

THE IMPORTANCE OF PLAY IN EARLY LEARNING EXPERIENCES OF THE CHILD
L'IMPORTANZA DEL GIOCO NELLE PRIME ESPERIENZE DI APPRENDIMENTO DEL
BAMBINO

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ABSTRACT

Childhood is a period of children development characterized by rapid process of maturation of the brain and the central nervous system. Motor development is the result of changes caused by physical growth, cognitive development, and the ability to interact with the environment. Therefore, the aim of this study was to explore the expansive and ever-growing literature about the impact of play activities interventions on cognitive function and motor skills development, and to analyze in which way school physical education is able to promote early learning experiences. Findings taken from the present literature research establish that play can improved motor skills of children and school appear to be the privileged place to promote these activities.

L'infanzia è un periodo dello sviluppo dei bambini caratterizzato da un rapido processo di maturazione del cervello e del sistema nervoso centrale. Lo sviluppo motorio è il risultato di cambiamenti causati dalla crescita fisica, dallo sviluppo cognitivo e dalla capacità di interagire con l'ambiente. Pertanto, lo scopo di questo studio era quello di esplorare la letteratura in continua crescita circa gli interventi riguardanti le attività di gioco sulla funzione cognitiva e sullo sviluppo delle capacità motorie e di analizzare in che modo l'educazione fisica scolastica è in grado di promuovere le prime esperienze di apprendimento dei bambini. I risultati della presente revisione della letteratura stabiliscono che il gioco può migliorare le capacità motorie dei bambini e la scuola sembra essere il luogo privilegiato per promuovere queste attività.

KEYWORDS

Academic achievement; special pedagogy; educational process
Successo scolastico; pedagogia speciale; processo educativo

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Introduction¹

Play, defined as “a volunteer and intrinsically motivated activity, performed for recreational purpose” (Garvey, 1990), carry out a significant role in the development of children. It represents the perfect lens through which children experience their inner world in relation with others. Free and socialized play has an important and fundamental function in the development of cognitive, creative, and relational abilities. It represents the main tool through which children express their identity and develop their own knowledge, even the most complex (Valentini, Pierosan, Rudisill, & Hastie, 2017).

School, kindergarten and primary, is a privileged place where it is possible to promote child development in all its aspects, motor, perceptive, emotive, cognitive, communicative, social, linguistic, and moral. To meet this need of psycho-physical development of children, school must be able to put in place a dimension where the promotion of the playful aspects is able to create a bridge between ludic and didactic activities, in order to obtain a way to make school that allows the child to freely express their identity and develop, at the same time, even the most complex knowledge (Sutapa, Pratama, Rosly, Ali, & Karakauki, 2021). In other words, school needs to be capable to put at the center of their attention the child, considering their needs (including special needs), wishes, and competence.

Until all of this may be achieved and not remain a sterile statement of principle is necessary that such pedagogical intents are placed in an educational reality able to maintain into every daily life a close relationship between learning and child's life experiences, thus giving rise to a dimension through which children are put in the best condition to achieve their full potential and become authors of their own lives (Berghänel, Schülke, & Ostner, 2015).

In this sense, school is therefore recognized as the place for construction of emotions and feelings that lead to the structuring of individual's identity in a historical moment in which the educational emergency becomes increasingly demanding in a society where the community sense fades for the absence of solid and rooted in human values social relationship.

To get onto a new pedagogical path, in which the educational choices are configured as a link between learning and real life, between motivations and child's attitude, is necessary that he might have the possibility to live a school full of stimuli, experiences, and opportunity to test themselves and assume responsibility towards oneself and for others, in order to fully unfold the functional condition to their development (Buszard, Reid, Masters, & Farrow, 2016).

¹ This article is the result of a study designed and shared between the authors. The Authors intellectually contributed to the manuscript, read the manuscript, and approved the presentation in the same way.

Traditionally, in our Country, a similar pedagogical approach is only realized within most advanced experiences as a result of sporadic educational projects promoted at local level in particular.

Experiences that have contributed to implement best practices and operate through an active and cooperative educational approach, in which have been developed an “functional didactic” able to realize a school that puts child in the center of learning process in all of their dimensions (Flores, Rodrigues, Copetti, Lopes, & Cordovil, 2019).

An educational method conceived as such, which is focused on child and the importance of play, become a fundamental pedagogical means that allows pupil to acquire knowledge in a seemingly spontaneously manner.

Within this epistemological framework, it is clear that through the playful dimension it is possible to create meaningful learnings (Suherman, Dapan, & Muktiani, 2019). Play, in fact, as complex and engaging experience that allow children to participate, to be protagonist, learn through doing in a constant and natural way, increasing their knowledge and competence includes, with different prevalence according to the type, multiple components:

- Affective (enjoyment, pleasure, relationship);
- Social (team, group of peers, respect of the rules);
- Motor and psychomotor (movement, motor skills);
- Cognitive (development of strategies, problem solving);
- Emotive (stress, competition, successful, failure);
- Cultural (form of relationship);
- Transcultural (need of shared rules, languages).

The benefits of the playful context can provide to the child’s growth and maturation may be summarized in main 3 areas related to the human development:

1. Emotional-behavioral area:
 - Play reduces fear, anxiety, stress, and irritability;
 - Creates enjoyment, self-esteem, self-confidence;
 - Improves emotivity;
 - Increases resilience, adaptability, and ability to deal with problems.
2. Social relationship area:
 - Increases empathy, compassion, sharing;
 - Creates different opportunity, choice, and problem solving;
 - Helps inclusive relationships;
 - Improves non-verbal communication,
 - Enhances attention.

3. Physical-motor area

- Positive emotions are able to improve efficiency of immune, endocrine, and cardiovascular systems;
- Reduces stress, and fatigue,
- Increases the possibility to acquire an active lifestyle;
- Improves motor skills.

Therefore, in the light of what emerged, the objective of this systematic review is to highlight how Playing is useful for children to learn to move and learn about their bodies, understand in which way play affects the development of motor skill, and which is the effectiveness of school physical education in promoting early play experiences.

1. Definitions of Play

Play is commonly associated with children's activities, nevertheless it may be practiced in each stage of life, and among other higher-functioning animals as well. Play is something that all children partake in, but the way play is practiced is different between cultures and the way that children engage with play varies universally (Libertus, & Hauf, 2017).

Play is described as an activity characterized by a series of elements. It, in fact, is not neatly defined in terms of any single characteristic, but it involves a constellation of characteristics, which have to do with the motives or mental framework underlying the observed behavior (Eberle, 2014). The main elements that characterized play are the following:

- it is self-chosen and self-directed;
- it is intrinsically motivated;
- it is guided by mental rules;
- it is imaginative;
- it is conducted in an active, alert, but relatively non-stressed frame of mind.

However, there is no universal and definitive definition that will cover all meanings given by the different actors involved in the educational process of children: researchers, teachers, parents, educators and children themselves.

Huizinga (1955), in his book "*Homo Ludens*" defines play as follows: "*Play is a free activity standing quite consciously outside 'ordinary' life as being 'not serious,' but at the same time absorbing the player intensely and utterly. It is an activity connected with no material interest, and no profit can be gained by it. It proceeds within its own proper boundaries of time and space according to fixed rules and in an orderly manner.*"

A few years later, Vygotsky (1978) described children's play as a behavior that is:

- "desired" by the child,
- "always involves an imaginary situation,"
- "always involves rules" (which are in the minds of the players and may or may not be laid down in advance).

And yet, Rubin et al. (1983), portrayed play as an activity that is:

- intrinsically motivated;
- focused on means rather than ends;
- distinct from exploratory behavior;
- non-literal (involves pretense);
- free from externally imposed rules;
- actively (not just passively) engaged in by the players.

In 2013, following a previous literature analysis Gray concluded that play can be boiled down to the five features:

- self-chosen and self-directed;
- intrinsically motivated;
- guided by mental rules;
- imaginative;
- conducted in an active, alert, but relatively non-stressed frame of mind.

Actually, one of the most accredited definitions is that proposed by Isaacs (2006): *"play encompasses children's behaviour which is freely chosen, personally directed and intrinsically motivated. It is performed for no external goal or reward and is a fundamental and integral part of healthy development - not only for individual children, but also for the society in which they live"*.

It is clear that play has the potential to promote cognitive and physical development, as well as social skills. Play is an important tool in numerous aspects of daily life and can even act as a stepping stone into the world of integration, which can be a very stressful process for certain children.

2. Methods

Research question

This review presents two main research question:

- i) Which is the role of play in developing motor skills?
- ii) Which is the effectiveness of school physical education in promoting early play experiences?

Search Strategy

This systematic review was carried out following the PRISMA statement guideline to ensure that the document is properly structured and developed (Moher, Liberati, Tetzlaff, & Altman, 2009). Two different research group developed initial research questions. According to PICOS framework, they were then modified to develop literature search strategies, taking into account participants, intervention, comparators, outcomes, and study design elements. Medline (PubMed), Google Scholar, Embase, Web of Science, and Cochrane Library were used to identified the scientific articles. The selected studies were detected utilizing the following Boolean search syntax: “((“play” or “early play”) and (“physical activity” or “physical education”)/“(skills or “motor skills”) and (role of play or “playing”)/“(“early experiences”) and (school))”. Whereupon the appropriate filters were added: text availability: full text; species: humans; languages: English. The search syntax employed for the PubMed database was a mix of the MeSH database and Boolean search syntax. On the other hand, the search strategy used for Web of Science was adjusted in a proper way. Once the selected articles were raised, a further selection was performed according to inclusion and exclusion criteria.

Identification of Studies

Studies were identified through a search of five databases (Pubmed, Google Scholar, Embase, Web of Science, and Cochrane Library). At the end of the selection process 206 articles were extracted, of which $n = 15$ from Pubmed, $n = 81$ from Google Scholar, $n = 20$ from Embase, $n = 15$ from Web of Science, and $n = 75$ from Cochrane Library. Studies were identified by searching for studies of likely relevance to the review. Thus, every title and abstract were selected removing reviews articles, unpublished studies, meta-analyses, case studies, practical guidelines and books ($n = 92$). Subsequently, full text of the remaining 114 articles were assessed to verify their eligibility. Finally, 11 research articles specifically concentrating on PA and academic performance among school-age children and adolescent were involved (Figure 1).

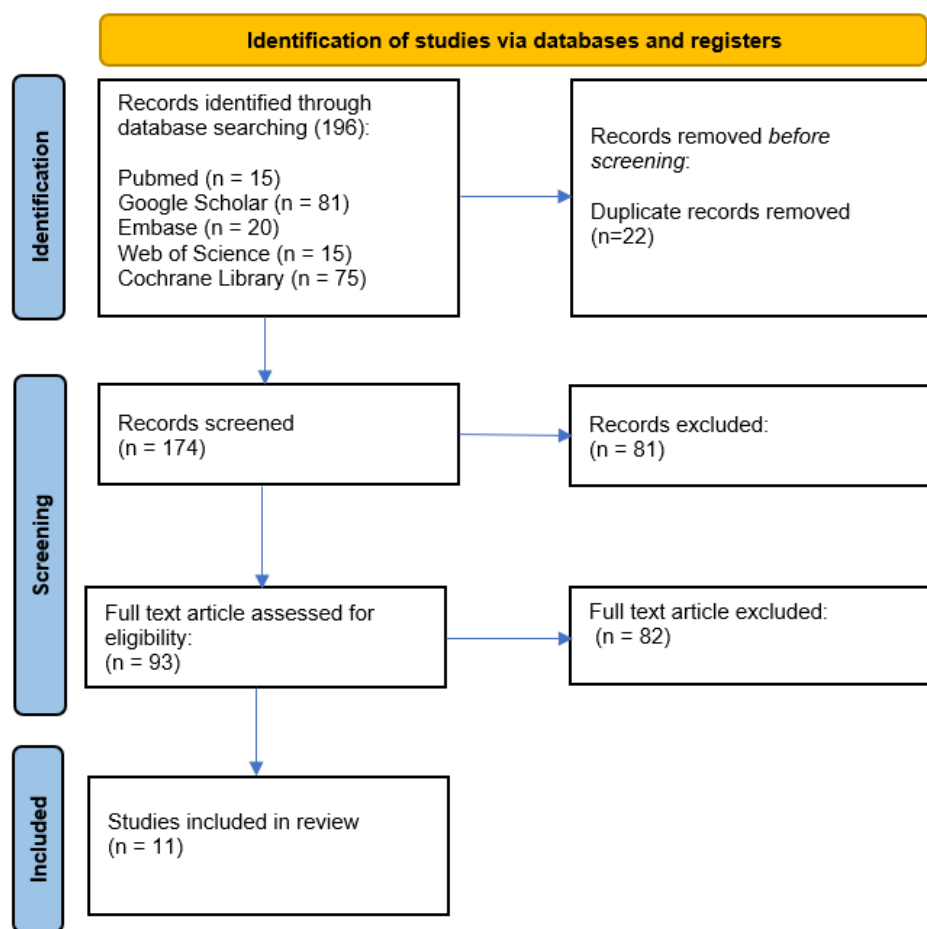


Figure 1 - The study selection and eligibility screening flow according to PRISMA guidelines.

Selection Criteria

11 studies were included in this systematic review; they explored the relationship between Play and development of motor skills and the role of school in promoting early play experiences. Studies that respected the inclusion and exclusion criteria listed below and presented relevant information on PICOS systems were considered eligible for inclusion in this review. They were:

- Participants aged between 4 and 10;
- English-language publications;
- Time interval of studies between 2013 and 2023;
- Analysis of the following indicators: development of motor skills, importance of physical education in promoting early play learning experiences;
- Inclusion of clear measures of physical activity: school physical education, active breaks at school, extracurricular physical activity.

Studies were excluded from the present review if they did not respect the above criteria or if they exclusively concentrated on the relationship between academic achievement and fitness test scores rather than on the conduct of a physical activity protocol and if they only focused on the variables of the sedentary lifestyle. In addition, were also excluded reviews (systematics or meta-analysis), and unpublished studies (reviews were utilized only as a reference to detect the original search).

	Was the treatment randomly allocated?	Was the randomization procedure described and was appropriate?	Was there a description of withdrawals and dropout?	Was there a clear description of the inclusion/exclusion criteria?	Were the methods of statistical analysis described?	Jadad score (0-5)
Kennedy-Behr et al. (2013)	No	No	No	Yes	Yes	3
Stock Palma et al. (2014)	Yes	Yes	Yes	Yes	Yes	5
Vernadakis et al. (2015)	Yes	Yes	Yes	Yes	Yes	5
Pesce et al. (2016)	Yes	Yes	Yes	Yes	Yes	5
Foulkes et al. (2017)	Yes	Yes	No	Yes	Yes	4
Ni Kadek et al. (2018)	Yes	Yes	Yes	Yes	Yes	5
Naufali Rahmanto et al. (2019)	Yes	Yes	Yes	Yes	Yes	5
Tsuda et al. (2020)	No	No	Yes	Yes	Yes	3
Cornejo et al. (2021)	No	No	Yes	Yes	Yes	3
Virkkala (2022)	No	No	Yes	Yes	Yes	3
Borhani Dizaji et al. (2023)	Yes	Yes	Yes	Yes	Yes	5

Table 1. The modified version of Jadad quality scale.

While, to assess risk of bias was used an excel graph as recommended by the Cochrane for the evaluation of risk-of-bias for randomized trials (Figure 2). This graph allows to highlight the transparency and methodological rigor of evidence synthesis results. It was performed for each included study and allowed to point out a high methodological rigor of the included studies as they showed low percentages in the risk of bias.

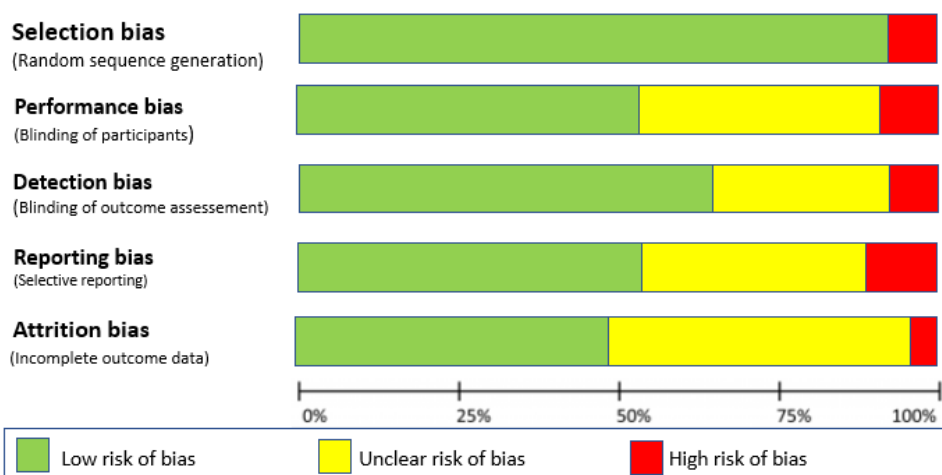


Fig. 2. – Risk of bias assessment graph.

3. Results

Study Characteristics

This systematic review gives an analysis of 11 high-quality studies (Table 2) focused on the role of play in developing motor skills and the effectiveness of school physical education in promoting early play experiences.

Authors	Samples	Objectives	Procedures	Results
Kennedy-Behr et al. (2013)	U.S.A. Participants : 120 children with and without DCD; Average ages: 4-6 yrs	A quasi-experimental design of two independent groups of preschool children	Play skills were assessed using the Revised Knox Preschool Play Scales and the Play Observation Scale based on 30 minutes of videotape of free play at preschool	Preschool children with probable DCD had a lower developmental play age and engaged less frequently in play than their typically developing peers. Given the importance of play, children with DCD need to be identified and supported to enable them to play at preschool similarly to their peers
Palma et al. (2014)	BRA Participants : 71 healthy children; Average ages: 5.58 ±0.27 yrs	3 groups randomly assigned to one control group and two experimental groups: TA and XbK	Children intermittently participated in at least 70-minutes of moderate-to vigorous PA.	The intervention enhanced children's motor skills. Findings indicate that the intervention enhanced children's motor skills, emphasizing the teacher's role in the guided play intervention as crucial to help preschool children to improve their performance.

Vernadakis et al. (2015)	EL; Participants : 228 healthy children; Average ages: 6.35 ±0.73yrs	2 groups randomly assigned to the EG and CG	The control group did not receive any structured OC skills training program, while the two experimental groups performed a specific OC skills training program for 8 weeks, two times per week, and 30 min per session.	Findings suggest that the use of XbK gaming console as an intervention is a valuable, feasible and pleasant approach in order to improve OC skills of elementary school children
Pesce et al. (2016)	IT; Participants : 460 healthy children; Average ages: 5-10 yrs	3 groups randomly assigned to enriched PE and traditional PE classes	The intervention consisted of 6-month intervention in PE, with or without playful coordinative and cognitive enrichment	The study has provided positive evidence that children assigned to the 'enriched' intervention showed more pronounced improvements in all motor coordination assessments (manual dexterity, ball skills, static/dynamic balance). The beneficial effect on ball skills was amplified by the level of spontaneous outdoor play
Foulkes et al. (2017)	U.K.; Participants : 162 healthy children; Average ages: 4.64 0.58 yrs	12 school randomly assigned to the EG and CG	Each intervention preschool received weekly Active Play sessions lasting up to 60 minutes for a 6- week period (360 minutes in total).	There were no significant differences between groups for total fundamental movement skill, object-control skill or locomotor skill scores, indicating a need for program modification to facilitate greater skill improvements
Ni Kadek et al. (2018)	IDN Participants : 49 healthy children; Average ages: 3-4 ± 1.12 yrs	2 groups randomly assigned to the EG and CG	Basic motor skills in engklek game include three motor aspect such us locomotor, nonlocomotor and manipulative movement.	The findings suggest that traditional game integrate in the learning activity can improved motor skills of children.
Naufali Rahmanto et al. (2019)	IND; Participants : 30 healthy children; Average ages: 4-6 yrs	2 groups randomly assigned to one of two experimental conditions and a control group	Authors implemented system to stimulate the development of gross motor balance and coordination in children aged 4 to 6 years using hopscotch game integrated with Internet of Things (IoT) technology	These results suggest that the use of hopscotch game integrated with Internet of Things (IoT) technology can improve motor skills.

Tsuda et al. (2020)	U.S.A.; Participants : 72 healthy children; Average ages: 9.17 yrs	Twelve classrooms within two preschools	The typical free-play time at the preschool was 30–40 min (one in the morning and one in the afternoon) monitored by a classroom teacher. Teachers did not provide structured physical activity curricula during this time.	The findings highlight the importance of developing fundamental motor skill competence and positive perceived physical competence during early childhood to enhance physical activity engagement during free-play.
Cornejo et al. (2021)	U.S.A.; Participants : 18 children with language and learning disabilities; Average ages: 3-5 yrs	cross-sectional study with 1 group assigned	Serious game used as a means to stimulate sensory-motor and cognitive skills	This investigation provides evidence that serious game are a valuable tool in order to solicitate sensory-motor and cognitive skills
Virkkala (2022)	FI; Participants : 32 healthy children; Average ages: 4-7yrs	retrospective cohort study	Children had been assessed during paediatric occupational therapy assessments, which included the Sensory Integration and Praxis Test (SIPT), clinical observations of sensorimotor abilities, and the Child-Initiated Pretend Play Assessment (ChIPPA). Parents had also completed the Sensory Processing Measure (SPM) or Sensory Processing Measure - preschool (SPM-p) questionnaires.	The preliminary results showed that individual skills do not solely affect participation in a play situation.
Borhani Dizaji et al. (2023)	IRN Participants : 40 healthy children; Average ages: 8.53±1.4yrs	3 groups randomly assigned to 2 EG and 1 CG	The designed intervention consisted of 16 sessions (two sessions (60 min per session) per week for eight weeks) involving two types of experimental protocols consisting of solitary play or group play and a control condition.	Based on these findings, solitary plays in an eight-week course are more effective in improving visuospatial skills, visual-motor integration, and visual fixation than group plays among eightyear-old girls; in contrast, group plays are more effective in improving visual

Table 2. Summary characteristics of reviewed studies.

4. Discussion

Play is an important part of a child's development. It is particularly essential in early childhood when children are growing and learning most rapidly. School represents the privileged where children interact with others, explore their environment, practice motor skills, develop creativity, and create meaning from their experiences. For these reasons, play is recognized as a meaningful tool to embed into school curriculum, in order to promote the learning through play approach. It represents an educational strategy that emphasizes the key role of play in children's learning and development enabling children to acquire new knowledge, develop their skills, and explore the environment.

Different research revised in this review argued that it is through play experiences that children build connections in the brain, which helps them to develop physically, cognitively, socially, and emotionally (Cornejo et al., 2021; Pesce et al., 2016). In fact, it is now widely proven that learning through play helps children retain information and skills better than more passive forms of instruction, since play allows to practice problem-solving, creativity, and collaboration in a safe and enjoyable environment. In this way, play allows children to establish significant connections with the world around them, grow socially, build healthy relationships, and develop language skills, as they move through the different stages of play (Lim, Donovan, Harper, & Naylor, 2017).

Play theorist Brian Sutton-Smith argued that *"Not only are children developing the neurological foundations that will enable problem solving, language and creativity, they are also learning while they are playing. They are learning how to relate to others, how to calibrate their muscles and bodies and how to think in abstract terms. Through their play children learn how to learn. What is acquired through play is not specific information, but a general mind set towards solving problems that includes both abstraction and combinatorial flexibility where children string bits of behavior together to form novel solutions to problems requiring the restructuring of thought or action... A child who is not being stimulated, by being ... played with, and who has few opportunities to explore his or her surroundings, may fail to link up fully those neural connections and pathways which will be needed for later learning"* (Sutton-Smith 1997).

Numerous scientific research has shown that it is of paramount importance to live a variety of play experiences, both indoors and outdoors, because daily play allows children to assume a variety of roles that will support growth and ultimately translate into necessary life skills.

As Palma et al. (2014) argued, in the school context, a childhood education setting designed to develop early learning experiences through play should be a place where children discover pleasure of learning through a variety of proposals. Unfortunately, current research shows how play often has been eliminated in many by many schools curriculum, sacrificing in this way an appropriate development of children and, consequently, their natural propensity towards curiosity and discovery. This decrease in gain valuable play opportunities has caused children to struggle academically. Therefore, understanding why play is important in early childhood development allows all who are involved in children education (families, educators, and administrators) to understand the true meaning of play. In this framework, School need to become advocates for the importance of play for early learners. Vygotsky, who early in this century forged an innovative theory granting great importance to social and cultural experience in development supports the idea that adults and peers naturally scaffold young children's play while nurturing situations that allow creativity and imagination throughout the school years and into early childhood. Play, in fact, realize a place of proximal development in a child. During play activities, children tend to behave above their average age and above their daily behaviors, improving in every developmental aspect (Vernadakis et al., 2015).

In this regard, it is important to create opportunity to carry out unstructured 'free play', and structured 'guided play'.

Free Play, described as a play that is child-directed, voluntary, and internally motivated, enables children to be decision makers in their learning process, self-establishing the outcomes. While children play decide what and how they are going to play, where they will play, and for how long time they will be engaged in that activity. In this way, they are intrinsically motivated, considering that there are no external expectations or concepts set by adults. It is through the observation of children who play freely that teachers can plan the curriculum to build on the student's skills and attitudes. Moreover, in absence of restriction children's imagination and creativity grow, given that they have the opportunity to explore ideas and interact with surrounding environment. As children begin to master the world around them, they begin to develop new cognitive and motor competencies that can lead to enhance their own unique potential. This allows children to discover new interests, practice and master cognitive and physical skills, process information, and improve their social and language skills (Virkkala, 2022).

On the other hand, guided play makes it possible to learning experiences that combine the child attitude of free play with a focus on learning objectives and outcomes thorough teacher scaffolding. For this reason, it is of paramount importance that school provides high-quality, enjoyable, and challenging planned experiences for children's play in order to support their learning process in a meaningful way. Thereby, they develop flexible thinking as they work towards their

goal, reflect on the process, and gain in literacy and numeracy than explicit instruction. This opportunity allows children to learn how to work in a group together, to share, negotiate, resolve conflicts, and learn self-advocacy skills (Kennedy-Behr, 2013).

Within this theoretical framework, it is evident how the purpose of preschool and primary school is to encourage children to explore, wonder, create, fail, discover, manage conflicts, solve problems, try, persevere, help, and learn to love to learn through a variety of experiences through play. Teachers need to provide play experiences in their classroom. Several of appropriate approaches are used to implemented play experiences in classroom setting. One of these best practices is student-centered and play- based instruction, in place of teacher-directed instruction. Following this approach, students is involved in the investigation and discovery of their own knowledge and learning (Foulkes et al., 2017). Thus, children become active participants in cooperative learning. This type of learning enables children to build and extend their prior knowledge and experiences, as they are able to interact with their environment and practicing their motor skills (Ni Kadek et al., 2018).

In this context, active play has a crucial role in developing children's motor skills. Childhood, in fact, is considered the golden age for solicitate them. At this time the development of the nervous system is at is highest, thus the stimulation will greatly help accelerate the development of motor skills. In this regard, several evidence show that cognitive process are developed along with motor skills (Tsuda et al., 2020). It is well known that this achievement is determined from the opportunities provided by the surrounding environment (Pesce et al., 2016). The play experiences in diverse tasks and in the early years appear to be of paramount importance for the learning of more sophisticated motor skills (Naufali Rahmanto et al., 2019).

The playing experience become meaningful for the motor learning process if it is sustained and guided by rigorous didactic choices and different and complementary teaching styles: they are a crucial point on par with educational strategies proposed, in fact, they allow not only to solicitate in the pupil various modes of learning, but also respect individual ways and times in order to acquire motor skills and knowledge or reprocess those already held (Colella, 2016).

Especially in the context of primary school, play enables the learning of the execution variables of the basic motor skills, in order to promote on the one hand motor development, on the other to solicitate, at the same time, the development of the perception of competence and the metacognitive processes. Discovering execution variables of a motor task, in fact, the practice variation reflects different ways of teaching and learning (Tsuda et al., 2020). To be able to produce several and various motor responses means providing pupils with a wide repertoire, in qualitative and quantitative terms, of means to solve problems that they will face

in certain contexts, whose amplitude is directly proportional to the opportunity received through the execution variables (Naufali Rahmanto et al., 2019; Ni Kadek et al., 2018).

Therefore, there is a need to implemented programs oriented on children's developmental requirements, providing them with opportunities to constantly overcome motor challenges and, consequently, to enhance their performance even over a short period of time.

Study limitations and strenghts

The main limitation of this systematic review was attributable to the search range. The studies used were limited to the last ten years to provide an up-to-date framework of the present state of research. Therefore, such a short amount of time may have leave out studies of significant interest in the national and international panorama. A further limitation may concern the selection of only longitudinal and experimental studies. Moreover, all searches were limited to English language documents published in peer-reviewed journals. This possibly introduced a language bias, as there may exist papers that discuss this topic in other languages.

In terms of strengths, we systematically searched four databases with comprehensive search strings previously developed in an effort to identify research that supports our hypothesis.

Conclusions

This systematic review allowed the identification of scientific studies about the role of play in children's education and cognitive and motor development, focusing on methodologies used at school, identifying the critical factors and gaps, and results of those implemented programs.

Developing playful education programs enhance children experiences with movement variability and strategies is essential to develop competence in fundamental motor skills that will serve as the building blocks for future motor skills fullness and physical activity.

Therefore, we concluded that playful learning in kindergarten and primary school must have the aim of building adequate movement skills and developing cognitive, motor and affective functions, so that they could become abilities possessed by students as provisions in carrying out daily life and future.

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Authors' contribution

Author 1 designed the study, conducted the research, collected data, interpreted the data, wrote and revised the manuscript. Author 2 collected data, was involved in the interpretation of data and revised the manuscript.

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