

Psychomotricity as a predictive skill for the literacy process



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ABSTRACT

The study aims to investigate the importance of psychomotricity for the literacy process as a fundamental factor for the development of the child's cognitive, physical, emotional and social aspects. Through playful activities, children, in addition to having fun, create, interpret and interact with the world in which they live, considering the relationship between movement and learning, and the disharmony between them can be harmful to the child. Literacy is a complex process that involves skills, and among them are motor skills. In educational institutions, the greatest difficulties faced by teachers and students are in the process of acquiring reading and writing, and in cognitive development, where minimum conditions are necessary that constitute, among others, the

structure of psychomotor education. Psychomotricity in the literacy process is fundamental for the construction of several concepts that serve as pillars in the learning process, and within its specific areas, it offers many intervention options so that children of literacy age can overcome any obstacles and achieve the proposed objectives and goals. The methodology consists of a systematic literature review, with the objective of finding the main researches related to the referred theme, using for data collection the main scientific networks of academic search in the area of education, such as, Portal of Periodicals of the Coordination for the Improvement of Higher Education Personnel (CAPES), in the Brazilian Digital Library of Theses and Dissertations of the Brazilian Institute of Information in Science and Technology (IBICT), Scielo Digital Portal and Google Scholar Portal, which resulted in ten papers addressing the subject of interest. However, after applying the inclusion/exclusion criteria, only six studies were listed to support a critical study on the literacy process and its relationship with Psychomotricity. As a result, the studies indicate that it is essential to introduce the psychomotricity theme in the classes planned for the routines of school institutions and the knowledge of teachers regarding the theme, in order to apply it correctly in their classes.

Keywords: Psychomotricity, Literacy, Apprenticeship.

1 INTRODUCTION

In current education, students who go through the literacy process, psychomotricity plays a fundamental role in making it occur with significant success, since the acquisition of reading and writing is not easy for teachers and students, considering the diversity of cultures brought by students to school. Thus, psychomotricity is present in almost all activities, and in addition to being an indispensable factor for the overall and uniform development of the child, as well as the fundamental basis for the learning process of individuals.



The general objective of this study is to investigate the importance of Psychomotricity for the literacy process as a predictive skill for the development of the child's cognitive, physical, emotional and social aspects. To this end, the following specific objectives contribute: to carry out a survey of the state of the art to identify scientific studies that correlate the themes of Psychomotricity and literacy; analyze the selected productions; and to understand how these researches address this relationship between such objects. As a problem question, we have as a starting point the following question: How can the development of predictive skills of Psychomotricity help in the literacy process?

The methodology used is based on a systematic literature review research, using for data collection the main scientific networks of academic search in the area of education, such as the Brazilian Digital Library of Dissertations and Theses, CAPES Journal Portal, Scielo Portal and Google Academic Portal, from the year 2015, in which ten studies were located, of which six were part of the analysis of this investigation. We used the following descriptors as search descriptors: "psychomotricity + literacy" and "psychomotricity + literacy + learning". As requirements for inclusion/exclusion of the studies for analysis, we considered the period of execution of the research from 2015 onwards and their nationality, i.e., those that were treated in Portuguese and English, which is why only six studies composed the data analysis.

Psychomotricity is characterized as an education that uses physical movements to achieve other more elaborate acquisitions, such as intellectual ones, and during the literacy process, the basic elements of psychomotricity are frequently used, and whose psychomotor development is poorly constituted, may present problems in writing, reading, graphic direction, and letter distinction (e.g.: b/d), in the ordering of syllables, in abstract thinking (mathematics), in grammatical analysis, among others.

Physical movements are very important for human development, transmitting feelings, emotions and thoughts, expanding the possibilities of using gestures and body postures, which will help the literacy process, considering that a good psychomotor development provides the student with some skills and a good school performance.

From the theoretical framework, obtained from the readings of authors such as Fonseca (2008) who in his book cites the three pioneers of psychomotor development: Ajuriaguerra, Wallon, Piaget, and the contributions of Ferreiro and Teberoski (1986), and Le Boulch (1982), it was possible to formulate the hypothesis that psychomotricity interferes in the school learning of students, as well as in literacy and integral development.

According to Fonseca (2008), psychomotricity can be defined as the transdisciplinary field that studies and investigates the reciprocal and systemic relations and influences between psyche and motricity.



For Emília Ferreiro and Ana Teberosky (1986), every child goes through structural levels of written language until they appropriate the complexity of the alphabetic system, but rather than thinking about methods, it is necessary to understand the learning processes that the child experiences when trying to reconstruct the representation of the alphabetic system.

For Le Boulch (1988), psychomotor education should be an indispensable basic education for every child.

Thus, the choice of the theme was necessary, due to the interest in discovering the reasons for the difficulties encountered in the literacy process, which are not linked to pathological issues, and end up becoming a huge problem in the stages of this child's life, and the importance of psychomotricity for this process. It is believed that teachers who have knowledge of psychomotor education can help their students in the process of acquiring reading and writing in relation to space and time. Through this research, we want to reflect on the importance of psychomotor education in the motor and cognitive development of children and their relationship with literacy. Next, a summary of the main theoretical elements involved is presented, followed by the final considerations obtained through data analysis.

2 THEORETICAL REVIEW

It is understood that psychomotricity and the literacy process are close as a dialogical and mutual relationship, and literacy is a reference for cognitive, physical and social development, in the case of psychomotricity, it serves to assist the first learning in literacy.

The motor act cannot be conceived as the functioning of juxtaposed neurological systems, [...] They can only understand the action when we consider the starting point, the development and the purpose that this action aims to achieve. (AJURIAGUERRA, 1983, p.207)

The child in the literacy phase is moving, which for children are simple games, for psychomotricity are movements that will serve as a basis for the child to learn to hold the pencil, leaf through the notebook, define their laterality, differentiate the shapes of the letters, among other skills. Negrine (1986, p. 17) "[...] have demonstrated the existence of a strict relationship between the child's ability to learn at school and their possibility of neuromuscular performance, since it is through physical activities that they develop".

According to Mattos and Neira (2005), skills can be developed during routine activities, carried out in the child's private life, promoting higher psychological processes, through the acquisition of basic movements, such as reflexes and simple association, thus becoming aware of their body in an environment that relates location, orientation, conservation of distance, speed, among others, thus functioning as an artifice for an effective work in the teaching-learning process during the literacy of the student body, establishing a spatial structuring, lateralization and body notion, which are crucial aspects in the construction of their competencies and skills.



To teach a child to read and write, psychomotor work must be included for good child development, which will contribute to teaching and learning. It is essential that a child has a spontaneous, rhythmic, liberated and controlled motor skills, where the teacher leans.

The French pedagogue Seguin apud Holle (1979, p. 74) quoted that "No one can teach a child to read and write before his sensory organs function". Many teachers confuse this relationship between psychomotricity and literacy, thinking that the activities that are applied until today, such as stippling, copies of curves and lines for the training of children, are working on psychomotricity, but these activities do not develop the child's psychomotor, they only contribute to motor development, being only one of the skills, when psychomotricity proposes to work on the whole. It is essential to create situations in which the child can learn to control his body, to have flexibility and agility with his upper limbs, even before mastering the pencil, but these skills lose their meaning when performed in a decontextualized way, such as in the execution of repetitive exercises. The fundamental role of psychomotricity is to develop all the child's potentialities, linked to the context of the student's reality.

According to Ferreiro (1991, p.25), "It is essential to understand how the child arrives at the acquisition and mastery of reading and writing, and it is important to understand how learning takes place".

The studies also show the importance of working on the psychomotor prerequisites in early childhood education classes, as essential instruments for the significant construction of the concept of writing and reduction of students' illiteracy rates, where they highlight the need to identify learning difficulties related to psychomotor development and, based on these data, develop motor schemes in the first years of schooling as a prevention of learning difficulties.

According to Oliveira (2003), "From the moment the child is able to discriminate the various forms of letters and integrate the symbols, he will successfully reach the stage of visual organization, corresponding to the significant integration of symbolic materials with other sensory data". When the teacher does not work on the student's difficulties, it ends up harming the child's development in the future. Writing, in addition to requiring many skills, also requires a certain change of perspective in the face of the notion of reality, where the understanding of psychomotricity as a basis for a significant expressive work in literacy will guide the teacher in relation to the organization of his teaching practice, favoring the teaching-learning of his students.

Psychomotor education should be considered basic in early childhood education. It conditions preschool learning, leads the child to become aware of his body, of laterality, of the situation in space, to master his time, to acquire skills of his gestures and movements. (LE BOULCH, 1997, p.35)

Modern life contributes to children arriving at school with motor deficits, where free play in the streets is now rare due to violence. Children have few opportunities to climb trees, and the games



and relationships between them end up becoming restricted to the school environment. In this sense, the school's responsibility multiplies with regard to providing spaces and activities that meet this demand for the needs of physical movements.

In this context, it is necessary for the teacher to have a good knowledge about psychomotricity, because the activities can be done in the classroom, even without a sports court and without the need for expensive tools and materials.

Considering the knowledge necessary for literacy and its relationship with the development of some psychomotor skills, we take as support the idea of movement present in the National Curriculum Reference for Early Childhood Education (RCNEI), as an indispensable factor for the broad development of the child so that through it he will strengthen the control of his own body. thus favoring the beginning of literacy. It is in early childhood education that the first drafts of literacy are made, which is why we highlight what the RCNEI presents on this theme: "Children move from birth, acquiring greater and greater control over their bodies and appropriating more and more the possibilities of interaction with the world". (BRASIL, 1998, p.15)

Therefore, the literacy teacher needs to know his student, without dissociating body and mind, and be attentive to the performance of the sensory organs in relation to the process of teaching and learning in the literacy phase. It is essential that the teacher understands how the child arrives at learning and mastering reading and writing.

2.1 PSYCHOMOTOR PREDICTIVE SKILLS FOR READING AND WRITING ACQUISITION

We can say that for children to be well literate, they need to have the skills of global coordination, fine motor coordination and hand-eye, body scheme, spatial structure, temporal structure, visual and auditory discrimination and lateralization well worked and defined. It can be said that these are the psychomotor bases of learning to read and write. Thus demonstrating the importance of adequate work in these phases of the child's development, and each one of them must be respected and according to the individual's maturation. Emotional and motor life are not isolated, one complements the other, guided by psychomotor elements.

When children arrive at school with most of these skills developed, they will hardly have problems in the literacy process. However, due to the various difficulties and the post-pandemic context, there is a large number of children who arrive at school without having developed them, and it is up to them to develop them.

Next, we will take a closer look at the concept and importance of each of these elements for the literacy process.



2.1.1 Lateralization

For Le Boulch (1982), "Laterality is the function of dominance, with one hemisphere having the initiative to organize the motor act, which will begin with the learning and consolidation of praxis". The environment in which we live was made for the right-handed, from the simplest objects such as scissors, rulers and some kinds of desks in classrooms to our writing, which is carried out from left to right and from top to bottom and this favors the right-handed. Faced with these factors, left-handers present several difficulties.

There are also cases of crossed lateralities, which can cause problems such as: difficulty in learning graphic direction, difficulty in learning the concepts of left and right, illegible writing, poor posture, difficulty in fine coordination, difficulty in visual discrimination, affective disorders and difficulties in spatial structuring.

According to Negrine (1986), it is during growth that the child's laterality is naturally defined, and can also be determined by social factors. The child needs to experience both sides without interference, they need to discover themselves.

2.1.2 Body Schema

The body schema refers to the awareness of one's own body, incorporating its postural and attitudinal parts both at rest and in movement. It is necessary for the child to understand it in order to be able to control his movements. From the awareness of one's own body in different positions, body mastery is the first element of behavior, it is through dynamic movement that one can control it and spatial perception.

For Le Boulch (1988) "The body schema is the fundamental basis of the adjustment function and the necessary starting point of any movement".

Children with a poorly defined body schema may present: deficiency of spatial-temporal structuring, slowness, poor motor coordination, lack of harmony in gestures, insecurity in relationships with others. The child who does not recognize the parts of his body ignores the bodily vocabulary, does not situate his limbs well when gesticulating because he has not discovered all the spatial possibilities of his body.

2.1.3 Spatial Structure

The child first perceives the position of his body in space and then of objects in relation to himself, and finally learns to perceive the relations of objects to each other. It is through space and spatial relations that we situate ourselves in the middle and that we live.



Le Boulch (1987) points out that factors associated with problems of lack of spatial structuring generate lack of interest in school subjects and lack of motivation for learning to read and write, thus hindering the student's teaching-learning process.

It can be said that the child has reached the stage of spatial orientation when he learns notions of situations, size, position, movement, shapes and quantity. Some of the consequences of poorly developed spatial structure are: difficulty in discriminating the direction of letters and numbers, ease in getting confused and lost, constantly bumping into objects, difficulty in spatial orientation on paper, in respecting the order and succession of letters and in obeying the meaning of reading, and in organizing and classifying numbers by mixing what is ten, hundreds and thousands.

2.1.4 Temporal Structuring

According to Almeida (2006), time is one of the most difficult skills to work with in early childhood education, given the difficulty of distinguishing, on the part of the child, real time from fictional time.

It is a very important skill, as it allows the child to recognize himself in space when moving, and also to trigger and follow his gestures, locate the parts of his body and situate them in space, being important for the process of adaptation of the individual to the environment.

De Meur (1984) and other scholars make an analysis of the main difficulties that can arise from a bad temporal orientation, in which we can mention: not perceiving the intervals of time, therefore, not perceiving the spaces between words; confusion in the succession and ordering of the elements of a syllable, as it distorts the graphic sequence of movements; and the non-distinction of the sound of the letters, among other difficulties.

2.1.5 Global Coordination

According to Oliveira (2003), "Global coordination or global praxis refers to the activity of large muscles, depending on the ability of postural balance.

If the child in the classes taught by the teacher, involving dance, is able to follow the associated and dissociated movements, has the right rhythm, a good balance, it can be said that he will present satisfactory global motor coordination.

2.1.6 Fine Motor Coordination and Hand-Eye

Fine motor skills are about manual skill and dexterity. The ability to pick up and handle different objects in different ways.

For Alves (2008, p.58) "It is a segmental coordination, usually with the use of the hand requiring precision in the movements to perform complex tasks, also using small muscle groups".



However, possessing only good fine motor skills is not enough. Therefore, it is also necessary to have good eye control, that is, vision following the hand gestures. We call this hand-eye or visual-motor coordination, which can be defined as the ability to coordinate vision with the movements of the whole body or parts, including walking, running, throwing, even the most refined such as cutting, drawing and writing.

2.1.7 Visual and Auditory Discrimination

We can understand visual and auditory discrimination as the ability to see, hear, and differentiate two figures, or two objects, or sounds when their differences are minimal, that is, an ability to perceive and process appropriately.

According to Oliveira (2009), a child who has visual discrimination difficulties may present confusion of symmetrical letters, may be confused in the writing of letters that have general and similar configurations and that differ in small details.

Auditory discrimination is the ability to perceive the difference between two or more sound stimuli, when auditory discrimination is effective, it makes the child not confuse the letters with sounds like "p" for "b", "s" for "z" and others.

3 METHODOLOGY

This study used a qualitative approach, based on the premise of generating knowledge for practical application, guiding the solution of specific problems involving local truths and interests (GERHARDT; SILVEIRA, 2009).

Regarding the objective, this study is classified as exploratory, as it sought to identify facts that contributed to the occurrence of phenomena. Exploratory research aims to improve hypotheses, validate instruments, and provide familiarity with the field of study. It is the first stage of a broader study and is widely used in research whose theme has been little explored, and can be applied in initial studies to obtain an overview of certain facts (GIL, 2002).

Regarding the technical procedures, a systematic literature review was carried out, using, for data collection, the main scientific networks of academic research in the area of education, being indispensable not only to define the problem well, but also to obtain an accurate idea about the state of the art of the aforementioned theme, its gaps and the contribution of research to the development of knowledge.

Seeking to answer the problem question, this study searched for scientific works, using for data collection the main scientific networks of academic research in the area of education, such as the Brazilian Digital Library of Dissertations and Theses, CAPES Journal Portal, Scielo Portal and Google Academic Portal, after the year 2015, which related the themes of psychomotricity and literacy. Ten



studies were located, of which six were part of the analysis of this investigation. We used the following descriptors as search descriptors: "psychomotricity + literacy" and "psychomotricity + literacy + learning". As requirements for inclusion/exclusion of the studies for analysis, we considered the period of execution of the research from 2015 onwards and their nationality, i.e., those that were treated in Portuguese and English, which is why only six studies composed the data analysis.

Chart 1 below shows the studies found and which, after using the inclusion/exclusion criteria, became part of the study sample for analysis.

Table 1: Sample composition - studies analysed.

1. Brazilian Digital Library of Theses and Dissertations < https://bdtd.ibict.br/ >					
Title	Year and Institution of publication	Purpose of the study	Methodology	Sample	Results
Study 1: The body and the	2019. Dissertation	Investigate the Contributions from the	Research-share	8 Subject	The intervention Psychomotor
Factors	–	Psychomotricity			showed up
Psychomotor as agents	University	for students with			effective, once
Participants	Federal do	Difficulties of			that students
in difficulties	Rio Grande	apprenticeship			went from a
from	northern	in the acquisition of			dyspraxic profile
apprenticeship		reading and			for eupraxic and
reading and		writing.			Your
Written in					Difficulties of
School:					apprenticeship
Contributions from the					Decreased.
Psychomotricity					
in a					
perspective					
Inclusive					
Study 2:	2018.	Investigate the	Research	35	The Results
Competence in	Dissertation-	performance	Exploratory	Subject	pointed out that
reading, writing, and	University	psychomotor in			There was great
performance	Presbyterian	a group of			Concentration of
psychomotor in	Mackenzie	Students of the			students with
School		Teaching			low
		Fundamental I			Competence in the
		Classifieds in the			Evidence of
		Lower Levels			reading, writing, and
		of the			arithmetic were
		Skills			the same as
		in reading,			Presented
		writing and			worst
		arithmetic.			performance
					psychomotor.
2. CAPES Periodicals Portal < www.periodicos-capes.gov-br >					
Title	Year and Institution of publication	Purpose of the study	Methodology	Sample	Results
Study 3: The	2023.	Show how the	Research		It can be concluded



Importance of Psychomotricity for writing in the literacy	Article-Alma/SFX Local Collection	Psychomotricity It can be Developed What are your resources and the Function of the teacher as a mediator.	Bibliographic		how much is it Important to have features and a good planning, the in order for the Educators children can Perform a work of quality and that benefit from the children, and how tool transformation in the life of this target audience enriching the Same culturally and culturally socially.
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3. Scielo Brazil Portal
<www.scielo.br >

Title	Year and Institution of publication	Purpose of the study	Methodology	Sample	Results
Study 4: Occurrence of Processes cognitive of reading and writing, and Skills perceptual visuals in schoolchildren with Dyslexia Visual	2020. Article-Rev. Codas	Evaluate and sort School Dyslexic Visual recital that, subtypes of o Dyslexia development They are not differentiated in the Most diagnostics and that the same focus on a approach Widespread.	Study transverse Observational analytic	80 Subject	Comparing the groups, the students with dyslexia Presented performance lower in all the tests, in the with regard to the Skills Predictors psychomotor Essentials for Reading and writing.

4. Google Scholar
<www.scholar.google.com.br >

Title	Year and Institution of publication	Purpose of the study	Methodology	Sample	Results
Study 5: A Importance of Psychomotricity in the process of literacy	2016. Article-University State Brazil (Unesp)	Present and Discuss the Importance of Psychomotricity for the development of the child, mainly Related to Process of	Research Bibliographic		Or development psychomotor contributes to the apprenticeship of writing and reading Showing that work at



		literacy			child is
		Emphasizing the			essential in your
		body like			learning and
		big			literacy
		Instrument in the			In order to
		Process of			construction and
		apprenticeship.			Global Training
					of the human being.
Study 6: A	2018.	Analyze the	Research		At the end of the
Psychomotricity	Article–	Contributions from	Bibliographic	_____	research, it was
as the foundation of	Epistems	Psychomotricity			possible
the	Transversalis	During the			Achieve the
literacy		Process of			objective
		Construction of the			proposed
		writing			Demonstrating
		valuing the			So the great
		Importance of the			importance that
		body and the			the
		Movement in the			Psychomotricity
		Findings of the			exerts on the
		writing and reading.			Life of a
					student and his
					Help in the
					Process of
					Construction of the
					writing.

Source: Prepared by the authors, 2023.

Analyzing the studies, it was possible to verify that the six studies point to an intrinsic relationship between Psychomotricity and the literacy process. In Study 2, the level of performance of the subjects investigated in the reading, writing and arithmetic tests was consistent with the performance in the psychomotor test. An analogous result occurred in Study 4, which indicated that subjects with dyslexia, which is the specific learning disorder of reading, were the ones who presented the lowest performances in the tests that measure psychomotor skills. It is also evident that some psychomotor behaviors are especially intertwined with the skills investigated and the teacher's knowledge of the theme and how he inserts it in his planning. This is what Study 3 has shown, for example. And Studies 1, 5 and 6 found that psychomotor skills are predictors for the acquisition of reading and writing, as well as for learning in general. The studies and findings mentioned above are compatible with what the extensive literature has been pointing out about the relationship between Psychomotricity and literacy.

4 FINAL THOUGHTS

It was found that all the studies found point to a correlation between Psychomotricity and literacy. It was also possible to observe in the studies that psychomotor deficits can cause delays and difficulties in the process of reading and writing acquisition, demonstrating how much these elements



are intertwined with regard to full development and learning, especially of children in the literacy process.

Thus, it is evident the need for public policies that provide continuing education for teachers and that they have a sensitive look to perceive the needs of students and to be able to build new possibilities in the face of psychomotor difficulties and, in the most complex situations, to request the necessary specialized help. The school is expected to fulfill its social function, which is to guarantee the knowledge, skills and values necessary for the formation of the individual.

In this sense, this research sought to emphasize, from a systematic review of the literature, the correlation of Psychomotricity with literacy, specifically the predictive skills for the acquisition of reading and writing, evidencing through the researched studies, that there is not a single and singular concept, but rather, several perspectives on Psychomotricity.

Psychomotricity is thus presented as a science that intends to transform the body into an instrument of relationship and expression with the other, through the movement directed to the being in its totality, in its motor, emotional, affective, intellectual, and social aspects, considering man as unique, in constant evolution and essentially an interactive being.

Finally, it is worth mentioning that there are few scientific studies found on the theme and period of interest. Given the importance of this object of study, it is inferred that further studies from the perspective of Psychomotricity and its correlation with literacy should be developed, seeking to increase the scientific knowledge we have about this phenomenon, especially that contemplate the reality of Brazilian public schools. The present study will enable the beginning of other analyses so that this theme occurs frequently in research around education and especially in teaching practices.



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