

Pedagogical Mediation of Fundamental Movement Skills Teaching in Early Childhood Education: A Meta-Aggregative Qualitative Systematic Review

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Abstract

Fundamental movement skills (FMS) matter for young children's motor development and physical activity yet simply providing movement opportunities does not guarantee that these skills develop; what teachers do with those opportunities also counts. This qualitative systematic review examined how FMS teaching is enabled, constrained, and enacted in early childhood education. Using the Joanna Briggs Institute meta-aggregative approach, we searched five databases for studies published between 2020 and 2025. Ten studies involving 214 participants met the eligibility criteria. Ninety-one extracted findings were grouped into five categories and aggregated into three synthesized findings, each receiving a moderate ConQual confidence rating. Across the studies, FMS teaching depended on the conditions in which teachers worked, their pedagogical capacity, and the instructional support available to them. Teachers' pedagogical beliefs and value orientations cut across all three synthesized findings. Educators generally valued movement, but this recognition did not reliably translate into intentional, developmentally sequenced FMS teaching. Read through pedagogical mediation, the findings point to FMS teaching as a product of the interplay between teachers and their settings, not of teacher competence alone. Strengthening FMS teaching therefore calls for both teacher development and settings that let teachers put their knowledge into practice.

Keywords: Fundamental Movement Skills, Early Childhood Education, Pedagogical Mediation, Teacher Pedagogical Capacity, Qualitative Systematic Review

Introduction

Early childhood lays much of the groundwork for children's movement development and later participation in physical activity (Barnett et al., 2016). Fundamental movement skills (FMS) comprise locomotor and object-control skills and, in some classifications, stability skills. They underpin more complex forms of movement (Logan et al., 2018) and are widely addressed in early childhood movement and physical education. This matters because motor competence has been linked with later physical activity and related health outcomes (Robinson et al.,

2015; Stodden et al., 2008), while international guidelines call for varied daily physical activity in the early years (World Health Organization, 2019). Yet opportunities to move are only part of what supports FMS development. How those opportunities are organized for learning also matters.

Alongside this developmental rationale, intervention studies provide evidence that structured teaching can improve children's FMS competence. Logan et al. (2012), for example, reported meaningful gains from targeted motor skill interventions compared with less structured activity. More recent reviews indicate that outcomes also vary with instructional frequency, duration, and implementation, both among young children (Koolwijk et al., 2024) and primary school children aged 6–12 years (Yin et al., 2025). These studies establish the potential of structured instruction to improve FMS competence, while also drawing attention to the conditions under which teaching is delivered.

The question of how effective instruction becomes everyday practice is particularly relevant in early childhood education and care (ECEC), where movement activities do not always involve deliberate, developmentally appropriate FMS teaching. Research has identified gaps in educators' knowledge of how to recognize and correct movement errors (Buckler & Bredin, 2021), alongside broader challenges in teaching physical education (Tsangaridou, 2017). Teachers may value movement while lacking the knowledge, confidence, or practical support needed to teach FMS in a planned way. Physical activity, therefore, should not be treated as equivalent to FMS instruction. For movement to contribute to skill learning, teachers make decisions about what children practise and how that practice is organized. Understanding how these decisions are made is therefore essential to explaining why recognizing the value of movement does not always lead to structured teaching.

Implementation research has addressed this gap between evidence and practice by showing that the adoption, delivery, and sustainability of evidence-informed practices depend on contextual and organizational conditions (Cassar et al., 2019), and frameworks such as the PRACTical planning for Implementation and Scale-up (PRACTIS) guide emphasize delivery systems, contextual fit, and stakeholder engagement when interventions are translated into routine practice (Koorts et al., 2018). These perspectives, however, largely position teachers as implementers of externally designed programmes and offer less insight into how teachers interpret such conditions and make pedagogical decisions about FMS teaching, whether within structured programmes or in everyday practice.

Pedagogical mediation offers a lens for examining this interpretive and decision-making work, that is, what happens between a movement opportunity and the teaching children actually receive. Bernstein (2000) traced how knowledge is recontextualized for teaching; Shulman (1987) set out the pedagogical reasoning through which teachers make content accessible to learners. Building on both, this review treats pedagogical mediation as the work teachers do when they interpret curricular intentions and turn available movement opportunities into structured learning experiences—work that draws on what teachers know and believe and is also shaped by the conditions and support available in their setting. Variation in FMS teaching, then, is not only a matter of the intervention or context; it also reflects the choices teachers make about what to prioritize, how to organize learning, and when to adapt it in practice.

Qualitative research is well suited to examining these processes because it captures teachers' experiences, practices, and the contexts in which teaching is enacted. Yet qualitative evidence on FMS teaching remains dispersed across studies of teacher practice, professional learning, implementation, and educational context. Previous reviews have synthesized the effects of FMS interventions (Koolwijk et al., 2024; Logan et al., 2012) and educators' perceived barriers and facilitators to young children's physical activity (Hesketh et al., 2017; Jerebine et al., 2024). The most closely related of these, Jerebine et al. (2024), mapped educator-perceived barriers and facilitators to structured physical activity onto the Capability, Opportunity, Motivation–Behaviour (COM-B) model and identified opportunity and capability constraints as the main barriers. Its primary focus, however, was on factors influencing educators' delivery of structured physical activity rather than on the pedagogical processes through which FMS teaching is enacted. The present review addresses this distinct focus by examining how teachers interpret children's movement competence, organize and adapt learning tasks, and draw on available conditions and supports to translate movement opportunities into intentional FMS teaching. In addition, the searches conducted by Jerebine et al. ended in August 2022, and further relevant qualitative studies have since emerged. A synthesis focused specifically on the pedagogical enactment of FMS teaching is therefore warranted to integrate this more recent evidence and clarify how FMS teaching is enabled, constrained, and enacted in early childhood education.

Accordingly, this review asks: How is FMS teaching enabled, constrained, and enacted within early childhood education settings? To address this question, a qualitative systematic review was conducted using the Joanna Briggs Institute (JBI) meta-aggregative approach. Consistent with the descriptive orientation of meta-aggregation, pedagogical mediation was not used to code or aggregate findings but was applied after synthesis to interpret relationships among the synthesized findings. The review aims to identify recurring patterns in the processes and conditions shaping FMS teaching and to generate practice-oriented synthesized findings that can inform how intentional FMS teaching is supported in early childhood education and physical education.

The novelty of this review lies in bringing dispersed qualitative evidence together around the pedagogical enactment of FMS teaching and interpreting the synthesis through pedagogical mediation. Its contribution to the social sciences is to connect teachers' professional judgement with the institutional conditions and instructional supports that shape everyday practice, informing research on teacher agency, curriculum enactment, and professional learning.

Methodology

This review followed the JBI methodology for qualitative systematic reviews and meta-aggregation (Aromataris & Munn, 2020) and is reported in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines (Page et al., 2021). A protocol specifying the review question, eligibility criteria, search strategy, study selection, critical appraisal, data extraction, and synthesis was developed a priori, before screening commenced. Although it was not prospectively registered, the protocol was followed at all stages of the review.

Search Strategy

The search strategy was designed to identify qualitative studies of how teachers enact, experience, and support FMS teaching in early childhood education. An initial scoping search was used to identify relevant terminology and refine the search concepts (Aromataris & Munn, 2020). Terms relating to teachers, FMS and movement teaching, and early childhood education were combined using Boolean operators, and synonyms such as movement education, physical education, motor-perceptual activity, and psychomotricity were included to capture terminological variation across contexts. The complete database-specific search strategies are provided in Supplementary Material B. The final search covered five databases spanning education, health, and the social sciences: SPORTDiscus, Web of Science, PsycINFO, ERIC, and Scopus.

Searches were restricted to peer-reviewed studies published in English between 2020 and 2025. This window was specified a priori to focus the review on contemporary evidence following the publication of the World Health Organization's 2019 guidelines on physical activity, sedentary behaviour and sleep for children under 5 years of age (World Health Organization, 2019). These guidelines provide an internationally recognized policy reference point for physical activity in early childhood. The review therefore focuses on recent evidence situated within the contemporary policy and practice context rather than providing a historical account of movement education research.

The English-language restriction reflected translation resources and reviewer capacity, as well as the predominance of English in international publication in education and movement science. Although it may have introduced language bias, the included studies spanned Europe, Asia, Australia, and North America. Because database language filters depend on indexing, three reports retrieved for full-text screening were found to be published in other languages and were excluded at that stage (Figure 1). The reference lists of all included studies were also screened for eligible studies published within the search period.

Study Selection

All records were imported into EndNote, and duplicates were removed. Two reviewers independently screened titles and abstracts and then assessed full texts against the eligibility criteria, resolving disagreements at either stage through discussion. Reasons for full-text exclusion were recorded and are summarized in the PRISMA flow diagram (Figure 1).

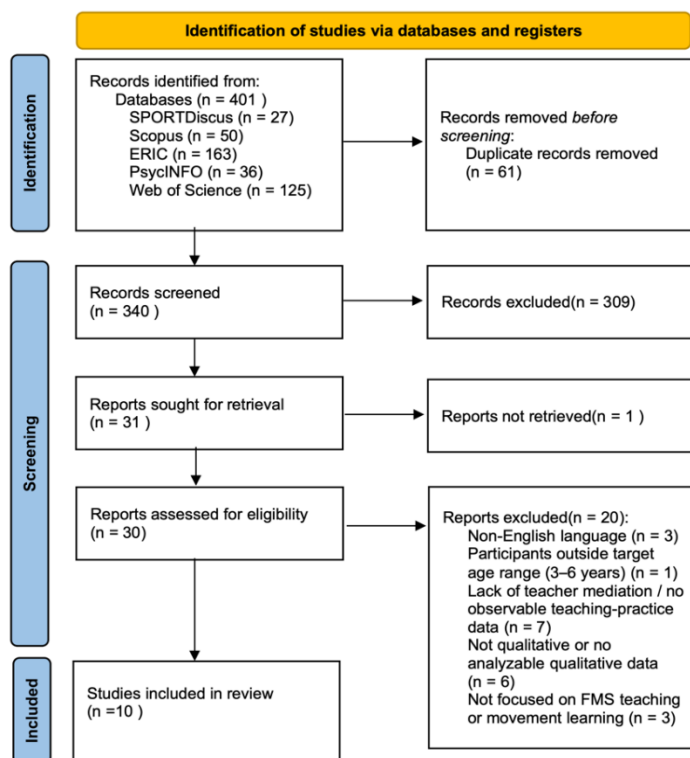


Figure 1. PRISMA 2020 flow diagram of study selection. Adapted from Page et al. (2021).

Eligibility Criteria

Eligibility criteria were developed a priori using a PICO framework (Population, Phenomenon of interest, Context), consistent with JBI guidance for qualitative evidence synthesis (Aromataris & Munn, 2020).

Participants

Studies involving early childhood teachers, educators, teaching assistants, or childcare practitioners working primarily with children aged 3–6 years were included. Participants were required to have direct responsibility for planning, delivering, assessing, or reflecting on movement- or FMS-related teaching. Studies of external specialists, therapists, or coaches without active teacher involvement, and studies focusing solely on staff in management or supervisory roles (e.g., centre directors) without direct teaching responsibility, were excluded. Although professional titles varied across countries, all included participants held comparable instructional roles in supporting children's movement learning.

Phenomenon of Interest

The review focused on how teachers supported, interpreted, and implemented FMS teaching, including their beliefs, pedagogical content knowledge, assessment practices, instructional decision-making, and experiences of delivering movement learning. Studies reporting only child outcomes, intervention effectiveness, or physical activity participation without examining teachers' practices were excluded.

Context

Studies conducted in preschool or ECEC settings were included, as were studies in Reception classes in England, which form the final year of the Early Years Foundation Stage (EYFS), the statutory framework for children from birth to 5 years of age. Studies from different national systems were eligible if the setting was developmentally comparable to preschool or ECEC.

Types of Studies

Qualitative and mixed-methods studies with clearly identifiable qualitative findings were included, as were qualitative components of programme or intervention evaluations that reported teachers' experiences of planning or delivering movement teaching. For mixed-methods studies, only qualitative data relevant to the review question were extracted. Reviews, theoretical papers, conference abstracts, dissertations, editorials, and purely quantitative studies were excluded.

Critical Appraisal

Two reviewers independently assessed methodological quality using the 10-item JBI Critical Appraisal Checklist for Qualitative Research (Aromataris & Munn, 2020), resolving disagreements through discussion. Consistent with JBI guidance, no study was excluded on the basis of quality; appraisal results instead informed the dependability component of ConQual and the interpretation of the synthesized findings. Detailed results are presented in Supplementary Material F.

Data Extraction

Data were extracted in two stages using a standardized form developed in accordance with JBI guidance, which was piloted on two included studies and refined to improve consistency. First, study characteristics were extracted, including authors, year, country, aims, design, participants, context, data collection, and analytic approach. Second, qualitative findings were extracted from the Results or Findings sections, with findings defined as authors' interpretive conclusions supported by participant quotations or other data (Lockwood et al., 2015); for mixed-methods studies, only qualitative findings relevant to the review question were extracted. Two reviewers extracted data independently and resolved disagreements through discussion.

Data Synthesis

Synthesis followed the JBI meta-aggregative approach (Aromataris & Munn, 2020; Lockwood et al., 2015), which preserves the meaning of the original findings while generating practice-oriented synthesized findings. Two reviewers independently rated each finding as unequivocal, credible, or unsupported according to the congruence between the authors' interpretation and its supporting illustration, and unsupported findings were excluded. Unequivocal and credible findings were aggregated into categories by similarity of meaning, and the categories were then synthesized into higher-order findings representing patterns shared across studies. Where a category could not be meaningfully aggregated into a higher-order synthesized finding but was relevant across multiple synthesized findings, it was retained and reported as a cross-cutting category. Because ConQual applies to synthesized findings, cross-cutting categories were not independently assigned a ConQual rating and were used to contextualize the synthesized findings. The interpretive lens of pedagogical mediation was not applied during extraction, categorization, or synthesis; it was used only in the

Discussion to interpret relationships among the synthesized findings. Disagreements were resolved through discussion. Confidence in each synthesized finding was assessed using the JBI ConQual approach (Munn et al., 2014), which combines dependability, informed by the methodological quality of the contributing studies, and credibility, determined by the ratings of individual findings, into an overall rating of high, moderate, low, or very low. The ConQual Summary of Findings is presented in Supplementary Material D.

Results

Study Selection

The database searches identified 401 records. After removal of 61 duplicates, 340 records were screened by title and abstract, and 309 were excluded. Of the 31 reports sought for retrieval, one could not be retrieved; 30 full texts were assessed, and 20 were excluded. Reasons for exclusion were lack of active teacher involvement or observable teaching-practice data ($n = 7$), absence of qualitative or analysable qualitative data ($n = 6$), non-English language ($n = 3$), lack of focus on FMS teaching or movement learning ($n = 3$), and participants outside the target age range ($n = 1$). Ten studies were included in the synthesis (Figure 1).

Study Characteristics

The characteristics of the 10 included studies are summarized in Table 1. The studies were first published between 2020 and 2025 and conducted in Europe ($n = 5$; Cunningham et al., 2025; Dobell et al., 2021; Martínez-Bello et al., 2021; Sollerhed, 2023; Svanbäck-Laaksonen, 2023), Asia ($n = 3$; Capio et al., 2021; Hao & Wang, 2026; Kurnia et al., 2024), Australia ($n = 1$; McGuckin et al., 2024), and North America ($n = 1$; Cheung et al., 2023). One study (Hao & Wang, 2026) was published online in 2024, within the search period, and was later assigned to a 2026 journal issue; in accordance with APA 7, it is cited by its issue year. Data were collected through semi-structured interviews, focus groups, and classroom or outdoor observations, with several studies using action-oriented or participatory co-design approaches. Most studies were conducted in preschool or ECEC settings with children aged approximately 3–6 years; one mixed-methods feasibility study, from which only qualitative findings were extracted, was conducted in Reception classes in England, which form the final year of the EYFS (Cunningham et al., 2025).

Table 1

Characteristics of the included studies

Study	Study Design & Participants	Phenomenon of Interest	Context	Data Methods
Kurnia et al. (2024)	Design: Qualitative phenomenological Participants: 12 early childhood educators (ECE teachers)	Phenomenon: Teachers' beliefs and practices regarding outdoor free play and motor development	Setting/Country: ECE centres, Indonesia	Collection: Semi-structured interviews; classroom and outdoor observations; video recordings; field notes Analysis: Inductive thematic analysis with phenomenological reduction
Sollerhed (2023)	Design: Qualitative (action-oriented) Participants: 88 ECEC educators (preschool teachers and childcare staff)	Phenomenon: Educators' pedagogical content knowledge, reasoning, and instructional practices in relation to MoPA/FMS	Setting/Country: ECEC preschools, Sweden	Collection: Focus group discussions; educator-recorded video observations Analysis: Qualitative content and thematic analysis
Capio et al. (2021)	Design: Qualitative (participatory co-design) Participants: 5 kindergarten teachers	Phenomenon: Teachers' experiences, challenges, and pedagogical learning during the co-design of structured motor activities	Setting/Country: Kindergarten setting, Hong Kong	Collection: Focus group discussions; collaborative co-design workshop Analysis: Thematic analysis

Study	Study Design & Participants	Phenomenon of Interest	Context	Data Methods
Cunningham et al. (2025)	Design: Mixed methods (feasibility study; qualitative component extracted) Participants: 5 early-years teachers/teaching assistants	Phenomenon: Teachers' experiences, perceived feasibility, and pedagogical adaptations when implementing a structured movement education programme	Setting/Country: Reception classrooms, UK	Collection: Semi-structured interviews; classroom observations Analysis: Deductive thematic analysis
McGuckin et al. (2024)	Design: Qualitative (descriptive) Participants: 13 early childhood educators	Phenomenon: Educators' experiences, perceived barriers and enablers, and pedagogical changes following a structured FMS intervention	Setting/Country: Early learning centres, Australia	Collection: Pre/post semi-structured interviews; educator diaries Analysis: Reflexive thematic analysis
Dobell et al. (2021)	Design: Qualitative phenomenological Participants: 12 early years educators	Phenomenon: Educators' perspectives on the value, delivery, and perceived barriers and enablers of PE, PA, and FMS	Setting/Country: Early Years Foundation Stage settings, England	Collection: Semi-structured interviews Analysis: Reflexive thematic analysis
Cheung et al. (2023)	Design: Qualitative (exploratory) Participants: 17 preschool teachers	Phenomenon: Teachers' perceptions and experiences of implementing structured motor programmes in inclusive preschool classrooms	Setting/Country: Inclusive preschool settings (public preschools and Head Start programmes), USA	Collection: Semi-structured individual interviews Analysis: Constant comparative analysis

Study	Study Design & Participants	Phenomenon of Interest	Context	Data Methods
Martínez-Bello et al. (2021)	Design: Qualitative (exploratory) Participants: 22 early childhood educators and student teachers	Phenomenon: Teachers' pedagogical content knowledge, beliefs, confidence, and instructional practices related to structured movement sessions and psychomotricity	Setting/Country: Public early childhood education institutions, Spain	Collection: Semi-structured qualitative interviews Analysis: Deductive qualitative analysis
Hao & Wang (2026)	Design: Qualitative (interpretivist) Participants: 6 early childhood teachers	Phenomenon: Teachers' perceptions, confidence, challenges, and pedagogical recommendations regarding the implementation of a structured early childhood PE curriculum	Setting/Country: Public preschool, China	Collection: Semi-structured individual interviews Analysis: Inductive thematic analysis
Svanbäck-Laaksonen (2023)	Design: Qualitative (descriptive) Participants: 16 teachers and 18 child carers	Phenomenon: Teachers' pedagogical work in supporting children's FMS learning	Setting/Country: Early childhood education centres, Finland	Collection: Semi-structured interviews Analysis: Conventional qualitative content analysis

Note. ECE = early childhood education; ECEC = early childhood education and care; FMS = fundamental movement skills; MoPA = motor-perceptual activity; PA = physical activity; PE = physical education; UK = United Kingdom.

Sample sizes ranged from 5 to 88 participants (214 in total), and eight of the ten studies involved 22 or fewer participants. All participants were directly involved in planning, delivering, supporting, or reflecting on movement-related teaching. Terminology varied across contexts and included FMS, motor-perceptual activity (MoPA), psychomotricity, and physical education; studies using these related terms were included when the reported

practices involved structured movement teaching relevant to children's fundamental movement development.

Methodological Quality and Confidence in Synthesized Findings

Overall, the included studies showed adequate congruence between research aims, methodology, data collection, analysis, and interpretation, and adequately represented participants' voices. The most consistent limitations concerned researcher reflexivity, particularly statements locating the researcher culturally or theoretically and acknowledgement of the researcher's influence on the research. Ethical procedures were generally reported, although reporting was unclear in some studies. No study was excluded on the basis of quality (Supplementary Material F).

All three synthesized findings were rated as moderate confidence using ConQual (Supplementary Material D).

Synthesized Findings

The 91 findings extracted from the 10 included studies were grouped into five categories: teachers' pedagogical beliefs and value orientations (FC1; n = 10); pedagogical knowledge, assessment literacy, and instructional readiness (FC2; n = 32); structural, contextual, and organizational conditions (FC3; n = 24); professional learning and instructional supports (FC4; n = 13); and enacted FMS teaching practices (FC5; n = 12). Their distribution across studies is presented in Supplementary Material C.

Meta-aggregation produced three synthesized findings: structural and contextual conditions shaping FMS teaching (S1), teacher pedagogical capacity shaping FMS teaching (S2), and instructional supports enabling FMS teaching (S3). These drew on 81 of the 91 findings: 24 for S1 (FC3), 32 for S2 (FC2), and 25 for S3 (FC4 and FC5). The remaining 10 findings (FC1) were retained as a cross-cutting category because teachers' beliefs and value orientations informed how they interpreted and responded to the conditions represented across all three synthesized findings; FC1 was therefore not assigned a ConQual rating.

Structural and Contextual Conditions Shaping FMS Teaching (S1)

Across studies, limited or unsuitable spaces, scheduling constraints, safety and risk-management requirements, and the marginal curricular position of movement restricted opportunities for sustained practice and structured instruction. Educators in Swedish preschools, for example, described indoor movement restrictions, cold weather, and limited space and equipment, and some slowed children's movement for fear of causing injury (Sollerhed, 2023). In Reception classes, competing uses of the school hall disrupted scheduled sessions, and teachers struggled to manage children's excitement in open spaces: "When you go into the hall, they get very excited . . . the challenge is getting them to listen" (Cunningham et al., 2025, p. 7).

Supervision demands and institutional routines further shaped how movement was organized. In some settings, these conditions led to reliance on unstructured activity or on alternatives such as digital resources, without clear evidence that these opportunities were organized as sequenced FMS learning. Structural conditions thus defined the practical boundaries within which teachers could organize and sustain FMS instruction. This synthesized finding was supported by 18 unequivocal and 6 credible findings from eight

studies (Cheung et al., 2023; Cunningham et al., 2025; Dobell et al., 2021; Hao & Wang, 2026; Kurnia et al., 2024; Martínez-Bello et al., 2021; McGuckin et al., 2024; Sollerhed, 2023) and was rated as moderate confidence.

Teacher Pedagogical Capacity Shaping FMS Teaching (S2)

Teachers' pedagogical capacity, encompassing content knowledge, assessment literacy, and instructional readiness, shaped how movement opportunities were interpreted and structured in everyday practice.

Teachers often felt unsure about how to plan and adapt FMS instruction. Some could not readily recall FMS content from their initial training; one admitted, "I forget what it is . . . I don't really remember much" (McGuckin et al., 2024, p. 4). The same uncertainty surfaced when teachers were asked to adjust structured lessons, with one describing being "very worried about going off script" (Cunningham et al., 2025, p. 5). Across the contributing findings, teachers often fell back on familiar activities rather than teaching FMS through a planned sequence.

Teachers described expert modelling, guided practice, and structured exemplars as building reflective awareness and readiness. As one teacher put it, "At the beginning, I was a little bit scared and nervous, but after the session at the university I thought . . . yeah, I can do it" (Cunningham et al., 2025, p. 5). Similarly, after participating in an FMS programme, educators began to notice individual differences in children's skills and to assess them informally (McGuckin et al., 2024). These gains, however, were difficult to sustain without ongoing support. This synthesized finding was supported by 16 unequivocal and 16 credible findings from nine studies (Capio et al., 2021; Cheung et al., 2023; Cunningham et al., 2025; Dobell et al., 2021; Hao & Wang, 2026; Kurnia et al., 2024; Martínez-Bello et al., 2021; McGuckin et al., 2024; Sollerhed, 2023) and was rated as moderate confidence.

Instructional Supports Enabling FMS Teaching (S3)

Instructional supports helped teachers translate pedagogical knowledge into classroom practice. Structured lesson plans reduced the planning burden; as one teacher noted, "Everything is planned . . . I'm very happy to carry on this even after this project would finish" (Cunningham et al., 2025, p. 4). Educators also preferred modelling-based professional learning: "I learn a lot from watching people. So, I suppose if someone was to teach us, then we could teach the children as well" (McGuckin et al., 2024, p. 5). Collaborative co-design helped teachers integrate research knowledge with their practice knowledge and plan concrete actions (Capio et al., 2021). Where such supports were available, teachers reported strategies including diagnostic observation, progressive task structuring, differentiated scaffolding, embodied modelling, and the integration of FMS into daily routines and cross-domain learning, attending to task difficulty, feedback, practice opportunities, and children's observed skill levels. Examples included pairing children of different abilities so that those who struggled could follow a peer (Cunningham et al., 2025) and replacing incidental movement opportunities with regular, scheduled FMS sessions (McGuckin et al., 2024).

Without organizational or external support, sustained and structured teaching was reported less consistently, and where resources, professional guidance, or opportunities for collaboration were limited, teachers commonly relied on less structured activity provision.

Instructional supports therefore enabled more structured and sustained FMS teaching, although their effects were situated within broader structural conditions and varied with teachers' readiness. This synthesized finding was supported by 21 unequivocal and 4 credible findings from eight studies (Capio et al., 2021; Cheung et al., 2023; Cunningham et al., 2025; Dobell et al., 2021; Hao & Wang, 2026; Martínez-Bello et al., 2021; McGuckin et al., 2024; Svanbäck-Laaksonen, 2023) and was rated as moderate confidence.

Cross-Cutting Category: Teachers' Pedagogical Beliefs and Value Orientations (FC1)

Ten findings from five studies (Cheung et al., 2023; Dobell et al., 2021; Kurnia et al., 2024; Martínez-Bello et al., 2021; Sollerhed, 2023) concerned teachers' beliefs about the value of movement, which educators generally regarded as important for children's development. In one study, educators viewed physical education and FMS as fostering children's confidence, social competence, and wellbeing: "It gives them so much confidence . . . so that they feel competent in something" (Dobell et al., 2021, p. 5). In another, teachers valued outdoor free play as a means of stimulating motor development (Kurnia et al., 2024). At the same time, educators were uncertain about recommended levels of physical activity yet generally perceived children as sufficiently active (Dobell et al., 2021). Because FC1 was not aggregated into a synthesized finding, these findings are reported descriptively and were not assigned a ConQual rating.

Integrative Summary

Together, the three synthesized findings indicate that FMS teaching was shaped by the combined influence of structural conditions, which defined the practical opportunities and constraints; teachers' pedagogical capacity, which shaped how movement opportunities were interpreted and organized; and instructional supports, which enabled more structured and sustained practice. Teachers' beliefs and value orientations (FC1) appeared to operate across these dimensions, informing how movement was prioritized and how opportunities and supports were used. These dimensions were interconnected rather than independent, and the enactment of FMS teaching depended on both teachers' capacity and the conditions and supports available (Figure 2).

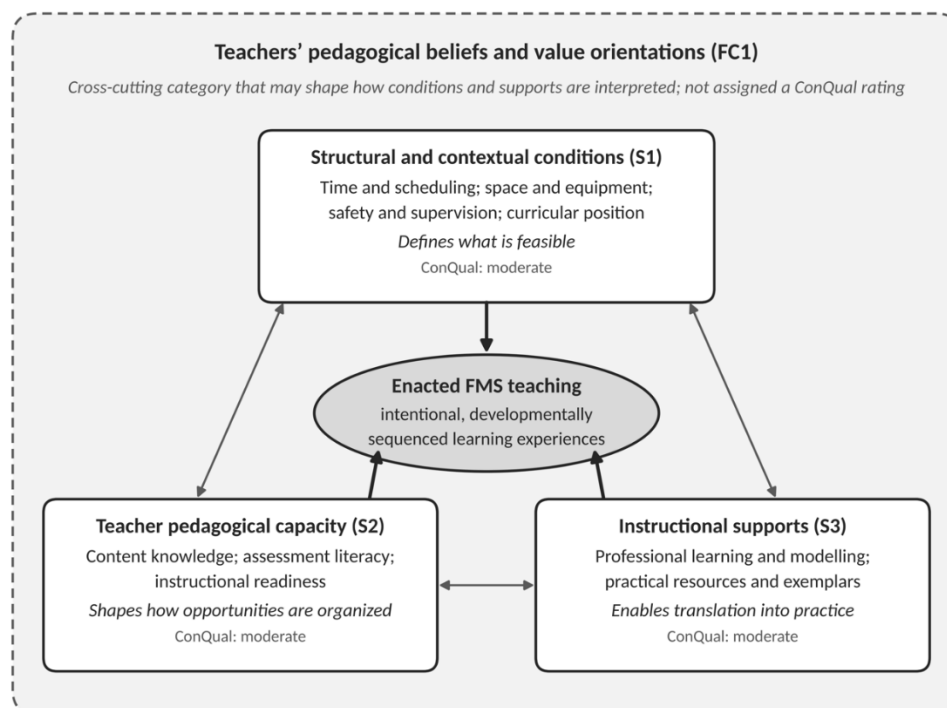


Figure 2. Integrative representation of structural conditions, teacher pedagogical capacity, and instructional supports shaping FMS teaching.

Note. Two-headed arrows indicate interconnections identified across the synthesis rather than tested causal relationships. The dashed outer band represents teachers' pedagogical beliefs and value orientations (FC1), a cross-cutting category that was not assigned a ConQual rating.

Discussion

This review provides a practice-oriented account of how FMS teaching is enacted in early childhood education. Across the three synthesized findings, FMS teaching emerged as a contextually situated practice that depends not only on intervention design or individual teacher competence but also on how teachers work within available conditions and supports to organize movement as intentional learning. Framing FMS teaching as pedagogical mediation rather than solely an implementation issue therefore offers a more integrated explanation of how classroom practice emerges.

In particular, the synthesis helps explain why recognizing the importance of movement does not consistently translate into structured, developmentally appropriate FMS teaching. Findings on teachers' beliefs, which formed an unrated cross-cutting category, suggest that beliefs may shape how the three dimensions are interpreted in practice; valuing movement does not appear, in itself, to ensure the capacity and support required for intentional FMS teaching.

These findings complement effectiveness- and implementation-focused research on FMS (Cassar et al., 2019; Koolwijk et al., 2024; Logan et al., 2012) by shifting attention from whether structured approaches work to how FMS teaching is enacted in everyday settings, where movement opportunities are translated into learning experiences through teachers' judgements and actions.

The findings are also broadly consistent with those of Jerebine et al. (2024), who mapped educator-perceived barriers and facilitators to structured physical activity onto the COM-B model. The structural conditions in S1 correspond closely to the opportunity barriers reported in that review, such as competing time and priorities and limited indoor and outdoor space, and the gaps in knowledge and practical skills in S2 correspond to its capability barriers. The limited evidence on educator motivation in that review likewise parallels the smaller, unrated category on teachers' beliefs (FC1) in the present synthesis. The present review extends this work in two respects. First, by focusing on FMS teaching rather than physical activity provision, it foregrounds the instructional practices through which teachers turn movement opportunities into learning, such as diagnostic observation, progressive task structuring, and differentiated scaffolding (S3), and identifies assessment literacy as a distinct component of pedagogical capacity (S2). Second, only two of the ten studies synthesized here (Capio et al., 2021; Martínez-Bello et al., 2021) were included in that review, and six were published after its final search in August 2022, so the present synthesis draws on a largely distinct and more recent evidence base.

FMS Teaching as a Contextually Mediated Practice

Together, the synthesized findings support interpreting FMS teaching as a contextually mediated practice. Movement opportunities did not become structured learning simply because teachers valued motor development or possessed relevant knowledge; their pedagogical significance depended on how teachers interpreted children's movement competence, judged what was feasible, and used available supports. This reflects the interpretive and instructional work through which teachers translate movement opportunities into purposeful learning within the possibilities and constraints of everyday practice (Bernstein, 2000; Shulman, 1987). Pedagogical mediation thus serves as an interpretive lens rather than a causal mechanism tested by the included studies, allowing the three synthesized findings to be understood as interrelated dimensions of practice. The following sections consider each in turn.

Structural and Contextual Conditions Shaping FMS Teaching (S1)

The conditions in which teachers worked shaped the FMS teaching they were able to provide. Providing opportunities for movement did not always mean that children received structured FMS instruction; in some settings, activities lacked clear progression or an explicit skill-learning focus (Cheung et al., 2023; Dobell et al., 2021). The distinction lies in how movement opportunities are organized for learning, including the purpose of the activity, the demands of the task, opportunities for practice, and children's developing competence.

Everyday constraints narrowed what teachers could offer. Limited equipment or unsuitable spaces reduced the range of activities that could be offered (Hao & Wang, 2026; Martínez-Bello et al., 2021). Limited time and the low curricular priority of movement made sustained teaching more difficult (Kurnia et al., 2024; Sollerhed, 2023). Planned sessions were sometimes displaced when shared facilities such as school halls were unavailable (Cunningham et al., 2025). Safety requirements and changing conditions added to supervision demands. They also shaped which activities teachers considered workable (Kurnia et al., 2024; McGuckin et al., 2024; Sollerhed, 2023). Earlier reviews of physical activity in childcare report similar barriers around safety, weather, space, and competing priorities (Hesketh et al., 2017; Jerebine et al., 2024).

These conditions do not determine practice outright; they shape the options available to teachers when deciding what and how to teach. Digital movement resources illustrate this relationship. They can maintain opportunities for movement when usual provision is constrained, but their contribution to FMS learning still depends on how teachers incorporate them into planned instruction (McGuckin et al., 2024).

Teacher Pedagogical Capacity Shaping FMS Teaching (S2)

Teachers' knowledge, assessment literacy, and readiness to teach influenced how they approached FMS instruction. Having this capacity did not always lead to structured teaching.

The cross-cutting findings on beliefs help explain part of this gap. Teachers generally valued movement, yet some leaned toward free play or incidental activity rather than planned skill instruction (Kurnia et al., 2024; Sollerhed, 2023). Cheung et al. (2023) likewise noted a tension between preserving children's autonomy in free play and introducing greater structure for motor learning. Valuing movement, in other words, does not by itself prompt teachers to treat movement time as an opportunity to teach FMS. This reading is tentative, since beliefs were retained as a cross-cutting category rather than synthesized as a finding.

Assessment was a more concrete difficulty. Teachers sometimes observed children's movement without clear criteria for judging competence or progression (Dobell et al., 2021; Sollerhed, 2023). This is consistent with survey evidence that early childhood educators may know more about physical activity in general than about identifying and correcting movement errors (Buckler & Bredin, 2021). A different picture emerged where structured observation and reflective dialogue were in place: teachers noticed differences in children's competence more readily and used what they observed to inform later teaching (Svanbäck-Laaksonen, 2023). Assessment literacy, then, may help turn observation into teaching decisions.

Confidence and practical readiness were further problems. Some teachers were unsure about how to demonstrate skills or adapt tasks for children with different learning needs (Dobell et al., 2021; Hao & Wang, 2026). Others found it difficult to choose and sequence movement tasks (Capio et al., 2021; Sollerhed, 2023). Concerns about safety and about teaching unfamiliar activities sometimes led teachers back to free play or whole-group formats (Cheung et al., 2023; Sollerhed, 2023).

Teacher readiness also appeared responsive to support. Professional learning built around modelling, collaborative design, and practical examples helped teachers become more confident in organizing FMS learning (Capio et al., 2021; Cunningham et al., 2025; McGuckin et al., 2024). Read through pedagogical mediation, teacher capacity matters because it shapes what teachers notice in a movement opportunity and what they do with it. Whether that capacity becomes structured FMS teaching also depends on the conditions and support surrounding their practice (Dobell et al., 2021; McGuckin et al., 2024).

Instructional Supports Enabling FMS Teaching (S3)

Instructional supports functioned as enabling resources through which teachers translated capacity into practice. More intentional and structured practices were reported where teachers had access to structured curricula, modelling-based professional learning, or

collaborative design (Cunningham et al., 2025; McGuckin et al., 2024). Supported practices included diagnostic observation, progressive task structuring, differentiated instruction, and the integration of movement into everyday routines (Svanbäck-Laaksonen, 2023), and collaborative design produced more differentiated and actionable instructional plans (Capio et al., 2021).

Professional learning appeared most valuable when it went beyond abstract knowledge to include modelling, demonstration, guided practice, and experiential engagement, which were associated with greater confidence and readiness (Cunningham et al., 2025; McGuckin et al., 2024). Whether these gains persist once structured or external support is withdrawn remains unclear (Dobell et al., 2021; McGuckin et al., 2024). This concern has also been raised in implementation research on school-based physical activity interventions (Cassar et al., 2019). Ready-to-use lesson plans, curricular frameworks, and predictable routines also helped teachers organize FMS learning (Cunningham et al., 2025; Hao & Wang, 2026). These resources may reduce the demands placed on teachers when they are selecting, sequencing, and adapting activities (Capio et al., 2021). Where structured resources or pedagogical support were limited, teachers relied more on general or incidental movement provision (Cheung et al., 2023; Dobell et al., 2021).

Instructional supports are therefore best understood as enabling conditions rather than independent determinants of teaching quality: by providing practical resources, modelling, feedback, and collaborative structures, they make teachers' capacity more actionable within the conditions of everyday practice.

Implications

Strengthening FMS teaching therefore requires attention not only to individual teacher competence but also to the conditions and supports through which capacity is enacted, with implications for teacher education, intervention design, organizational practice, and curriculum and policy.

First, teacher education and professional learning should develop teachers' capacity to turn movement opportunities into structured learning. Beyond FMS content knowledge, this includes observing and interpreting children's movement, adapting tasks to different levels of competence, and providing developmentally appropriate instruction (Dobell et al., 2021; Sollerhed, 2023), ideally through modelling, guided practice, reflection, and adaptation to local conditions.

Second, interventions can support FMS teaching by providing more than a set of activities. Practical resources, adaptable lesson frameworks, modelling, and opportunities for collaborative planning can help teachers incorporate FMS instruction into existing classroom routines (Cunningham et al., 2025; McGuckin et al., 2024). This suggests that intervention design needs to consider how materials will be used and adapted by educators, not only decisions about movement content and sequencing.

The wider organization of the setting also matters. For structured movement to become a regular part of practice, teachers need enough time, appropriate space and materials, manageable schedules, and workable supervision arrangements (Cunningham et

al., 2025; Sollerhed, 2023). Without these conditions, FMS teaching tends to depend on the effort of individual teachers.

Curriculum and policy also shape what is possible in practice. Giving movement a clear place in the curriculum matters, but this alone does not ensure that FMS teaching becomes part of everyday practice. Limited time, space, resources, and professional capacity can constrain the translation of curricular expectations into teaching (Hao & Wang, 2026; Kurnia et al., 2024; Martínez-Bello et al., 2021; Sollerhed, 2023). Strengthening FMS teaching therefore depends on more than teacher competence. The settings in which teachers work, the professional learning available to them, and the place of movement within the curriculum also matter.

Limitations

This review has four main limitations. The first concerns the evidence itself. Primary studies varied in how much contextual detail they reported and in how fully they described their methods and researcher positioning, which constrained interpretation at points. All three synthesized findings received a moderate ConQual rating because the contributing evidence combined unequivocal and credible findings and because reporting of methods and reflexivity was uneven across studies. The findings are therefore better understood as transferable to comparable settings rather than broadly generalizable.

The evidence base was limited to ten studies. Eligibility was restricted to studies published in English between 2020 and 2025, so relevant earlier and non-English research may have been missed. The protocol was written before screening but was not prospectively registered, so adherence to it cannot be independently verified.

The contexts represented in the included studies also require careful consideration. Most studies came from Europe and Asia, where early childhood systems differ in resources, routines, the curricular status of movement, and access to professional support. These differences may limit the transferability of the findings to other contexts. In addition, five of the ten studies examined teachers working within structured programmes, curricula, or co-design projects (Capio et al., 2021; Cheung et al., 2023; Cunningham et al., 2025; Hao & Wang, 2026; McGuckin et al., 2024). The evidence underpinning instructional supports (S3) may therefore reflect, in part, conditions produced by those initiatives rather than those routinely available in everyday practice.

Finally, educator characteristics could not be analysed systematically. Professional preparation, prior movement-related training, teaching experience, and institutional responsibilities were reported inconsistently across the primary studies, so the review cannot show whether or how these characteristics shape FMS teaching. More consistent reporting of educator background in future qualitative work would allow these differences to be examined across settings.

Conclusion

This review synthesized qualitative evidence on how FMS teaching is enacted in early childhood education. Intentional and structured teaching varied with the conditions in which teachers worked, their pedagogical capacity, and the instructional support available to them.

Educators generally recognized the developmental value of movement, but this recognition did not always translate into developmentally appropriate FMS learning. Viewed through pedagogical mediation, these findings draw attention to the decisions teachers make as they interpret, organize, and adapt movement opportunities within everyday practice.

Improving FMS teaching requires attention to teacher capacity and to the circumstances in which that capacity is used. Teachers need time, workable organizational conditions, relevant professional learning, and practical resources to apply their knowledge in practice. These conditions may help move provision beyond opportunities for movement towards more intentional and structured learning. Further research should examine how they work together and whether they can be sustained across different educational and cultural settings.

Statements and Declarations

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Conflict of Interest

There are no conflicts of interest to declare.

Data Availability

All data analysed in this study are derived from previously published sources and are available within the cited articles. The distribution of extracted findings, the ConQual assessment, and the critical appraisal results are provided in Supplementary Materials C, D, and F.

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