

A systematic review of the impact of psychomotor development on learning processes in preschool and elementary school children

Una revisión sistemática sobre el impacto del desarrollo psicomotor en los procesos de aprendizaje en niños de preescolar y básica primaria

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SUMMARY

This study aimed to review scientific literature on the impact of psychomotor development on learning in preschool and elementary school children. The methodology employed was a systematic review of studies from the past five years, utilizing the PRISMA system and drawing on the PubMed, ScienceDirect, Web of Science, and Scopus databases. The keywords used were psychomotor development, learning, cognition, and preschool and elementary school children. The sample consisted of 33 scientific articles that met the inclusion criteria. The most significant findings revealed that incorporating psychomotor

skills into early childhood education, combined with a balanced use of technology, can provide an effective approach for the holistic development of children, preparing them to face the challenges of a rapidly transforming world.

Keywords: Systematic review, psychomotor development, learning, boys, girls.

RESUMEN

El propósito fue realizar una revisión de la literatura científica sobre el impacto del desarrollo psicomotor

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en el aprendizaje de niños de preescolar y básica primaria. La metodología utilizada fue una revisión sistemática de estudios de los últimos cinco años empleando el sistema PRISMA y teniendo en cuenta las bases de datos PubMed, Science Direct, Web of Science y la base de datos Scopus. Las palabras clave utilizadas fueron: desarrollo psicomotor, aprendizaje, cognición y niños de preescolar y primaria básica. La muestra estuvo compuesta por 33 artículos científicos, los cuales cumplieron con los criterios de inclusión. Los hallazgos más significativos mostraron que la incorporación de la psicomotricidad en la educación infantil, junto con un uso equilibrado de la tecnología, puede ofrecer un enfoque efectivo para el desarrollo integral de los niños, preparándolos para enfrentar los retos de un mundo en constante transformación.

Palabras clave: Revisión sistemática, desarrollo psicomotor, aprendizaje, niños, niñas.

INTRODUCTION

Psychomotor skills are one of the most important factors in human development, as they are related to the connection between movement and thought. This comprehensive approach allows the integration of various areas of interdisciplinary development, ensuring optimal functioning that favors the integral growth of children.

Psychomotor therapy is used to address motor, cognitive, and psychological developmental difficulties in children and adults. This includes learning disabilities, cognitive disorders, and difficulties related to mood and anxiety. Additionally, it is crucial for enhancing trunk strength and control, which in turn contributes to improved balance and physical strength (1). It is worth noting that motor skills also contribute to improving psychological well-being and psychosocial aspects.

It is also crucial to understand the functioning of the central nervous system, which regulates and coordinates movements. Stimulation in infancy brings numerous benefits to overall development, as children who receive more stimulation in psychomotor processes develop significant skills for growth and autonomy more easily (2). Thinking skills are closely linked to a child's ability to perform specific tasks, including psychomotor skills and intelligence, suggesting

that adequate motor development complements these functions, thereby optimizing overall human performance (3).

Motor difficulties can influence balance and coordination, making them essential for interdisciplinary interventions. These difficulties can enhance emotional intelligence and contribute to the development of motor skills, promoting self-esteem and cognitive processes, thereby facilitating the integral development of children (4).

Based on the evidence, establishing a therapeutic procedure of intervention or stimulation in the psychomotor area can facilitate the physical, emotional, and cognitive development of children, resulting in improvements in self-awareness and self-confidence, which promotes the optimal development of emotional intelligence in line with their overall growth (5).

Early childhood is an appropriate period for developing gross motor skills and harmonious coordination of movements, which is the foundation for cognitive learning. Therefore, it is necessary to organize activities for homes and schools, where children spend most of their time, to improve these dynamics (6).

Body movements can regulate actions, promoting involuntary responses that stimulate sensory receptors and improve balance and coordination. This strengthens the muscular system and increases the capacity for protective reactions. Therefore, the responsibility for this process lies with the stimulation provided by parents and educators who care for the children (7).

In addition, psychomotor activity not only impacts learning processes but also benefits the immune system and the central nervous system, as it is related to proper hormonal functioning and the adequate activity of neurotransmitters. This promotes an autonomous defense that directly influences the emotional and psychological aspects of children's behavior, facilitating the myelination necessary for significant learning during the preschool and primary school stages (8).

Based on the above, the following question arises: What is the impact of psychomotor development on learning processes in preschool

and elementary school children? Thus, this study aimed to review scientific literature on the impact of psychomotor development on learning in preschool and elementary school children.

MATERIALS AND METHODS

The methodology incorporates quantitative elements and is characterized as a systematic bibliometric review configured according to the guidelines of the PRISMA statement (2020). This methodology utilizes Boolean equations for the search, enabling the identification, selection, orientation, analysis, and characterization of relevant papers published in open-access

scientific journals, such as Open Journal Systems (OJS). The research was based on results obtained from subscription databases, including Scopus, PubMed, and Web of Science (9).

The categories of analysis selected for this research were psychomotor development, learning, cognition, and preschool and elementary school children. The sample consisted of 33 published scientific papers, selected from primary and secondary sources, covering the period from 2019 to 2024, and published in both Spanish and English. For the search, international databases such as Scopus, PubMed, and Web of Science were utilized, employing Boolean operators (AND, OR, and NOT) in accordance with a specific algorithm (Table 1).

Table 1. Equations

("Psicomotricidad" and "Aprendizaje" or = "Cognicion" not = "adolescentes" "influencias motoras" and "Niños" or "Cognitivo" or "Desarrollo" not = "adultos mayor" "Psicomotor" and "preescolar y primaria" or "infantes" not Discapacidad "Habilidades motoras" and "Contribuciones" or "Infancia" not Adulto joven "Destreza corporal" and "Desarrollo cognositivo" or "Inteligencia" or "Impuber" not Secundaria "Locomocion" and "Aportes" or "Conocimientos" or "Aprender" not "Deterioro" "Psychomotricity" and "Learning" or = "Cognition" not = "adolescents" "Motor influences" and "Children" or "Cognitive" or "Development" not = "older adults" "Psychomotor" and "preschool and primary" or "infants" not Disability "Motor skills" and "Contributions" or "Childhood" not Young adult "Body dexterity" and "Cognitive development" or "Intelligence" or "Ipuber" not Secondary "Locomotion" and "Contributions" or "Knowledge" or "Learning" not "Deterioration")

The inclusion and exclusion criteria, as well as other data used for selecting scientific texts, are presented in Table 2. Additionally, the search procedure and data collection process are thoroughly detailed. The strategy used for collecting information is based on four key factors: the type of paper, the subject of interest, the time, and the variables.

These criteria allow for a rigorous and appropriate selection of relevant literature, ensuring that the included studies effectively address the research objectives and contribute to the understanding of the topics of interest in the field of psychomotor development and learning in preschool and elementary school children.

In proportion to the group criteria of the studies for their synthesis, a significant number was found for each database, which contributed

to the development and revision of the text. Considering the above, the number of documents identified was used to create a flowchart for the data extraction process.

Selection of the studies

In selecting articles, a time window of the last five years was considered, relating to the categories developed. Research studies published on closed-access scientific platforms or journals were excluded, as were duplicate texts and research. Additionally, works that did not align with the categories of interest were excluded. Priority was given to complete and available scientific papers, excluding abstracts and research notes (Tables 2,3,4, and 5).

Table 2. Inclusion and exclusion criteria.

Inclusion criteria	Exclusion criteria
<p>The inclusion criteria are directly related to the following requirements.</p> <ul style="list-style-type: none"> - Time window period of the last five years. - Scientific papers in Spanish and English languages. - Research consistent with the categories of scientific work. 	<p>Papers were excluded if they did not meet the following criteria.</p> <ul style="list-style-type: none"> - Reflective works - Books or book chapters - Abstracts or essays - Research papers unrelated to the study categories
Search procedure	Data collection process
<p>Elaboration through tracing in various databases, as applicable, based on contributions and articles published on the subject. We worked with scientific texts published within the last five years in both Spanish and English. The categories of psychomotor skills, learning, cognition, and preschool and elementary school children were considered.</p>	<p>The collection was developed using the PRISMA methodology to identify the various fields of knowledge where the categories of study relevant to the research topic are registered. It has aspired to respond to the scientific collective, with each scientific contribution published on the research topic. Systematic reviews facilitate the development of theoretical foundations, providing a wealth of resources on the research topic. It is essential to note that different synonyms were included for each concept to broaden the scope of the search and increase the likelihood of identifying numerous relevant studies that align with the research question.</p>

Table 3. Cross-referencing of search terms in databases.

Search	Databases	Final result				
“Psicomotricidad” and “Aprendizaje” or = “Cognicion” not = “adolescentes” “influencias motoras” and “Niños” or “Cognitivo” or “Desarrollo” not= “adultos mayor” “Psicomotor” and “preescolar y primaria” or “infantes” not Discapacidad “Habilidades motoras” and “Contribuciones” or “Infancia” not Adulto joven “Destreza corporal” and “Desarrollo cognositivo” or “Inteligencia” or “Impuber” not Secundaria “Locomocion” and “Aportes” or “Conocimientos” or “Aprender” not “Deterioro ” “Psychomotricity” and “Learning” or = “Cognition” not = “adolescents” “Motor influences” and “Children” or “Cognitive” or “Development” not = “older adults” “Psychomotor” and “preschool and primary” or “infants” not Disability “Motor skills” and “Contributions” or “Childhood” not Young adult “Body dexterity” and “Cognitive development” or “Intelligence” or “Ipuber” not Secondary “Locomotion” and “Contributions” or “Knowledge” or “Learning” not “Deterioration”	Scopus	612	818	450	820	
	PubMed	708	680	245	280	
	Web of Science	420	622	355	620	
	Total	1740	2120	1050	1720	

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Table 4. Results total number of texts per database

Databases	Final result
Scopus	2 700
PubMed	1 913
Web of Science	2 017
Total	6 630

Table 5. Process of identification, elimination, and selection of items.

Algorithm	Number of Articles in Language	Databases	No filter	No access	Revisions/incomplete/duplicates	Does not meet criteria	Selection
Boolean operators AND, OR y NOT	Spanish 5 000	Scopus	2 090	940	700	498	12
		PubMed	2 470	1 200	1 020	202	10
	English 1 630	Web of Science	2 070	1 600	400	33	11
		Total	6 630	3 740	2 120	737	33

RESULTS

A total of 33 articles relevant to the search combinations and meeting the established inclusion criteria were identified, all of which were published between 2019 and 2024. The primary topics of interest were psychomotor development, learning, cognition, and the development of preschool and elementary school children. Figure 1 shows the study selection process, and Table 6 presents the characteristics of the studies.

Through the work of analysis of reviewed studies it was found that psychomotor activity is a fundamental element for children in their development processes in the years where they go through preschool and elementary school, body activity positively favors motor coordination by providing a harmonious and coherent movement with the context, in addition to its contributions to the personality are important for this phase of development, while psychomotor activity through

the body scheme allows communication, this due to the articulation of the body and movement (5).

It is crucial to highlight that psychomotricity is a method that facilitates the full expression of the body, in addition to contributing to the improvement of the child's psychological abilities. On the other hand, it is also used as a therapeutic and educational resource. It contributes to promoting fine and gross motor skills, evidencing the child's creative ability; that is to say, it fosters the child's invention and ability to symbolize. Additionally, it enables the identification of pathological behaviors that disrupt the child's coordination and development (43).

The classes encourage holistic growth that boosts the different physical, emotional and cognitive areas of the children. It is crucial to highlight that these developmental skills facilitate the improvement of emotional and behavioral processes, which can enhance emotional states. Psychomotor skills help promote serotonin

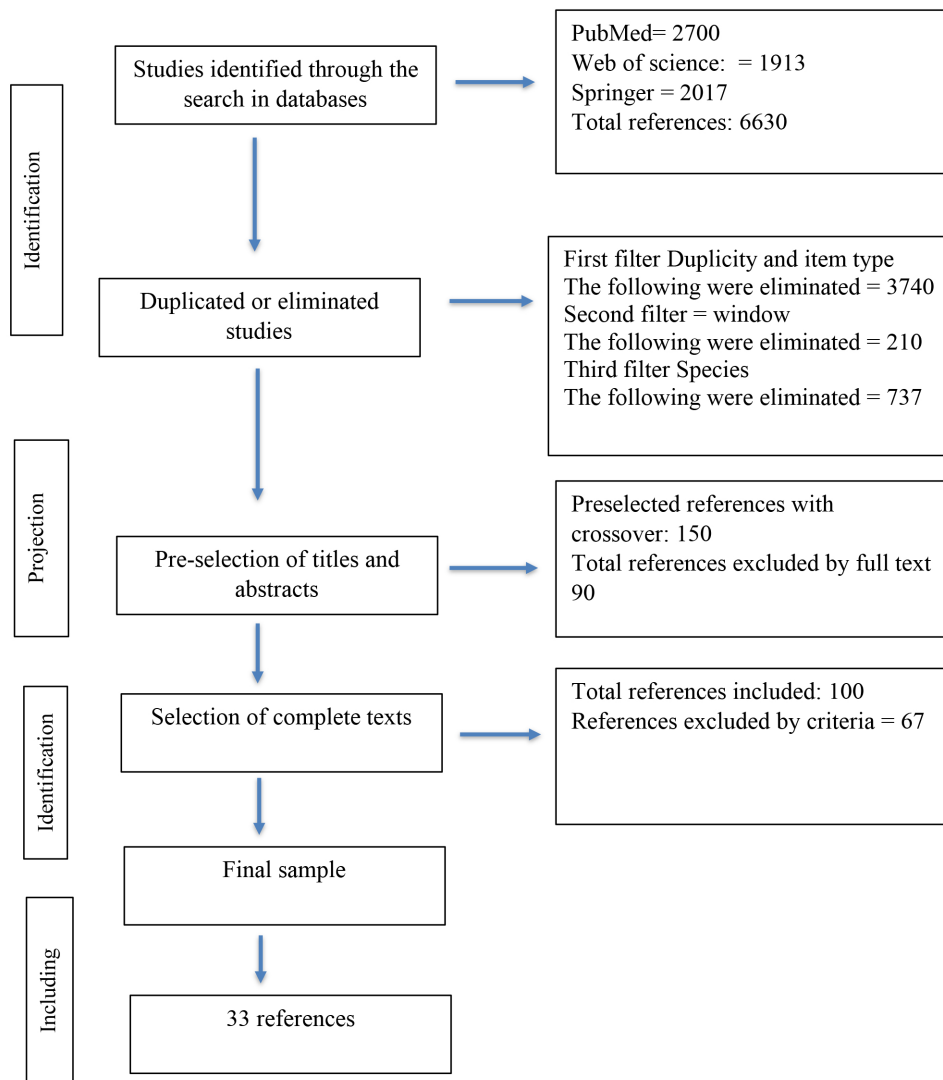


Figure 1. Study selection flowchart.

stimulation, which in turn helps maintain a balance in emotional states. This allows for good development and avoids alterations that can lead to suicidal pathologies (8).

Psychomotor development and learning are closely linked, allowing every child to improve their performance and receive adequate stimulation. This is achieved through participation in various activities that promote motor development that are in tune with age and specific characteristics. Psychomotor skills

promote the development of cognitive abilities and facilitate learning accurately, while the term cognition refers to thinking and encompasses the basic processes of learning (44).

The processes that promote learning are linked to the stimuli received through the various sensory channels and organs. Therefore, all experiences are documented considering motivation, context, and current circumstances. From a neurological point of view, psychomotor skills facilitate the cerebellum to contribute to the combination

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Table 6. Characterization of the studies included in the systematic review

N	Authors	Keywords/variables	Main results	Contributions
1	Reyes et al. (10)	Neurodevelopment, Psychomotor development, social isolation.	The identification of possible deficits by domains, according to developmental coefficients, shows a high percentage of accelerated coefficients in the communicative area. In the adaptive and cognitive areas, the average values are more outstanding.	The COVID-19 pandemic situation is associated with an increase in variables that influence infant development. Affecting cognitive and social areas.
2	Figueroa et al. (11)	Psychomotor development, preschools, child development centers, Development Centers	The findings revealed deficiencies in the psychomotor development of the participating subjects, particularly in language.	Most of the population shows impairment in the area of language. The findings indicate that psychomotor progress is influenced by nutritional well-being and family structure. The incidence of delayed psychomotor development is considerably higher among children suffering from malnutrition and those from large families.
3	Cóndor Chicaiza et al. (12)	Physical Education; Methodology; Motricity, Curriculum.	Improvement in gross motor skills was observed after the implementation of the Active Microcurricular Learning Model.	The statistical results show that the applied model is effective for children aged 5 to 6 years.
4	Zambrano et al. (13)	Gross motor skills, initial education, fine motor skills.	Low levels of fine and gross motor skills were observed in the participants.	The impact of playful games on infants' motor skills and interaction is reinforced.
5	Morillo (14)	Motricity, Physical Activity, and Physical Education.	The findings indicate the importance of physical activity as it contributes to cognitive development, basic physical skills, and academic performance.	Regular participation in physical activities yields benefits for children's learning.
6	Bernate (15)	Physical Education; School; Motricity.	The researchers reinforced the hypothesis regarding the relevance of play as a primary resource for developing motor skills in preschool children.	Motor skills should play an important role in the curriculum, both inside and outside the classroom.
7	García-Marín et al. (16)	Preschoolers, gender, motor development, assessment.	In this study on the analysis of motor skills, the authors reported a low level of performance among the participating subjects.	Researchers recommend increasing practice opportunities in early childhood education centers.
8	Linzán-Molina et al. (17)	Dance; psychomotor activities; pedagogical strategies; children.	Dance contributes to the knowledge and care of body parts. It also helps children to recognize their motor skills.	Pedagogical strategies aimed at implementing psychomotor activities in high school children were developed in order to analyze them and propose improvements in their psychomotor development. This allowed for the validation of each one in promoting psychomotor skills in children, using dance as a tool.
9	Ramírez et al. (18)	Development Psychomotor, Traditional games, Psychomotricity.	The children show certain psychomotor weaknesses, and teachers rarely plan activities to strengthen this area. Moreover, they do not often use traditional games for this purpose.	Psychomotor skills are not limited to body movements; they also encompass self-awareness, interpersonal relationships, communication, as well as security, confidence, and self-acceptance.
10	Coloma et al. (19)	Psychomotor skills, intervention program, stimulation, digital tweezers.	The results of this research demonstrate a significant correlation between the acquisition of literacy and psychomotor skills in the evaluated children.	Psychomotor skills are essential for the development of reading and writing, through coordination games and laterality, balance, and spatial perception exercises. These activities enhance the psychoeducational skills essential for the reading and writing processes. In addition, psychomotricity promotes the creation of mental schemes that facilitate the comprehension of abstract concepts, which are fundamental to understanding and producing texts.

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...continuation Table 6. Characterization of the studies included in the systematic review.

N	Authors	Keywords/variables	Main results	Contributions
11	Arreaga et al. (20)	Coordination, Preschool, Motor behaviors, and balance.	The work in favor of psychomotor development generates neural connections that support cognitive and social development in children.	Psychomotor development is socially constructed through diverse stimuli that integrate the psychological, affective, social, and motor aspects, which contribute to the formation of the individual.
12	Acosta Isidor et al. (21)	Movement perception, teaching in childhood, child development.	The advancement of perceptual-motor development is linked to the central nervous system.	The development of motor skills can be improved through motor intervention, thanks to the link between the central nervous system and perception.
13	León Castro et al. (22)	Psychomotor skills: fine and gross motor skills.	Psychomotor skills should not be considered only as a method; they are, in fact, a unique approach to the child and their development.	Psychomotor skills help children acquire skills such as balance, body control, laterality, and reflexes.
14	Albarracín et al. (23)	Coexistence; learning environment; infants.	The implementation of the Psychomotricity proposal enabled the gradual establishment of new forms of socialization.	The intervention carried out to promote psychomotor skills allowed us to reflect on the use of didactic activities that help to stimulate infants.
15	Flores and Pantoja (24)	Psychomotor skills, sociomotor interaction, and cooperative learning. Cooperative learning.	The findings showed a low percentage in the pre-evaluation and a significant increase in the post-evaluation, indicating improvements in the psychomotor skills of the children.	The research is relevant because it provides important insights into social interaction, physical activity, and their impact on psychomotor development in early ages.
16	Rocha et al. (25)	Autism spectrum disorders; Physical education, Motor development.	The studies show a high methodological quality and indicate that there is a deficit in the motor skills of children with autism. This deficiency is manifested in aspects such as muscular strength, agility, and coordination.	The above results are explained by the researchers, who take into account the low participation in physical education among children with this difficulty, which leads to increased physical inactivity.
17	Moreira et al. (26)	Learning, preschool, psychomotor, perceived competence.	The pre- and post-intervention comparison revealed significant differences in perceived physical competence.	The research carried out recognizes the importance of Educational Psychomotor Intervention in early childhood development.
18	Aguilar Vergara and Bravo Zambonino (27)	Psychomotricity, play-work, integral development.	It has been determined that teachers often lack knowledge on the subject, which leads to inadequate development of motor skills.	For future research, we suggest creating a play circuit guide tailored to the most challenging components of play for children, while not neglecting the fundamental role of teachers.
19	Solis and Rovalino (28)	Children, Social Isolation health personnel.	Most of the children evaluated had adequate levels of fine and gross motor skills.	COVID-19 is associated with increased factors that affect psychomotor skills.
20	Gómez and Vidaurre (29)	Early childhood education, psychomotor skills, prevention, retardation.	The Psychomotor model used evidence improvements in the motor development of the evaluated subjects.	The experiential psychomotor methodology improves the motor skills of infants, both those with and without motor development difficulties, bringing their psychomotor level in line with their chronological age.
21	Fernández and Sánchez (30)	Motor skills, children.	Boys presented higher scores in locomotion skills, object control, and total fundamental motor skills compared to girls.	It is recommended that gender differences be considered in Physical Education courses when promoting fundamental motor skills.
22	Cevallos and Chimborazo (31)	Child Development: Physical Skills, Mental Skills, and Children.	The results indicate that the pedagogical strategies employed with the participating children have a positive impact on their cognitive and psychomotor development.	The family plays a crucial role in developing these skills through play and social interaction.

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...continuation Table 6. Characterization of the studies included in the systematic review.

N	Authors	Keywords/variables	Main results	Contributions
23	Chimborazo (31)	Traditional games; gross motor skills; movement.	Play activities have a great influence on motor development, which in turn is related to the cognitive development of children.	Gross motor skills are enhanced through play and are particularly relevant to development during the school-age years.
24	Molina and Caicedo (32)	Early stimulation, psychomotor development, childhood, human development. development.	An effective early stimulation system has a positive impact on the psychomotor skills of infants.	Early stimulation is crucial for promoting social skills and proper psychomotor development in children.
25	Ureta et al. (34)	Psychomotor development, Nursing, Education.	Psychomotor development in the early stages is of vital importance and, therefore, requires the intervention of professionals in the fields of education and health sciences, as well as the involvement of families and caregivers.	Promoting knowledge about early stimulation and the importance of using didactic resources facilitates neuronal and psychomotor development, helping to prevent complications that may arise due to lack of information.
26	Panchana and Rivera (35)	Psychomotricity, integral development, children, social inclusion., Social.	The implementation of psychomotor programs benefits children's academic performance, helps reduce behavioral difficulties, and improves the motor skills of infants.	Psychomotor skills prove to be a valuable element to promote the integral development of infants.
27	Alonso and Pazos (36)	Motor Skills, Difficulties, Programming, Early Childhood Education.	Although motor skills are essential for comprehensive training, university education often fails to provide them with the necessary attention.	It is essential to recognize the value that early childhood education teachers place on motor work. It has been noted that all the teachers surveyed consider the teaching of motor skills from the earliest ages to be relevant.
28	Reyes et al. (37)	Profile, childhood, psychomotor development.	The findings show that most children present a normal profile, although dyspraxia predominated.	Most of the subjects evaluated present a eupractic profile. This suggests the need to implement individualized school programs to prevent potential disruptions.
29	Martínez et al. (38)	Child development; motor skills; preschool education.	No significant differences were observed in motor skills since similar values were obtained in spatial orientation as well as in fine and gross motor skills. This indicates that there are no variations in the psychomotor profile according to sex.	The time factor is significant when subjects receive stimulation, so it must be considered in any therapeutic or learning process.
30	Gonzales (39)	Motor skills; Coordination; Motor skills; Cognitive development.	Existence of correlation between initial literacy learning and psychomotor development in infants.	It is essential to prioritize psychomotor development and deepen the dimensions of coordination and motor skills to improve their predisposition towards reading and writing.
31	Sáez et al. (40)	Psychomotor development, motivation, Early Childhood Education.	The results show a positive relationship between psychomotor skills and academic performance.	The perspective offered by this research reinforces the idea that psychomotor developmental factors play a crucial role as facilitators of other cognitive and behavioral acquisitions.
32	Cevallos et al. (41)	Psychomotor development, Academic performance, Early intervention.	Psychomotor skills at an early age are key to basic education. Therefore, interdisciplinary work is necessary.	This research highlights the importance of making interventions at an early age. It highlights the importance of implementing educational policies that incorporate physical activity into the curriculum to promote comprehensive education.
33	Calderón and Gamez (42)	Learning, psychomotor, development.	A positive outlook is evident in psychomotor development and child learning, particularly in the areas of gross and fine motor skills.	In this study, most of the children demonstrate adequate progress in psychomotor development and learning.

of balance and all movements associated with proprioceptive elements. In this way, these cognitive abilities are linked to learning and can be methods of intervention in pathological problems that may interfere with the learning process (45).

Cognitive development is closely linked to the knowledge acquired about the environment. Additionally, it enables the diversification of skills and intelligence. This means that it promotes the integral stimulation of development in the motor, emotional, cognitive, and social areas of all children based on movement and execution.

On the other hand, psychomotor skills in preschool and elementary school children play a significant role in cognitive development. Children who possess good coordination, control, and balance will have a greater capacity to achieve learning development and enhance the development of basic learning skills (46).

It is crucial to highlight that the application of play strategies promotes psychomotor skills, which in turn promotes cognitive processes. Therefore, early stimulation has a beneficial effect on all children's development, fostering appropriate cognitive processes, improved body schema management, and the skills and abilities necessary for learning (47).

DISCUSSION

Psychomotor skills have a direct relationship with the psyche and motor skills, their purpose is to facilitate the child's flexible adaptation to the surrounding environment. It is holistic, integrating the internal and external worlds, and promotes self-recognition to enhance adaptive skills. Psychomotor skills are essential to learn, as they form the foundation for realizing body scheme movements and visual-motor coordination. They also promote the development of taste in children by elaborating on body movements, taking into account the maturation of basic neuro-motor behaviors (48).

For Prada (1), learning psychomotor skills is fundamental, as it establishes the basis for executing movements related to the body schema and visual-motor coordination. Through

psychomotor practice, children develop a taste for movement, which contributes to their physical and emotional well-being. Additionally, the focus on the maturation of basic neuromotor behaviors is crucial, as these skills are fundamental to the later development of more complex competencies (49).

Although today's technology contributes to improving and facilitating stimulation processes through cell phones, in certain places, the excessive use of this technology may represent a problem. Children who are not regulated will probably not possess the psychomotor skills fostered, especially in the early stages. For this reason, it is necessary to alternate technology and psychomotor skills in a balanced manner to foster thinking skills that impact children's cognitive development processes (50).

To maximize cognitive and motor development, it is critical to implement an approach that healthily combines technology with psychomotor skills. Not only can this help promote problem-solving, but it can also ensure that children maintain adequate motor development that enhances their learning and adaptation to the environment. Thus, the integration of psychomotor skills in early childhood education, combined with a balanced use of technology, can provide an effective path towards the holistic development of children, thereby preparing future generations to face a constantly changing world.

CONCLUSION

From the literature review, it can be concluded that psychomotor skills are an essential element in the integral development of children, as they have a direct relationship with both cognitive and motor skills. The primary goal is to enable the child to adjust to their environment adaptively, fostering an integration that encompasses both their internal and external worlds. This perspective not only fosters self-awareness but also promotes the development of adaptive skills vital for personal and social development.

Through psychomotor activity, children cultivate an appreciation for movement, which promotes their physical and emotional health. In addition, it is crucial to focus on the development

of basic neuromotor behaviors, as these abilities are fundamental to the advancement of more sophisticated skills in the child's future.

On the other hand, to maximize children's cognitive and motor development, it is crucial to adopt an approach that involves the healthy use of technology with psychomotor skills. Not only can this promote critical analysis and problem-solving skills, but it also ensures that children develop the appropriate motor skills necessary for their learning process and adaptation to the environment.

In addition it is essential not to overlook the emotional aspect, as it is closely linked to the development of motor skills in children and plays a crucial role in their cognitive functioning. This is due to the experiences they undergo in the physical realm during classes related to physical activity. Therefore, it is necessary to organize interventions with interdisciplinary teams that incorporate the importance of emotions in children to achieve meaningful learning that transforms their reality.

REFERENCES

1. Prada L. Psychomotor skills in the development of reading and writing in early education. Documentary review. *Horizontes. J Res Educ Scien.* 2024;8(33):1108-1121.
2. Atencio L, Suárez J, Marlene H. Psychomotor skills and learning: A review of literature in the last 5 years. *Climatol Magaz Spec Edit Soc Scien.* 2023;23:3090.
3. Hernández-Flórez N, Lhoeste-Charris A, Moncada-Navas F, Rodríguez Ávila Y, Barboza Hernández J. Suicide risk factors in university students: A review from the literature. *Ciencia Latina Rev Cient Multidiscip.* 2022;6(6):2726-2751.
4. García L, Aguirre C, Elizabeth M. Development of critical thinking in teachers in training: a view from problem-based learning and the use of technologies. *Iberian J Inform Systems Technol.* 2021;8(44):63-79.
5. Andreu E, Romero-Naranjo J. Neuromotricity, Psychomotricity and motor skills. new methodological approaches. *Retos.* 2021;42:924-938.
6. Prieto J, Galán N, Barrero D. The psychomotor skills room for physical education work in early childhood education: an exploratory study. *Challenges: New Trends In Physical Education, Sport, and Recreation.* 2021;39:106-111.
7. Miraflores E, Goldaracena I. Analysis of psychomotor skills through the psychomotor practice of Bernard Au-couturier: case study. *Challenges: New Trends In Physical Education, Sport, and Recreation.* 2039:620-627.
8. Hernández-Flórez J, Ortiz-González L, Lhoeste-Charris Á, Klimenko O, Moncada-Navas F, Hernández-Flórez N. Emotions, anxiety, depression and the immune system: An integrative view of psychoneuroimmunology from a meta-analytic review of the narrative. *Gac Méd Caracas.* 2023;131(Supl 3):S444-S463.
9. López-Rodríguez C, Calderón-Salguero, L Mora-Ortiz M. The Internationalization of Services: A Bibliometric Analysis and Systematic Review of the Literature from 2000 to 2021. *Rev Fac Cienc Económ: Res Reflec.* 2022;30(1):145-164.
10. Sánchez-Reyes LG, Ramon-Santana AC, Mayorga-Santana VE. Desarrollo Psicomotriz en niños en el contexto del confinamiento por la pandemia del COVID-19, Dialnet. *Dominio de las Ciencias.* 2020;6(4):203-219.
11. Heras Figueroa KF, Berrezueata Fernández MB, Loja Pañi JG, Conce Zaruma MA. Evaluation of psychomotor development in preschoolers attending child development centers in Cuenca, Ecuador. *Imagin Soc J.* 2024;7(4):21-35.
12. Córdor G, Córdor C, Paz S, Romero F, Barba C. Motor development: An application of the active microcurricular learning model. *Podium. J Scien Technol Phys Culture.* 2021;16(3):934-946.
13. Zambrano P, Salvatierra P, Chávez A, Rojas R. Physical spaces inside and outside the classroom and their impact on the development of motor skills of children in early childhood education. *Tlatemoani: Acad Res J.* 2019;10(30):249-269.
14. Morillo P. Importance of physical activity in motor development in elementary level GBS students. *Science Proficiency.* 2024;10(2):1890-1911.
15. Bernate J. Physical education and its contribution to the integral development of motor skills. *Podium. J Scien Technol Phys Culture.* 2021;16(2):643-661.
16. García-Marín P, Fernández-López N. The competence of motor skills in early childhood education. *Apunts. Phys Educ Sports.* 2020;3(141):21-32.
17. Linzán D, Moreira L, Delgado E, Macías R, Aguilera K, Molina J. Diagnostic study of psychomotor development in high school children. *Latin Am J Soc Scien Human.* 2023;4(2):3200-3215.
18. Ramírez G, Meza T. Importance of traditional games to strengthen the psychomotor development of children from 3 to 5 years old. *EDUCARE-UPEL-IPB-Secunda Nueva Etapa 2.0 Magazine.* 2022;26(2):27-51.

19. Coloma E, Bayas R. The relationship of psychomotricity in the learning of reading and writing in 6-year-old children in second education basic general. *Latin Am J Soc Scien Human*. 2024;5(6):733-751.
20. Arreaga C, Castro V, Sagbay L, Orbe O. Basic motor behaviors in the development of balance and coordination in preschoolers: A systematic review. *School Fam Comm Magaz*. 2023;2(1):51-62.
21. Acosta Isidor Z, González Reyes S, Marcano Molano P. Psychomotricity in the learning of reading and writing in basic education. *Pedagog Scien Innov J*. 2022;10(2):127-135.
22. León Castro M, Mora L, Tovar G. Promoting integral development through psychomotor skills. *Contemporary Dilemmas: Education, Politics, and Values*. 2021;9(1).
23. Albarracín T, Salto Z, Calle E. Didactic resources for a healthy school climate in the psychomotor learning environment with children from 3 to 4 years of age. *Ciencia Latina Multidiscip Scient J*. 2023;7(6):5485-5506.
24. Flores T, Pantoja C. Sociomotor interaction in cooperative learning within the physical education class in 3-5 year old children. *Polo del Conocimiento: Scientific-Professional J*. 2023;8(10):426-442.
25. Rocha L, Castelli F, Flores F, Bustos T, Nahuelpan, S, Álvarez A, Campos K. Motor development in 5-12 year-old schoolchildren with autism spectrum disorders (ASD): A systematic review. *Peruvian J Phys Activ Sport Scien*. 2021;8(3):10-10.
26. Moreira M, Almeida N, Marinho M. Effects of an educational psychomotricity program in preschool children. *Sportis: Technical-Scientific Journal of School Sports, Physical Education and Psychomotricity*. 2016;2(3):326-342.
27. Aguilar A, Bravo M. Play circuits in the areas of psychomotor skills in early childhood education. *Tesla Scient J*. 2024;4(1): e338.
28. Solis A, Rovalino B. Evaluation of psychomotor skills in children under 3 years of age during tele-education in times of confinement. *Ciencia Latina Rev Scient Multidiscip*. 2021;5(6):12493-12505.
29. Gómez M, Vidaurre R. Aucouturier's experiential psychomotor skills as an improvement of motor maturational delay in 4-year-old children. *Challenges: New Trends in Physical Education, Sport, and Recreation*. 2023;(50):737-745.
30. Fernández-Valero B, Soto-Sánchez S. Fundamental motor skills in Chilean preschoolers. *Thinking in motion: J Exerc Health Scienc*. 2022;20(1):1-13.
31. Cevallos E, Chimborazo O. Development of physical and mental skills in children from 2 to 6 years of age. *Science Proficiency*. 2023;9(4):1072-1081.
32. Molina-Moreira I, Caicedo A. Gross motor skills and traditional games in elementary school students at the Miguel Centeno San Vicente Educational Unit. *MQR Investig*. 2024;8(3):538-555.
33. Erreyes B, Castelo F, Tapia F. Early stimulation and psychomotor development in children from 4 to 5 years old. *Digital Science*. 2018;2(1):61-74.
34. Ureta L, Ricotti A, Vivanco B, Noemi L, Lainez. Innovative solutions for early childhood: How to stimulate the psychomotor development of children from didactic resources? *Confluencia Magazine*. 2022;5(2):125-129.
35. Panchana B, Rivera Y. Psychomotor stimulation for the inclusive social development of children from 3 to 4 years of age. *Latin Am J Soc Scien Human*. 2023;4(2):2563-2581.
36. Alonso Y, Pazos M. Perceived importance of motor skills in early childhood education in schools in Vigo (Spain). *Educação e Pesquisa*. 2020;46: e207294.
37. Reyes-Oyola A, Palomino C, Meza-Salcedo G. Analysis of the psychomotor profile in Colombian infants aged 4-9 years. *Latin Am J Soc Scien Childhood Youth*. 2021;19(2):213-229.
38. Martínez A, Imbernon S, Díaz A. The psychomotor profile of pupils in early childhood education. *Sustainability*. 2020;12(6):2564.
39. Gonzales K. Psychomotor development and the learning of literacy initiation in the initial level. *Horizontes. J Educ Scien Res*. 2022;6(22):163-171.
40. Sáez B, Gil P, Martínez M. Psychomotor development and its link with motivation towards learning and academic achievement in Early Childhood Education. *J Educ*. 2021:392-483.
41. Cevallos V, Tigasi C, Moreno G, Chicaiza C. Psychomotor development in Early Education and its influence on academic and physical performance in Basic Education: An interdisciplinary approach. *Scien Educ*. 2024;5(10):6-27.
42. Calderón M, Gamez P. Psychomotor development and child learning at 3 years of age in an Educational Unit of Chone. *Ciencia Latina Multidisciplinary Scient J*. 2024;8(3):8785-8799.
43. Arnau-Mollá, Romero-Naranjo J. Body percussion as a pedagogical resource. Bibliometric study on body percussion based exclusively on secondary search engines. *Retos*. 2022;46:809-825.
44. Mezcuá-Hidalgo A, Ruiz-Ariza A, Ferreira A, Martínez-López J. Physical abilities and their relationship to memory, mathematical calculation, linguistic reasoning and creativity in adolescents. *Challenges*. 2020;37:473-479.
45. Hernández-Flórez N, Klimenko O, Lhoeste-Charris A, Rodríguez Y, Martínez-Gómez I, Hernández-Flórez J.

- Psychotherapeutic treatments in patients with bipolar and schizoaffective disorders: A meta-analytic review. *Gac Méd Caracas*. 2023;131(Suppl 3):S364-S477.
46. Peschi S. Early Stimulation programs from a teacher's perspective. *Person*. 2024;7(12).
 47. Ninasunta V, Tipantuña M, Vizcaíno L. Collaborative games to develop psychomotor skills and autonomy in children from 3 to 4 years old. *Science and Technology Magazine - For Development - Ujcm*. 2024;10(20):30-41.
 48. Linzán-Molina E, Palma-García V. Analysis of the use of dance as a psychomotor development strategy in high school children. *Knowledge Pole*. 2022;7(2):436-450.
 49. Manjarres M, Duarte D, Navarro-Obeid J, Álvarez M, Martínez I, Cudris-Torres L, et al. A bibliometric analysis and literature review on emotional skills. *Frontiers Psychol*. 2023;14:1040110.
 50. Klimenko O, Muñoz-Figueroa A, Hernández N, Arroyave-Jaramillo, Londoño-Vásquez A, Lhoeste-Charris Á, Gutiérrez-Vega, I. Smartphone Dependency and its Relationship with the Meaning of Life Psychological Well-Being and Self-Regulation in a Sample of University Students. *J Posit Psychol Wellbeing*. 2024;8(1):36-54.