PROCEEDINGS
Kalijaga International Conference on Education 2026
Faculty of Tarbiyah and Teacher Training, UIN Sunan Kalijaga
Innovation Toward Education: Shaping the Future of Learning
15 September 2026 | Convention Hall, UIN Sunan Kalijaga, Yogyakarta

CONFERENCE PAPER • KICE 2026 • YOGYAKARTA, INDONESIA

Coaches' Perspectives on Motor Growth in Sport-Based Early Childhood Centers

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Proceedings of the Kalijaga International Conference on Education 2026

Abstract. Sport-based early childhood centers have become increasingly popular as parents seek structured physical activities to support children's holistic development. These programs, often inspired by commercial sport academies, emphasize active movement, fundamental skills, and early exposure to athletic experiences. This study aims to describe coaches' perspectives on motor growth in young children participating in sport-based early childhood programs. Using a descriptive qualitative approach, data were collected from sport coaches through semi-structured interviews, field observations, and documentation of daily training activities. Participants were coaches working with children aged 4–6 years across selected sport-based learning centers. Findings reveal that coaches perceive early motor development as a dynamic process shaped by repetition, confidence building, and varied movement experiences. Coaches noted significant progress in children's balance, coordination, agility, and control of movement after consistent participation in structured sport sessions. They also emphasized the importance of play-centered training methods, integrating fun, exploration, and simple sport drills tailored to young children's developmental readiness. Additionally, coaches identified challenges such as differing levels of motor readiness, short attention spans, and varying parental expectations regarding children's performance. Despite these challenges, coaches believe that sport-based environments provide valuable opportunities for children to experience both as physical achievements and developmental milestones. These centers offer alternative pathways to support motor growth beyond traditional classroom settings. The study concludes that the role of coaches is central in facilitating positive motor development, and it highlights the need for continuous collaboration between teachers, parents, and sport instructors to optimize children's physical growth. Future studies may explore comparative outcomes between school-based and academy-based motor programs.

Keywords: *Early Childhood, Motor Development, Coach, Sport Center*

INTRODUCTION

Early childhood is a critical period for motor development, as children rapidly acquire movement capacities needed for play, physical activity, daily participation, and later sport involvement. Motor development includes changes in coordination, postural control, balance, locomotor actions, object manipulation, and movement confidence. Fundamental movement skills (FMS), including locomotor, stability, and object-control skills, are observable components of this process. However, motor development extends beyond isolated FMS and involves integrating, adapting, coordinating, and functionally using movement abilities across tasks and environments [1], [2], [3]. It is also associated with executive functions, self-regulation, and physical wellbeing [1], [4]. Therefore, supporting motor development should be viewed as part of holistic development rather than merely preparation for sport performance.

Motor development does not occur solely through biological maturation or unrestricted physical activity. Children need repeated, varied, meaningful, and developmentally appropriate movement experiences within supportive environments [5], [2]. Structured physical activity programs can improve locomotor, object-control, balance, and overall motor abilities among preschool children, particularly when they include diverse movement experiences, deliberate practice, play, sufficient duration, and guidance from trained professionals [5], [6], [3]. Thus, movement-environment quality and instructional support may be as important as activity volume.

Sport-based programs provide an increasingly visible context for structured movement experiences. Sports games and planned active play can promote locomotor, manipulative, ball, and balance abilities while supporting enjoyment, social interaction, and repeated practice [7], [3]. Active play and skill-oriented physical education may contribute to motor development when activities are appropriately structured, progressively challenging, and supported by responsive instruction [8]. In such settings, FMS should not be considered the sole outcome, but one group of abilities through which broader motor development can be observed and supported.

Coaches play an important role in translating developmental principles into daily movement experiences. Although early childhood educators generally recognize the importance of FMS, they may have limited knowledge of broader motor development [9], [10]. Similar concerns have been reported in sport contexts, where coaches value FMS but show gaps in knowledge, assessment, and evidence-based practice [11], [12]. Coaches may also understand physical literacy mainly as physical skill while overlooking cognitive, social, and affective dimensions [13], [14]. These perspectives may influence how they interpret developmental readiness, movement confidence, individual differences, and participation.

The distinction between coaches' beliefs and actual practices is therefore important. Stated philosophies do not always correspond with observable coaching behaviors, and some grassroots coaches have limited awareness of their instructional practices [15]. Existing research has focused mainly on coaching practices, technical development, or general child development, with less attention to how coaches interpret changing motor abilities in early childhood sport environments [11], [14]. This issue is particularly relevant for children aged 4–6 years, whose coordination, confidence, attention, and readiness for structured learning vary considerably.

Therefore, this study explores coaches' perspectives on motor development among young children participating in sport-based early childhood programs. It examines how coaches interpret motor changes, the roles of repetition, play, confidence, and varied movement experiences, and the challenges they encounter. These insights may support more responsive sport-based early childhood programs and strengthen collaboration among coaches, teachers, and parents.

METHODS

Study area

This study was conducted in sport-based early childhood centers located in Surabaya, East Java, Indonesia. The selected centers provide structured sport and movement activities for young children as part of their early childhood learning programs. The centers were purposively selected because sport and movement activities constituted a regular component of the children's learning experiences and were facilitated by coaches who had direct and continuous interaction with children aged 4–6 years.

The study setting was appropriate for examining coaches' perspectives because coaches regularly observe children performing movement activities and select activities, provide instructions, adjust task difficulty, encourage participation, and respond to differences in movement abilities. The setting also enabled examination of relationships between coaches' reported perspectives and observed practices in authentic learning environments. A descriptive qualitative design was employed to explore coaches' perspectives on motor development among young children in sport-based early childhood programs.

A qualitative descriptive approach was selected to provide a rich and direct account of coaches' experiences, perceptions, and interpretations of children's motor development rather than develop a formal theoretical model [16], [17]. The design was appropriate because limited research has examined coaches' understanding of motor development within sport-based early childhood settings.

Nine sport coaches participated in the study. Participants were recruited through purposive sampling based on predetermined inclusion criteria. Eligible participants were coaches who (1) were actively involved in coaching children aged 4–6 years, (2) worked in a sport-based early childhood center in Surabaya, (3) had direct responsibility for conducting movement or sport sessions, and (4) were willing to participate in the interview and permit observation of their coaching sessions.

The participants Demographic data (Table 1) were collected on coach's aged between 23 and 35 years. Five participants were male and four were female. Their coaching experience ranged from one to nine years. Their last education were bachelor and magister. The children currently being coached by the participants include a relatively balanced mix of boys and girls in each group, thereby reducing the likelihood that the coaches' perspectives are shaped primarily by interactions with only one gender.

Table 1. Demographic characteristics of participants.

Demographic		N
Age Group	20-25 years	3
	25-30 years	3
	30-35 years	3
Sex (n = 9)	Male	5
	Female	4
Years of coaching experiences	1-3	5
	4-6	2
	7-9	2
Education	Bachelor	7
	Magister	2

Demographic		N
Experience coaching boys and girls	Boys	9
	Girls	9

The relatively diverse coaching experience allowed the study to capture perspectives from coaches at different stages of professional experience. This variation was useful for exploring whether perceptions of children's motor development were associated with accumulated coaching experience. In qualitative research, purposive sampling prioritizes information-rich participants who can provide relevant experiences rather than statistical representativeness [18].

Procedures

Data collection used three complementary sources: semi-structured interviews, field observations, and documentation. This combination enabled examination of coaches' perspectives alongside contextual information about their actual coaching environments. Data triangulation strengthened the credibility of interpretation by comparing information from different sources [19], [20].

Semi-Structured Interviews

Semi-structured interviews constituted the primary data source. This approach provided a consistent framework while allowing exploration of individual experiences and interpretations through follow-up questions [21], [22].

One online interview session was conducted with each of the nine coaches, resulting in nine individual interview sessions. The interviews were conducted online and had a total duration of 137 minutes. The interview guide consisted of open-ended questions addressing several areas: (1) coaches' understanding of motor development in early childhood; (2) indicators used to identify motor progress; (3) the use of model activities; (4) differences in children's motor abilities; and (5) challenges related to coaching young children and parental expectations.

The semi-structured format allowed participants to describe specific coaching experiences. Probing questions were used for clarification and elaboration, including examples of how coaches recognized motor improvement, responded to movement difficulties, and modified activities according to children's readiness.

With participants' permission, interviews were audio-recorded and transcribed verbatim. Transcripts were checked against recordings for accuracy. Interviews conducted in Indonesian were analyzed in the original language, while selected quotations for publication were translated into English while retaining their original meaning.

Field Observation

Field observations were conducted in nine different classes taught by participating coaches. Observations were distributed across three days, with classes observed on a rotating basis. Each class was observed for approximately one hour, resulting in nine hours of direct observation.

Observations were conducted in the natural training environment without modifying planned activities. They focused on how coaches facilitated movement experiences, including activity selection, instructions, demonstrations, repetition, feedback, encouragement, task modification, play, attention management, and responses to differences in children's motor abilities.

Particular attention was given to observable indicators associated with motor development, including balance, coordination, locomotor movement, object-control actions, agility, movement control, confidence, and adaptation to changing tasks. Field notes were recorded during and immediately after each observation session. Observations were not used to quantitatively assess children's motor competence but to contextualize and compare coaches' accounts with observable practices.

Documentation

Documentation was used as a complementary data source. Relevant materials associated with observed training activities were collected where available, including training schedules, activity plans, learning materials, and documentation of training activities. Photographic or other visual documentation was collected only when permitted and when children's privacy was protected.

Documentation was examined to provide contextual information about the structure and content of sport-based activities. Together with interviews and observations, these materials contributed to understanding the environment in which coaches facilitated children's motor development.

Data analysis

Data were analyzed using reflexive thematic analysis following the six-phase approach [23]. NVivo 15 was used to organize, manage, code, retrieve, and compare interview transcripts, field notes, and

documentary materials. The software supported systematic data management but did not determine the analytical interpretation or themes.

First, researchers familiarized themselves with the dataset by repeatedly reading interview transcripts and field notes and reviewing observation records and documentation. Initial analytical notes identified potentially meaningful patterns related to coaches' understanding of motor development.

Second, data were imported into NVivo 15 and systematically coded. Initial coding was primarily inductive, allowing codes to emerge from participants' descriptions rather than predetermined theoretical categories. Statements concerning repetition, confidence, balance, coordination, movement control, play, developmental readiness, or differences among children were coded according to their substantive meaning.

Third, related codes were compared and grouped into potential categories and themes. Codes concerning repetition, practice frequency, gradual improvement, and movement control were examined as components of broader patterns concerning repeated movement experiences. Codes related to enjoyment, exploration, games, and participation were similarly examined for their relationship to play-centered motor development.

Fourth, candidate themes were reviewed against coded extracts and the complete dataset. Researchers examined whether each theme represented a coherent pattern and adequately addressed the research questions. Overlapping themes were merged where appropriate, while broad themes were divided when conceptually distinct.

Fifth, themes were refined, defined, and named according to their central concepts. The analysis distinguished fundamental movement skills from broader motor development. FMS-related observations such as running, jumping, balancing, kicking, throwing, and catching were interpreted as observable components of a broader developmental process involving coordination, movement control, adaptability, confidence, and participation.

Finally, researchers developed an interpretive narrative connecting the themes with the study objectives and relevant literature. Interview accounts were compared with observations and documentation throughout analysis. This triangulation enabled identification of convergence and differences between what coaches reported and what was observed during training [19], [20].

The analysis was iterative rather than strictly linear. Codes and themes were revisited as researchers developed a deeper understanding of the dataset. Reflexive notes were maintained to encourage critical consideration of assumptions and interpretations. This approach is consistent with contemporary reflexive thematic analysis, in which themes are actively developed through researchers' engagement with the dataset rather than treated as objectively existing categories [23].

RESULTS AND DISCUSSION

Analysis of interview transcripts, field observations, and training documentation generated four overarching themes concerning coaches' perspectives and practices regarding motor development in sport-based early childhood centers: (1) Motor Development as Progressive Movement Mastery, (2) Seeing Development Through Movement, (3) Learning Movement Through Playful Modeling, and (4) Coaching Beyond Movement Skills. Across the three data sources, findings showed substantial convergence between what coaches described and what was observed, although discrepancies emerged concerning the balance between play-based approaches and structured sport drills.

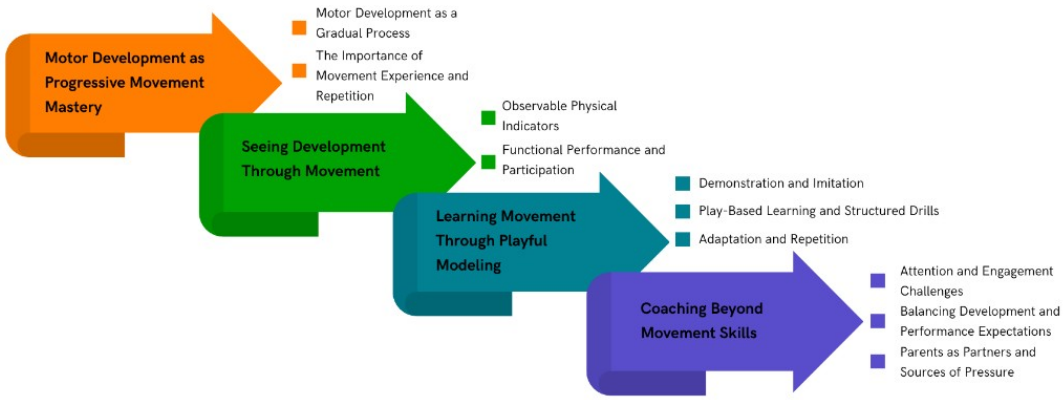

Figure 1. Diagram of themes and subthemes

Motor Development as Progressive Movement Mastery

The first theme reflects coaches' understanding of motor development as an ongoing process in which children gradually develop greater control, coordination, and confidence. Coaches differed in emphasis, but most described meaningful changes as occurring through accumulated movement experiences rather than a single training session.

Motor development as a gradual process. Coaches generally perceived motor development as gradual. Rather than expecting children to perform movements correctly immediately, they described progression from initial attempts toward greater control and independence. Some focused on physical competence, while others included confidence and independence. One coach explained, "For me, motor development is a process. At first, a child may not be able to coordinate the movement properly, but after several sessions the movement becomes more organized" [C1]. Another noted, "Children of the same age can be at very different levels. Some children understand the movement immediately, while others need much more time and guidance" [C3]. A third described development as a transition toward independence: "I see development when a child who previously needed my help can eventually perform the movement by himself or herself" [C5].

Another coach associated motor development with body control: "I think motor development means that children gradually learn how to control their bodies. They become more stable, their movements are less awkward, and they know what their body needs to do" [C7]. Another emphasized progress rather than final performance: "We should not only look at whether the child can do the movement or not. The important thing is whether there is progress compared with before" [C8]. These accounts show that coaches viewed motor development as continuous change in movement quality, independence, and confidence rather than an instantaneous achievement.

Observational data complemented these accounts. Across classes, children were repeatedly exposed to running, stopping, changing direction, jumping, balancing, kicking, and manipulating balls. Children who initially hesitated or experienced difficulty were generally given additional opportunities to repeat movements before progressing to more complex tasks.

The Importance of Movement Experience and Repetition. Repeated movement experiences were consistently identified as important. Coaches explained that children needed repeated opportunities to perform movements in different situations before movements became controlled and familiar.

One coach said, "Children need repetition. If they only perform a movement once, it is difficult to expect them to remember and control it. They need to experience the movement again and again" [C2]. Another described repetition as building familiarity: "The first time they try an activity, they are usually still confused. After doing it several times, they start to understand the pattern of the movement" [C4].

For others, repetition did not mean repeating exactly the same drill: "Repetition does not mean doing the same exercise every time. We can repeat the same basic movement through different games, so the children do not feel that they are doing the same thing again" [C6]. Another highlighted accumulated

experience: "A child who has more movement experience usually adapts faster. They have tried different movements before, so when we introduce something new, they are not as afraid" [C7]. Another noted, "One session is not enough to see much change. When the child comes regularly, we can see that the movements become more confident and controlled" [C9].

These accounts indicate that coaches viewed motor development as an accumulation of movement experiences rather than a fixed ability determined solely by age. Observations supported this interpretation because coaches returned to similar movement patterns through different activities, and documentation showed fundamental movement activities repeated across sessions. However, repetition varied in implementation: some coaches embedded it within games, whereas others relied more on direct drills before introducing play.

Overall, coaches viewed motor development as progressive movement mastery, characterized by increasing familiarity, control, confidence, and independence rather than immediate technical perfection.

Seeing Development Through Movement

The second theme reflects coaches' understanding of motor development through observable movement performance and the ability to apply movement skills in functional and social situations. Coaches identified balance, coordination, agility, speed, flexibility, strength, and endurance as visible indicators, while participation, confidence, independence, and functional application provided additional evidence of developmental change.

Observable Physical Indicators. Coaches generally identified biomotor abilities as visible indicators of motor progress. Balance and coordination were frequently emphasized. One coach explained, "Balance is one of the easiest things to observe. When a child can jump, land, and maintain their balance without falling, I can see that there has been progress" [C1]. Another focused on coordination: "I pay attention to coordination, especially when the child has to use the hands and feet together. For example, running toward the ball and then kicking it requires several movements to work together" [C3].

Other coaches emphasized agility and body control. One observed, "I can see agility when children have to change direction. Some children can turn quickly, while others need more time to control their bodies" [C4]. Another considered several components: "It is not only about speed. I look at balance, coordination, agility, and also whether the child has enough strength and endurance to complete the activity" [C6]. Another noted that progress was not always faster movement: "Sometimes the change is small. A child may not become much faster, but they can maintain their balance better or repeat the activity without getting tired quickly" [C8].

These accounts indicate that coaches relied on multiple observable physical characteristics, but their priorities varied according to activities. Observations complemented these perspectives: coaches paid attention to balance, coordination, ball control, movement sequences, and participation. Judgments were generally informal rather than based on standardized assessment. Documentation similarly focused on movement tasks and sport-related activities, suggesting that visible movement performance was an important basis for judging progress.

Functional Performance and Participation. In addition to physical abilities, coaches interpreted motor development through children's ability to use movement successfully in functional and social situations. Participation, willingness to join activities, functional application, independence, and confidence were meaningful indicators. One coach explained, "A child may not have perfect technique, but if they can now participate in the game, move with their friends, and respond to the activity, I consider that progress" [C2]. Another distinguished practice from functional use: "I look at whether the child can use the movement in the activity. For example, it is different when a child can kick the ball during a drill and when they can actually kick it toward a target during a game" [C5].

Participation was also viewed as a developmental milestone. One coach described the transition from observation to involvement: "Some children initially just stand and watch. When they start running, joining the game, and trying the activities themselves, that is already a big improvement" [C7]. Another associated progress with independence: "If I no longer have to remind the child every time to move or participate, I see that as progress because they have started to understand and control their own actions" [C8]. Confidence was similarly considered: "For me, progress is not only technical. When a child becomes more confident and is willing to participate without being afraid of making mistakes, that is also development" [C9].

These perspectives show that coaches did not understand motor progress solely as isolated physical abilities. They also considered functional application, participation, independence, and confidence. Observations supported this broader interpretation: children who initially hesitated were sometimes more actively involved after repeated exposure, while coaches responded with encouragement, demonstrations,

simplified tasks, and additional practice. Participation therefore functioned as an informal indicator of developmental change.

A discrepancy emerged between coaches' practical judgments and formal documentation. Although coaches described confidence, enjoyment, willingness to participate, and independence as meaningful indicators, these dimensions were not always recorded. Documentation tended to emphasize activities and visible movement outcomes rather than emotional responses or willingness to attempt tasks.

Taken together, coaches primarily perceived development through movement, with biomotor characteristics serving as visible evidence and functional performance and participation providing additional evidence. Motor development was therefore understood as increasing competence, independence, confidence, and engagement, not simply improved technical performance.

Learning Movement Through Playful Modeling

The third theme describes how coaches facilitated movement learning through demonstration, imitation, play, structured sport activities, adaptation, and repetition. Coaches generally perceived young children as learning effectively when they could observe and imitate concrete examples. Play and sport-based activities provided contexts for repeated and meaningful practice, although reliance on play versus structured drills varied.

Demonstration and Imitation. Demonstration was consistently described as important for introducing new movements. Coaches believed young children understood movement more readily when they could see an example than when receiving lengthy verbal explanations. One coach stated, "I usually demonstrate first because children understand better when they see the movement rather than only hearing an explanation" [C1]. Another explained, "For children aged four or five, long verbal explanations are not very effective. I show them the movement and then ask them to try" [C3].

Demonstration was not limited to the coach. Peer modeling was also used: "Sometimes I ask a child who already understands the movement to demonstrate it. Other children then try to imitate their friend" [C4]. Another emphasized simplicity: "The demonstration has to be simple. If I show too many steps at once, the children become confused, so I break the movement into smaller parts" [C6]. Imitation was also linked to children's natural learning tendencies: "Children like to copy what they see. When I demonstrate the movement with enthusiasm, they usually become more interested in trying it" [C9].

Observations strongly supported these accounts. Coaches demonstrated running, kicking, jumping, balancing, and ball-handling before children performed them. Children commonly watched the coach or another child before attempting the movement. When uncertain, coaches repeated demonstrations or provided brief feedback, indicating that visual modeling was a central mechanism for movement learning.

Play-Based Learning and Structured Drills. Play-based activities were widely considered appropriate, although coaches differed in how they positioned play relative to structured practice. Some viewed play as the primary mechanism, while others used games alongside exercises. One coach explained, "For young children, I prefer to put the movement into a game. They do not realize that they are practicing because they are focused on having fun" [C2]. Another noted, "If we only give them drills, they become bored quickly. Games make them more willing to repeat the movements" [C5].

Other coaches preferred a combination of direct instruction and play. One stated, "I usually start with a simple exercise so they understand the basic movement, and then I put that movement into a game" [C1]. Another emphasized movement variety: "Sport activities give children many opportunities to run, jump, kick, throw, and change direction. The important thing is to keep the activities appropriate for their age" [C4]. Another linked play to motivation: "The game is important because children want to play. If they enjoy the activity, they are more willing to move and repeat the movement" [C8].

Coaches generally viewed play and sport-based activities as valuable contexts for movement development, but differed on whether play was central or complementary. Observations supported games embedding running, kicking, stopping, and changing direction. However, several sessions included extended structured drills before games, revealing a divergence between some coaches' descriptions and practice. Play was important but did not replace direct instruction.

Training documentation indicated repeated exposure to fundamental movement patterns, while the balance between games and drills varied. Thus, playful learning was widely valued but implemented flexibly rather than through a uniform model.

Adaptation and Repetition. Coaches also described adapting activities according to children's abilities, responses, and engagement. Adaptations included modifying distances, simplifying rules, changing equipment, reducing task complexity, and providing demonstrations. One coach explained, "If the target is too far, I move it closer. The child needs to experience success first, and then we can gradually increase the

difficulty" [C3]. Another stated, "The activity can remain the same, but the challenge does not have to be the same. Some children can use a longer distance, while others need a shorter one" [C5].

Equipment was also adapted. One coach noted, "Sometimes the ball is too difficult for a small child to control. Using a smaller or lighter ball can make the activity easier" [C6]. Another simplified instructions: "If the children do not understand the rules, I simplify them. Once they understand the basic idea, we can add another rule" [C7]. Repetition was combined with variation: "I repeat the same basic movement but change the game. This way the children get repeated practice without feeling that they are doing the same exercise" [C9].

These accounts show that coaches did not view movement activities as fixed procedures. They adjusted task demands and challenge levels to accommodate differences while maintaining successful participation and repeated practice. Observations showed similar changes in distance, equipment, task complexity, and assistance. Some activity plans documented variations, although detail differed; other documents gave only broad activity descriptions without specifying individual modifications.

Overall, movement learning was characterized by demonstration, imitation, purposeful play, structured sport activities, adaptation, and repetition. Convergence across interview, observation, and documentation suggests that coaches sought to make movement learning accessible and engaging. However, the balance between playful and drill-based instruction varied according to coaching practices and situational demands.

Coaching Beyond Movement Skills

The fourth theme illustrates that coaching young children involved challenges beyond physical abilities. Coaches discussed attention and engagement, parental expectations, and balancing developmental goals with sport performance. Effective coaching therefore required responses to children's behavioral, emotional, and social contexts.

Attention and Engagement Challenges. Short attention spans were frequently identified as a major challenge. Coaches reported that children could lose interest when instructions were lengthy or activities lacked variation. One explained, "The biggest challenge is keeping their attention. If I explain something for too long, some children start looking elsewhere or talking to their friends" [C1]. Another stated, "Young children cannot stay focused on one activity for a long time. We have to change the activity before they become bored" [C3].

Coaches emphasized flexibility in response to engagement. One explained, "Sometimes I have to change the game immediately because the children are losing interest. If I continue with the same activity, they stop participating" [C4]. Another linked engagement to challenge: "When the activity is challenging but still fun, they usually stay engaged. When it is too difficult, they lose interest" [C6]. Another noted behavioral differences: "Some children are very active and want to try everything, while others prefer to watch first. The coach has to manage both types in the same class" [C8].

These accounts indicate that engagement was closely connected to activity design and instructional strategies. Short explanations, demonstrations, activity variation, appropriate challenge, and play were used to maintain attention. Observations were consistent: engagement fluctuated during lengthy explanations or technical instructions, and coaches responded by shortening explanations, demonstrating, introducing games, modifying tasks, or encouraging children. These adjustments were generally followed by renewed participation.

Balancing Development and Performance Expectations. Another challenge involved balancing developmental needs with sport performance expectations. Coaches reported that some parents expected sport-specific abilities quickly, whereas coaches viewed fundamental motor development as gradual. One explained, "Sometimes parents ask why their child cannot already control the ball well. We have to explain that the child is still developing basic coordination" [C2]. Another stated, "Parents often see the final result, but coaches see the process. A child may still be developing balance and coordination before they can perform a sport skill consistently" [C5].

Some coaches worried that excessive performance emphasis could reduce enjoyment: "I understand that parents want their children to improve, but if we focus too much on performance, children may lose the enjoyment of movement" [C7]. However, expectations were not universally problematic: "Parents having expectations is not necessarily a problem. It becomes a problem when they expect progress to happen immediately" [C1]. Another emphasized communication: "We need to explain to parents what is appropriate for the child's age. If they understand the developmental process, they usually become more supportive" [C9].

Coaches distinguished constructive expectations from pressure for immediate performance. The challenge emerged when sport-specific outcomes were prioritized over gradual development. Observations suggested that coaches maintained developmentally appropriate activities even when performance was

emphasized, incorporating fundamental movement alongside sport-related tasks rather than focusing exclusively on competition.

Parents as Partners and Sources of Pressure. Coaches described parents as having a dual role. Supportive parents could extend movement experiences beyond training, while comparison and excessive expectations could create pressure. One coach explained, "Parents can help a lot when they encourage children to be active at home. It makes the training experience more consistent" [C3]. Another stated, "When parents understand what we are trying to teach, communication becomes easier. They can continue simple movement activities with their children at home" [C4].

Parental involvement could also create pressure. One coach noted, "The difficult situation is when parents compare their child with another child. The children then feel that they are not good enough" [C6]. Another emphasized developmental differences: "Parents need to know that a four-year-old and a six-year-old should not necessarily have the same expectations" [C8]. Another stated, "Parents are important partners, but sometimes they also put pressure on the coach because they want to see quick results" [C9].

Overall, coaches viewed parents as part of the developmental environment. Their involvement could strengthen movement opportunities through encouragement, communication, and developmental understanding, while comparison and pressure could create challenges. Observations showed regular post-training communication with parents about daily activities and children's progress; some parents asked about specific capabilities when children progressed more slowly. Post-class communication was also part of the program's Standard Operating Procedures (SOPs).

Taken together, coaching young children extended beyond teaching movement skills. Coaches managed attention, maintained engagement, responded to differences, negotiated parental expectations, and communicated developmental processes. Convergence across the three data sources suggests that effective coaching involved balancing movement development, enjoyment, participation, and sport-related expectations.

Discussion

The present study examined how coaches working in sport-based early childhood centers understand and facilitate motor development among children aged 4–6 years. Integrating interviews, observations, and documentation provided a comprehensive picture of how coaches conceptualize and enact motor development. The four themes show that coaches understood development as progressive, recognized change through movement and participation, used playful modeling, and managed challenges extending beyond movement skills. The convergence between reported and observed practices was substantial, although discrepancies emerged between play-based preferences and continued use of structured drills.

Motor Development as Progressive Movement Mastery

The first theme suggests that coaches understood motor development as gradual, characterized by increasing movement control, familiarity, confidence, and independence. This is consistent with evidence that motor competence develops dynamically across childhood and is associated with later physical activity and fitness outcomes [24], [25]. Developmental research emphasizes repeated interactions between children, movement tasks, and environments rather than treating motor competence as fixed.

Convergence across interviews, observations, and documentation strengthens this interpretation. Coaches described repetition as necessary, observations showed repeated movement patterns, and documentation demonstrated recurring fundamental movement activities. Thus, repetition was an embedded feature of coaching practice rather than merely a stated belief.

This finding is consistent with evidence that fundamental movement skills (FMS) can be enhanced through structured intervention. Positive effects of both structured and unstructured interventions on preschool children's fundamental motor skills have been reported, while meaningful improvements in FMS have also been demonstrated following intervention. The effectiveness of intervention may be influenced by factors such as intervention duration, practice volume, activity variety, and professional coaching [5], [3].

Coaches did not necessarily conceptualize repetition as the mechanical repetition of identical drills. Instead, repetition was often embedded within different activities and contexts. Young children may benefit from repeated opportunities to perform similar movement patterns while encountering changing task and environmental conditions, as such variation may support adaptability rather than simple reproduction of movement under a single condition.

The sport context also influenced coaches' descriptions of motor development. Some coaches used sport-specific examples, such as kicking and ball control, when describing children's movement abilities.

This observation is consistent with evidence showing variation in grassroots soccer coaches' perceptions and practices concerning fundamental movement skills [12].

The findings also resonate with qualitative evidence from grassroots football coaching, in which coaches tended to understand physical literacy primarily through physical skills, even though their practices sometimes incorporated broader developmental dimensions [14]. The present study extends this observation to early childhood motor development. Coaches often began their descriptions with observable physical skills but also referred to confidence, participation, and independence, suggesting that they possessed practical developmental knowledge without necessarily using formal theoretical terminology.

This distinction has important implications for coach education. Rather than assuming that coaches simply require more technical knowledge, professional development should help connect coaches' experiential observations with contemporary concepts of motor competence, developmental readiness, physical literacy, and child-centered practice.

Seeing Development Through Movement

The second theme indicates that coaches primarily recognized developmental change through observable movement. Balance, coordination, agility, speed, strength, and movement control were frequently mentioned, while functional participation and confidence provided additional indicators. This reflects the practical reality that movement is continuously visible during coaching.

Integrating observation and documentation revealed a distinction between what coaches notice and what programs formally record. Coaches reported considering participation and confidence, and observations showed responses to engagement. Yet documentation tended to emphasize activities and movement tasks rather than affective or participatory indicators, suggesting that practical understanding may be broader than formal assessment systems.

This finding is relevant to the distinction between physical capacity and motor competence. Fundamental movement skills have been shown to be associated with physical fitness, motor competence, physical activity, and executive functions in preschool children, highlighting the interconnected nature of these developmental domains [1]. Strength, speed, or agility should therefore not automatically be equated with motor competence, which concerns how effectively children organize and apply movement in particular tasks and environments.

Coaches' attention to functional performance is therefore valuable. A child who can kick a ball successfully in an isolated drill but is unable to use the movement effectively during a game may demonstrate a different level of functional competence from a child who can adapt the same movement successfully in a dynamic situation. Motor development should therefore be considered not only in terms of whether a movement can be performed, but also whether it can be applied meaningfully and effectively within relevant contexts.

Participation and confidence are similarly important dimensions of children's movement development. Longitudinal relationships have been identified among preschool children's perceived competence, motor skills, and physical activity, suggesting that children's perceptions of their own movement abilities may be connected with their engagement in physical activity [26]. Positive movement experiences may consequently contribute to perceived competence, which may encourage further participation, practice, and engagement in movement activities.

This interpretation also connects with the broader concept of physical literacy. Physical literacy has been conceptualized as a multidimensional construct that extends beyond physical skills to include affective, cognitive, and behavioral dimensions [27]. The importance of physical literacy-oriented programs during early childhood has also been emphasized, particularly in supporting children's holistic engagement with movement [28]. Although coaches in the present study did not necessarily use the term physical literacy, their references to confidence, participation, and enjoyment suggest practical recognition of several dimensions encompassed by this broader construct.An implication is the need to expand developmental indicators from visible physical performance to functional and behavioral evidence. Simple observational frameworks could help coaches record changes in movement competence, participation, confidence, and independence.

Learning Movement Through Playful Modeling

The third theme highlights demonstration, imitation, play, sport-based activities, adaptation, and repetition. The convergence between interview and observation suggests that coaches generally practiced what they described: demonstrating movements, allowing imitation, and incorporating movement into games.

This finding is consistent with evidence supporting structured movement interventions and active play for improving fundamental movement skills (FMS) in preschool children. Both planned active play and structured or unstructured movement approaches have been shown to support FMS development [29], [30], [31].

An important finding was the difference between coaches' descriptions of play-based coaching and the structured drills observed in practice. This difference may reflect the combination of pedagogical approaches rather than an inconsistency. Structured drills can introduce movements clearly, while games provide opportunities to apply and repeat movements in engaging contexts.

This interpretation is consistent with the importance of combining deliberate practice and deliberate play. The key may therefore be not choosing between drills and play, but integrating purposeful practice within playful learning environments [5]. Demonstration positions the coach as a movement mediator. Coaches actively shaped how movement was introduced, practiced, and modified. Professional coaching and training are important characteristics of effective FMS interventions [5], [3].

Adaptation was also significant. Coaches modified distances, equipment, and task difficulty in response to performance. Such adjustments can be understood as changes to task and environmental constraints, allowing children with different competence levels to engage in the same movement experience.

The findings support a model in which play provides context, demonstration provides the movement model, repetition provides practice, and adaptation provides an appropriate challenge. This combination may suit children aged 4–6 years because it preserves play while maintaining intentional movement-learning objectives.

Coaching Beyond Movement Skills

The fourth theme provides a broad interpretation of coaching. Coaches described attention and engagement as ongoing challenges and parental expectations as influences on coaching decisions. Observations confirmed that maintaining engagement required activity changes, shorter explanations, demonstrations, and playful elements.

This highlights a difference between coaching young children and older athletes. Activity effectiveness depends not only on technical content but also on whether children remain engaged enough to participate. Coaching young children therefore requires pedagogical competence alongside sport-specific knowledge.

Coaches described parents as both partners and potential sources of performance pressure. Parental goals, involvement, parenting styles, and motivational climate can influence young athletes' motivation, with autonomy-supportive and task-involving approaches generally more conducive to positive motivation than controlling approaches [32].

These dynamics may begin before children enter formal competitive sport. Parents in sport-based early childhood settings may expect rapid technical development or visible achievement, which can unintentionally encourage coaches to prioritize measurable performance over broader developmental outcomes.

This tension is relevant to the influence of sport-performance culture on coaches' understanding of development. Parental expectations may reinforce an emphasis on visible skills when coaches' conceptualizations are strongly performance-oriented [14]. The challenge is therefore to establish a shared understanding of development and success in early childhood sport.

Coach-parent communication should extend beyond administrative matters to include developmental education. Interpersonal development programs involving coaches and parents may provide a useful basis for strengthening this partnership [33]. Parents can become important partners when they understand that progress may involve confidence, participation, coordination, independence, and willingness to explore movement rather than only sport-specific performance. The coach becomes an intermediary who translates developmental principles into accessible messages for families.

Integrating the Four Themes

Taken together, the four themes provide a coherent picture of developmentally responsive coaching in sport-based early childhood centers. Coaches understood motor development as progressive, recognized change through movement and participation, facilitated learning through playful modeling, and addressed challenges extending beyond physical skills.

The first two themes, Motor Development as Progressive Movement Mastery and Seeing Development Through Movement, are closely interconnected. Coaches perceived development as gradual and evaluated progress through observable changes in balance, coordination, agility, movement control, functional performance, confidence, and participation. This is consistent with research emphasizing motor competence as a dynamic construct rather than a fixed ability [24], [25].

The third theme, Learning Movement Through Playful Modeling, illustrates how coaches translated these beliefs into practice. Demonstration, imitation, repetition, games, and sport-based activities created opportunities for movement learning. Observations supported the interview findings, although structured drills were also observed, suggesting a combination of playful and structured approaches. Both structured practice and active play can support FMS development [29], [30], [5].

The fourth theme, Coaching Beyond Movement Skill, demonstrates that coaching young children involves attention management, engagement, emotional support, and communication with parents. Coaches and observations indicated that maintaining engagement required flexible strategies, while parental expectations could influence perceptions of successful development. Children's movement experiences are therefore embedded within social and relational environments.

Integration of interview, observation, and documentation strengthens the findings. Interviews revealed coaches' beliefs, observations demonstrated how those beliefs were enacted, and documentation provided contextual evidence about activity organization. Convergence suggests that practical understanding was generally reflected in coaching, while differences between reported beliefs and observed practices show the complexity of developmentally appropriate coaching in sport-oriented settings.

Overall, the four themes suggest a developmentally responsive movement cycle:

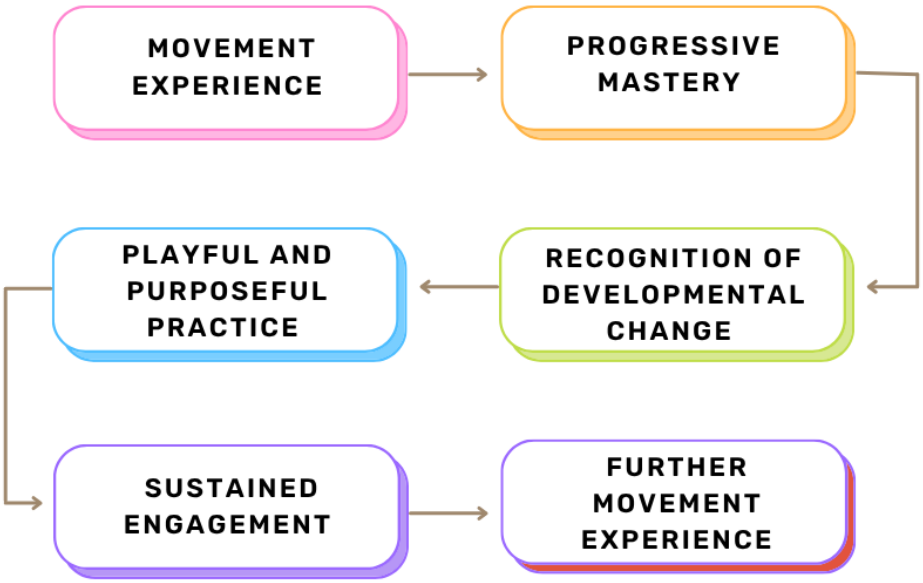

Figure 2. Diagram of themes and developmental responsive movement cycle

This interpretation complements, showing that coaches' practical understanding may extend beyond explicit theoretical terminology [14]. Although coaches primarily described physical skills, their practices also incorporated confidence, participation, enjoyment, and engagement. Coach education should therefore extend beyond sport-specific drills toward developmental observation, playful pedagogy, task adaptation, child engagement, and constructive parent communication. Sport-based centers can become meaningful environments for motor development when sport is used not merely to accelerate performance, but to provide rich, developmentally appropriate movement experiences.

CONCLUSION

This study explored coaches' perspectives on motor growth among children aged 4–6 years in sport-based early childhood centers in Surabaya. The findings reveal that coaches perceive early motor development as a dynamic process shaped by repetition, confidence building, and varied movement

experiences. Coaches noted significant progress in children's balance, coordination, agility, and control of movement after consistent participation in structured sport sessions.

The findings further demonstrate that coaches emphasized the importance of play-centered training methods, integrating fun, exploration, and simple sport drills tailored to young children's developmental readiness. At the same time, coaches identified challenges such as differing levels of motor readiness, short attention spans, and varying parental expectations regarding children's performance. These findings indicate that coaching young children requires more than sport-specific skills; it requires understanding developmental needs, maintaining engagement, adapting activities, and providing meaningful movement experiences.

Despite these challenges, coaches believe that sport-based environments provide valuable opportunities for children to experience both as physical achievements and developmental milestones. These centers offer alternative pathways to support motor growth beyond traditional classroom settings. Integration of interview, observation, and documentation further indicates that coaches' perspectives were generally reflected in practice, although structured drills and play-centered activities were sometimes combined within the same sessions.

The study concludes that the role of coaches is central in facilitating positive motor development, and it highlights the need for continuous collaboration between teachers, parents, and sport instructors to optimize children's physical growth. Such collaboration can establish developmentally appropriate expectations and ensure that progress is valued not only through sport performance but also through confidence, participation, exploration, and movement competence.

Future studies may explore comparative outcomes between school-based and academy-based motor programs. Comparative research could provide further insight into how differences in learning environments, coaching practices, and movement opportunities influence children's motor development.

ACKNOWLEDGMENTS

The authors would like to express their sincere gratitude to all coaches who participated in this study and generously shared their experiences, perspectives, and time throughout the interview and observation processes. The authors also extend their appreciation to the sport-based early childhood centers in Surabaya for granting access to the learning environments and supporting the data collection process.

REFERENCES

[1] Malambo, C., Nová, A., Clark, C., & Musálek, M. (2022). Associations between Fundamental Movement Skills, Physical Fitness, Motor Competency, Physical Activity, and Executive Functions in Pre-School Age Children: A Systematic Review. In Children (Vol. 9, Number 7). Multidisciplinary Digital Publishing Institute (MDPI). https://doi.org/10.3390/children9071059

[2] Wang, X., & Zhou, B. (2024). Motor development-focused exercise training enhances gross motor skills more effectively than ordinary physical activity in healthy preschool children: an updated meta-analysis. Frontiers in Public Health, 12. https://doi.org/10.3389/fpubh.2024.1414152

[3] Zhang, X., Tang, C., Geng, M., Li, K., Liu, C., & Cai, Y. (2025). The effects of active play interventions on children's fundamental movement skills: a systematic review. BMC Pediatrics, 25(1). https://doi.org/10.1186/s12887-024-05385-8

[4] Miller, A. L., Palmer, K. K., Wang, L., Wang, C., Riley, H. O., McClelland, M. M., & Robinson, L. E. (2023). Mastery-oriented motor competence intervention improves behavioral but not cognitive self-regulation in head start preschoolers: Randomized controlled trial results. Scandinavian Journal of Medicine and Science in Sports, 33(5), 725–736. https://doi.org/10.1111/sms.14294

[5] Koolwijk, P., Hoeboer, J., Mombarg, R., Savelsbergh, G. J. P., & de Vries, S. (2024). Fundamental movement skill interventions in young children: a systematic review. In International Journal of Sport and Exercise Psychology (Vol. 22, Number 7, pp. 1661–1683). Routledge. https://doi.org/10.1080/1612197X.2023.2210597

[6] Şendil, A. M., Canlı, U., sheeha, B. Bin, Alkhamees, N. H., Batrakoulis, A., & Al-Mhanna, S. B. (2024). The effects of structured coordinative exercise protocol on physical fitness, motor competence and inhibitory control in preschool children. Scientific Reports, 14(1). https://doi.org/10.1038/s41598-024-79811-3

[7] Guo, X., Li, C., Zhang, Z., Silva, A. F., & Clemente, F. M. (2024). Can motor competence be influenced by the type of training interventions preschool children are exposed to? A randomized experimental study comparing sports games and psychomotricity activities. Frontiers in Psychology, 15. https://doi.org/10.3389/fpsyg.2024.1476297

[8] Liu, B., Yan, Y., Jia, J., & Liu, Y. (2025). Can active play replace skill-oriented physical education in enhancing fundamental movement skills among preschool children? A systematic review and meta-analysis. In BMC Public Health (Vol. 25, Number 1). BioMed Central Ltd. https://doi.org/10.1186/s12889-025-22398-9

[9] Dobell, A., Pringle, A., Faghy, M. A., & Roscoe, C. M. P. (2021). Educators perspectives on the value of physical education, physical activity and fundamental movement skills for early years foundation stage children in england. Children, 8(5). https://doi.org/10.3390/children8050338

[10] McGuckin, T., Turner, D., Jones, T., Crowther, F., Eagers, J., & Connor, J. (2024). Impact of a fundamental movement skills program on educator practice in early learning centres. Discover Education, 3(1). https://doi.org/10.1007/s44217-024-00193-9

[11] Akbar, A., Karim, Z. A., Zakaria, J., Hazely, F., Rahaman Mohamed, A., Khairul, M., Imami, W., & Rahman, M. A. (2024). Exploring The Fundamental Aspect of Grassroot Football Academy: A Case Study in Indonesia Explorando el aspecto fundamental de la academia de fútbol base: un caso de estudio en Indonesia. In Retos (Vol. 53). https://recyt.fecyt.es/index.php/retos/index

[12] Duncan, M. J., Weldon, A., Barnett, L. M., & Lander, N. (2022). Perceptions and practices of fundamental movement skills in grassroots soccer coaches. International Journal of Sports Science and Coaching, 17(4), 761–771. https://doi.org/10.1177/17479541211073547

[13] Hebinck, M., Pelletier, R., Labbé, M., Best, K. L., & Robert, M. T. (2023). Exploring Knowledge of the Concept of Physical Literacy among Rehabilitation Professionals, Students and Coaches Practicing in a Pediatric Setting. Disabilities, 3(4), 493–506. https://doi.org/10.3390/disabilities3040031

[14] Vella, L., Carl, J., Crotti, M., Barnett, L. M., & Duncan, M. (2026). Grassroots football coaches' knowledge and perspectives of physical literacy to improve child wellbeing through community sport. International Journal of Sports Science and Coaching. https://doi.org/10.1177/17479541261443098

[15] Duggan, C., Mulvenna, C., Hounsell, T., & Fonseca, J. (2021). Exploring Coaching Behaviors and the Relationship to Coaching Philosophy: A Study of Grassroots Soccer Coaches. The International Journal of Sport and Society, 12, 137–151. https://doi.org/10.18848/2152-7857/CGP/v12i02/137-151

[16] Doyle, L., McCabe, C., Keogh, B., Brady, A., & McCann, M. (2020). An overview of the qualitative descriptive design within nursing research. Journal of Research in Nursing, 25(5), 443–455. https://doi.org/10.1177/1744987119880234

[17] Kim, H., Sefcik, J. S., & Bradway, C. (2017). Characteristics of Qualitative Descriptive Studies: A Systematic Review. Research in Nursing & Health, 40(1), 23–42. https://doi.org/https://doi.org/10.1002/nur.21768

[18] Vasileiou, K., Barnett, J., Thorpe, S., & Young, T. (2018). Characterising and justifying sample size sufficiency in interview-based studies: Systematic analysis of qualitative health research over a 15-year period. BMC Medical Research Methodology, 18(1). https://doi.org/10.1186/s12874-018-0594-7

[19] Carter, N., Bryant-Lukosius, D., Dicenso, A., Blythe, J., & Neville, A. J. (2014). The use of triangulation in qualitative research. In Oncology Nursing Forum (Vol. 41, Number 5, pp. 545–547). Oncology Nursing Society. https://doi.org/10.1188/14.ONF.545-547

[20] Kiger, M. E., & Varpio, L. (2020). Thematic analysis of qualitative data: AMEE Guide No. 131. Medical Teacher, 42(8), 846–854. https://doi.org/10.1080/0142159X.2020.1755030

[21] DeJonckheere, M., & Vaughn, L. M. (2019). Semistructured interviewing in primary care research: A balance of relationship and rigour. Family Medicine and Community Health, 7(2). https://doi.org/10.1136/fmch-2018-000057

[22] Kallio, H., Pietilä, A.-M., Johnson, M., & Kangasniemi, M. (2016). Systematic methodological review: developing a framework for a qualitative semi-structured interview guide. Journal of Advanced Nursing, 72(12), 2954–2965. https://doi.org/https://doi.org/10.1111/jan.13031

[23] Braun, V., & Clarke, V. (2021). One size fits all? What counts as quality practice in (reflexive) thematic analysis? Qualitative Research in Psychology, 18(3), 328–352. https://doi.org/10.1080/14780887.2020.1769238

[24] Barnett, L. M., Webster, E. K., Hulteen, R. M., De Meester, A., Valentini, N. C., Lenoir, M., Pesce, C., Getchell, N., Lopes, V. P., Robinson, L. E., Brian, A., & Rodrigues, L. P. (2022). Through the Looking Glass: A Systematic Review of Longitudinal Evidence, Providing New Insight for Motor Competence and Health. In Sports Medicine (Vol. 52, Number 4, pp. 875–920). Springer Science and Business Media Deutschland GmbH. https://doi.org/10.1007/s40279-021-01516-8

[25] King-Dowling, S., Proudfoot, N. A., Cairney, J., & Timmons, B. W. (2020). Motor Competence, Physical Activity, and Fitness across Early Childhood. Medicine & Science in Sports & Exercise, 52(11), 2342–2348. https://doi.org/10.1249/MSS.0000000000002388

[26] Ryu, S., Lee, J. E., Liu, W., McDonough, D. J., & Gao, Z. (2021). Investigating relationships between preschool children's perceived competence, motor skills, and physical activity: A cross-lagged panel model. Journal of Clinical Medicine, 10(23). https://doi.org/10.3390/jcm10235620

[27] Carl, J., Jaunig, J., Kurtzhals, M., Müllertz, A. L. O., Stage, A., Bentsen, P., & Elsborg, P. (2023). Synthesising physical literacy research for 'blank spots': A Systematic review of reviews. Journal of Sports Sciences, 41(11), 1056–1072. https://doi.org/10.1080/02640414.2023.2259209

[28] Porter, Joanne E, Dabkowski, Elissa, Prokopiv, Val, Missen, Karen, Barbagallo, Michael, & James, Michelle. (2023). An exploration into early childhood physical literacy programs: A systematic literature review. Australasian Journal of Early Childhood, 48(1), 34–49. https://doi.org/10.1177/18369391221118698

[29] Bai, M., Lin, N., Yu, J. J., Teng, Z., & Xu, M. (2024). The effect of planned active play on the fundamental movement skills of preschool children. Human Movement Science, 96. https://doi.org/10.1016/j.humov.2024.103241

[30] Chen, D., Zhao, G., Fu, J., Shun, S., Su, L., He, Z., Chen, R., Jiang, T., Hu, X., Li, Y., & Shen, F. (2024). Effects of structured and unstructured interventions on fundamental motor skills in preschool children: a meta-analysis. In Frontiers in Public Health (Vol. 12). Frontiers Media SA. https://doi.org/10.3389/fpubh.2024.1345566

[31] Spring, K. E., Lang, D., Pangelinan, M. M., & Wadsworth, D. D. (2024). Effects of an 8-Week Active Play Intervention on Body Composition and Fundamental Motor Skills in Preschool Children †. Children, 11(10). https://doi.org/10.3390/children11101173

[32] Gao, Z., Chee, C. S., Norjali Wazir, M. R. W., Wang, J., Zheng, X., & Wang, T. (2023). The role of parents in the motivation of young athletes: a systematic review. In Frontiers in Psychology (Vol. 14). Frontiers Media SA. https://doi.org/10.3389/fpsyg.2023.1291711

[33] Bengtsson, D., Stenling, A., Nygren, J., Ntoumanis, N., & Ivarsson, A. (2024). The effects of interpersonal development programmes with sport coaches and parents on youth athlete outcomes: A systematic review and meta-analysis. In Psychology of Sport and Exercise (Vol. 70). Elsevier Ltd. https://doi.org/10.1016/j.psychsport.2023.102558