item-Objective Congruence (IOC=0.89). Reliability was assessed through a pilot test with 30 preschool education students (Cronbach's α=0.95 for the overall scale, ranging from 0.87 to 0.92 across dimensions). This questionnaire was used for both the needs analysis survey and pre-/post-test measurements in the experimental phase.

Semi-Structured Interview Guides: Two guides were developed. The first explored industry demands regarding teachers' integrated physical activity competence, covering themes of activity design, cross-domain integration, physical assessment, safety management, and home-kindergarten collaboration. The second guide was designed for expert focus group discussions to evaluate the training program's content appropriateness, structural logic, method feasibility, and evaluation scientificness. All interviews were audio-recorded, transcribed verbatim, and analyzed thematically.

Training Satisfaction Questionnaire: A 20-item questionnaire was developed to evaluate participants' perceptions across six dimensions: content practicality, teaching method diversity, case richness, expert guidance quality, practical session design, and training organization. The scale demonstrated high internal consistency (Cronbach's α=0.91).

The Five-Day Training Program

The training program was developed based on needs analysis findings and structured around three core modules: theoretical understanding (Day 1), skill practice (Days 2-3), and integrated application (Days 4-5). The five-day duration was selected based on three considerations: (1) pilot testing indicated this timeframe was sufficient to cover all core competencies; (2) it represents a feasible intensive training format within university semester schedules; and (3) it aligns with recommendations from the needs analysis for a concentrated,

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practice-oriented intervention. Each day comprised 6 hours of training, totaling 30 hours.

Day 1 (Theoretical Foundations) covered national policies, child motor development theories (ages 3-6), concepts of integrated physical activity, and safety principles through expert lectures and case discussions.

Day 2 (Game Design Skills) focused on principles of age-appropriate, enjoyable physical activity design, with workshops on creating games for 3-4 and 5-6 year olds, incorporating peer feedback and expert guidance.

Day 3 (Assessment and Safety) addressed physical fitness assessment tools, observation and recording techniques, injury prevention, and basic first aid through demonstrations, hands-on practice, and scenario-based exercises.

Day 4 (Integrated Practice) explored strategies for integrating moral, cognitive, aesthetic, and labor education goals into physical activities, with collaborative design activities and case analysis.

Day 5 (Comprehensive Application) involved micro-teaching sessions of integrated physical activity lessons, expert and peer feedback, program synthesis, and post-training assessment.

Data Collection

Data collection proceeded in three phases corresponding to the research design. Phase 1 (needs analysis) involved questionnaire administration (150 valid responses, 100% response rate) and semi-structured interviews (27 participants) conducted between April and June 2025. Phase 2 (expert validation) comprised a 150-minute focus group discussion with seven experts in September 2025. Phase 3 (experimental evaluation) involved pre-test administration, five-day training implementation, post-test administration, and satisfaction survey completion with 30 participants in October 2025. All procedures were conducted with informed consent, and ethical approval was obtained from Bangkokthonburi University (Approval No.: 2568/319).

Data Analysis

Quantitative data were analyzed using SPSS 26.0. Descriptive statistics (means, standard deviations, frequencies, percentages) were calculated to describe participant characteristics and competency levels. Paired-samples t-tests were conducted to compare pre-test and post-test scores, with statistical significance set at $p<0.05$. Training efficiency was evaluated using the E1/E2 criterion, where E1 (process efficiency) represented the average percentage score on practical training tasks, and E2 (outcome efficiency) represented the percentage conversion of post-test scores. The benchmark of 70/70 was adopted as the minimum acceptable efficiency level. Qualitative data from interviews were transcribed and analyzed thematically to identify recurring patterns related to competency demands and training effectiveness.

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Results

Competency Indicator System and Needs Analysis

Based on systematic literature comparison across six authoritative studies (Zhang Mo, 2022; Yan Fei, 2016; Wang et al., 2025; Liu, 2012), a six-dimensional competency framework was established: activity organization ability, integrated implementation ability, physical development assessment ability, safety protection ability, game design ability, and home guidance ability.

The needs analysis revealed that pre-service teachers demonstrated relatively higher competence in activity organization (3.54 ± 0.66) and game design (3.65 ± 0.61), but showed notable weaknesses in physical development assessment (3.12 ± 0.77), integrated implementation (3.28 ± 0.71), and home guidance (3.11 ± 0.75). Novice in-service teachers generally scored higher than pre-service teachers, particularly in safety protection (3.98 ± 0.52 vs. 3.61 ± 0.63, $p<0.01$) and activity organization (3.84 ± 0.57 vs. 3.54 ± 0.66, $p<0.01$). However, both groups remained at medium levels in assessment and home guidance competencies. Interview data confirmed these findings, with industry stakeholders emphasizing the need for systematic training in "scientific design and five-domain integration," "observation and data-driven teaching," "systematic risk prevention," and "home-kindergarten co-education."

Program Content Validity

Expert focus group evaluation yielded strong content validity, with an overall IOC value of 0.89 across all training modules. All individual items achieved IOC values between 0.86 and 1.00, indicating high expert consensus on the relevance and appropriateness of training content. Based on expert feedback, revisions were made to strengthen practical components, enhance connections between modules, and refine evaluation criteria.

Training Effectiveness: Competency Improvement

Table 1 presents the comparison of pre-test and post-test scores across all six competency dimensions for the 30 participants in the experimental group.

Table 1 Comparison of Pre-test and Post-test Competency Scores (n=30)

Competency Dimension	Pre-test $\bar{X}$± S.D.	Post-test $\bar{X}$± S.D.	Mean Difference	t-value	p-value
Activity Organization	3.54 ± 0.66	4.10 ± 0.51	+0.56	-8.56	0.01*
Integrated Implementation	3.28 ± 0.71	3.90 ± 0.52	+0.62	-8.20	0.01*
Physical Development Assessment	3.12 ± 0.77	3.65 ± 0.60	+0.53	-6.69	0.01*
Safety Protection	3.61 ± 0.63	4.15 ± 0.45	+0.54	-8.42	0.01*
Game Design	3.65 ± 0.61	4.32 ± 0.48	+0.67	-9.54	0.01*
Home Guidance	3.11 ± 0.75	3.60 ± 0.54	+0.49	-6.72	0.01*

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As shown in Table 1, paired t-test analysis revealed statistically significant improvements in all six competency dimensions after the training ($p<0.01$). The largest gains were observed in game design ability (mean increase of 0.67, t=-9.54) and integrated implementation ability (mean increase of 0.62, t=-8.20). Notably, the dimensions that were initially weakest, physical development assessment and home guidance, showed substantial improvements of 0.53 and 0.49 points, respectively, confirming the program's effectiveness in addressing identified competency gaps.

Training Efficiency (E1/E2)

The process efficiency (E1) evaluation, based on participants' performance during practical training tasks, yielded an overall mean of 79.7% (range: 72.9% to 88.2%). Across the six competency dimensions, game design ability achieved the highest E1 score (85.1%), followed by safety protection ability (82.8%), indicating strong engagement and skill acquisition in these areas. The outcome efficiency (E2), calculated from post-test scores, reached a mean of 78.48% (range: 72.48% to 79.58%). Both E1 and E2 values exceeded the pre-established 70/70 benchmark, confirming that the training program achieved acceptable efficiency in both implementation quality and learning outcomes.

Participant Satisfaction

Table 2 presents participants' satisfaction with the training program across six dimensions.

Table 2 Participant Satisfaction with the Training Program (n=30)

Dimension	$\bar{X}$ ± S.D.	Satisfaction Level
Content Practicality	4.58 ± 0.46	Highest
Teaching Method Diversity	4.44 ± 0.52	High
Case Richness	4.63 ± 0.43	Highest
Expert Guidance Quality	4.72 ± 0.38	Highest
Practical Session Design	4.39 ± 0.54	High
Training Organization	4.48 ± 0.50	High
Overall Satisfaction	4.65 ± 0.41	Highest

As shown in Table 2, overall satisfaction reached the "highest" level (4.65±0.41). Expert guidance quality received the highest rating (4.72±0.38), followed by case richness (4.63±0.43) and content practicality (4.58±0.46), indicating strong participant recognition of the program's professional quality and practical relevance.

Post-training interviews provided qualitative insights that complemented these quantitative findings. One participant noted, "The most valuable part was learning how to turn a simple running game into an activity that also teaches counting and cooperation. I never thought about physical activities that way before." Another commented, "The assessment

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tools we practiced with were eye-opening. Now I feel I can actually observe and document children's motor development systematically." These reflections illustrate the program's success in fostering integrated thinking and practical competence.

Discussion

The findings of this study demonstrate that the five-day preservice training program produced significant improvements across all six targeted competency dimensions, providing empirical support for the effectiveness of short-term, competency-oriented training when grounded in actual practice needs and supported by appropriate instructional design.

The significant improvement in activity organization ability (from 3.54 to 4.10) indicates that structured training can enhance teachers' capacity to manage physical activity processes systematically. This finding aligns with Zhu Meirong's (2020) emphasis on in-class implementation ability as a dominant factor in teaching quality, and addresses the practical difficulties many pre-service teachers face in maintaining activity flow and managing children's participation (Liang et al., 2015).

The substantial gain in integrated implementation ability (from 3.28 to 3.90) supports theoretical claims regarding the feasibility of embedding multiple educational objectives within physical activities. Scholars have argued that physical education possesses inherent advantages for achieving five-education integration (Zha & Liang, 2024; Jia & Cao, 2025). However, Wang et al. (2025) noted that teachers often lack concrete strategies for translating this integrative concept into practice. The post-training improvement, coupled with participant comments about learning to "teach counting and cooperation through running games," suggests that the training's case-based approach and guided practice effectively bridged the gap between abstract integration concepts and operable teaching behaviors.

The marked enhancement in physical development assessment ability (from 3.12 to 3.65) reflects the effectiveness of training components focused on observation and assessment. Previous studies have consistently identified assessment as a weak area among preschool teachers, who often rely on intuition rather than systematic observation (Gu & Xie, 2024). The present findings suggest that introducing basic assessment tools and structured observation frameworks can substantially improve teachers' confidence and competence in using assessment results to inform instructional adjustment. One participant's observation that "the assessment tools were eye-opening" illustrates this transformation.

The improvement in safety protection ability (from 3.61 to 4.15) confirms the importance of explicitly addressing risk management in preservice training. Safety concerns have long been recognized as a major constraint on implementing physical activities in kindergartens (Yan Fei, 2016). The results indicate that systematic training in risk identification, preventive measures, and emergency response can support safer yet more active physical education practice.

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Gains in game design ability (from 3.65 to 4.32) highlight the value of emphasizing creativity and adaptability in training. Physical games are a core form of activity organization in early childhood settings (Zhang Mo, 2022). The observed improvement suggests that providing design principles and opportunities for practice can enhance teachers' capacity to create meaningful and flexible physical activity experiences.

Finally, the improvement in home guidance ability (from 3.11 to 3.60) underscores teachers' extended educational role beyond the classroom. Home-kindergarten collaboration is increasingly emphasized as a means of supporting children's continuous physical development (Prosser & Jiang, 2008). The present findings indicate that targeted guidance training can strengthen teachers' ability to support family-based physical activity practices.

The satisfactory E1/E2 efficiency results (79.7% and 78.48%) further confirm that the training program achieved acceptable quality in both the implementation process and learning outcomes, consistent with established training evaluation standards. The high satisfaction ratings, particularly for expert guidance quality (4.72) and content practicality (4.58), suggest that the program was well-received and perceived as directly applicable to kindergarten practice.

Several limitations should be acknowledged. First, the sample was regionally concentrated in Zhaoqing City, limiting generalizability. Second, competence measurement relied primarily on self-reported scales, which may be subject to social desirability bias. Third, the five-day intervention, while effective for core skill development, could not address all dimensions of early childhood physical education competence, such as supporting children with special needs. Fourth, without a control group, causal inferences should be interpreted cautiously.

Conclusion

This study developed and empirically validated a five-day preservice training program on integrated physical activities for preschool education teachers. The findings demonstrate that the program significantly enhanced participants' competencies across six dimensions: activity organization, integrated implementation, physical development assessment, safety protection, game design, and home guidance. The program achieved satisfactory process and outcome efficiency, and participants reported high levels of satisfaction with its practicality and professional quality.

From a theoretical perspective, this study operationalized the concept of "five-education integration" into measurable and trainable competence dimensions, enriching the research framework of preschool teachers' physical education competence. From a practical perspective, the five-day intensive training model provides a replicable pathway for curriculum reform in university preschool education programs and for novice teacher professional

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development in kindergartens. From a methodological perspective, the study established a systematic development process of "needs analysis, program design, expert validation, and effectiveness evaluation," offering a methodological reference for similar training program development research.

Recommendation

Recommendations for Practice

1. Higher education institutions should integrate competence-oriented integrated physical activity modules into preservice training programs for early childhood education majors, with physical activity design, implementation, assessment, and cross-disciplinary integration clearly defined as core learning outcomes.

2. Preservice teacher education should strengthen the use of child developmental assessment in physical activity instruction. Training in systematic observation and documentation can support appropriate adjustments to activity objectives, content, and organization.

3. In kindergarten professional development practice, short-term intensive physical education training may serve as an effective supplement to routine school-based training, supporting targeted improvement in teachers' physical education competencies.

4. The supportive role of home-school-community collaboration in children's physical activity implementation should be further emphasized, establishing a coordinated educational environment linking kindergarten instruction, family-based practice, and community resources.

Recommendations for Future Research

1. Future research should be conducted across different regions and types of teacher education institutions to further examine the applicability of the competence framework and training model developed in this study.

2. Longitudinal research designs are recommended to examine the stability and transferability of training effects during teaching practicum experiences and the early stages of teachers' professional careers.

3. Methodologically, future studies should combine classroom observation and instructional artifact analysis with questionnaire data to achieve multi-source data triangulation and enhance explanatory depth.

4. By comparing different training structures and implementation pathways, future research may identify more efficient and scalable models for developing integrated physical activity competencies among pre-service early childhood education teachers.

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References

Central Committee of the Communist Party of China, & State Council. (2025, January 19). *Outline for the construction of an education-strong nation (2024–2035).* https://www.naea.edu.cn/naea/2025-03/05/article_2025030514390080437.html

General Office of the State Council. (2019, September 3). *Outline for building a leading sports nation.* https://www.gov.cn/xinwen/2019-09/03/content_5426729.htm

Gu, C. W., & Xie, H. S. (2024). Inquiry into kindergarten-based physical education curricula in China. *Sports Culture Guide, (6),* 102–110.

Jia, L. M., & Cao, H. (2025). Physical education: Leveraging sports to integrate the five domains of education. *China Basic Education, (6),* 74–75.

Liang, H. M., Han, Y. C., & Li, J. L. (2015). Current status and cultivation of physical-education knowledge and competency among pre-service early childhood teachers. *Theory and Practice of Education, 35*(19), 44–47.

Liu, Z. (2012). *The concept and evaluation of kindergarten education quality*. Beijing Normal University Press.

Ministry of Education of the People's Republic of China. (2012, October 9). *Guidelines for the learning and development of children aged 3–6 years.* http://www.moe.gov.cn/jyb_xwfb/s271/201210/t20121015_143257.html

Prosser, L., & Jiang, Y. (2008). Physical activity patterns in early childhood: A review. *International Journal of Behavioral Nutrition and Physical Activity, 5*(1), 1–10.

Wang, Y. T., Yao, L., & Miao, M. (2025). Constructing the competency structure of Chinese early childhood teachers in physical education. *Journal of Beijing Sport University, 48*(3), 77–89.

Xiang, X. M. (2024). How can the five-domain integration be achieved? *Educational Research, 45*(1), 41–51.

Yan, F. (2016). Pre-service cultivation of Chinese early childhood teachers' physical-education competency. *Sports Culture Guide, (8),* 163–167.

Zha, P., & Liang, F. B. (2024). Five-domain integration in Chinese school physical education modernization. *Journal of Wuhan Institute of Physical Education, 58*(3), 20–25.

Zhang, M. (2022). *Construction of early childhood physical education curriculum for pre-service teachers* (Master's thesis, Northeast Normal University).

Zhu, M. R. (2020). *Research on evaluation index system for early childhood teachers' physical-education competency* (Master's thesis, Central China Normal University).

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