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Child Neurodevelopment and Parental Involvement in the Educational Process

Neurodesarrollo infantil y la participación de los padres de familia en el proceso educativo

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Abstract: During the first years of life human beings lay the foundations for neurophysiological development. It is important that during early childhood a quality education is provided together with favorable living conditions that allow a harmonious development of the child's personality. The main purpose of this review is to improve the participation of mothers and fathers in the educational process of early education students, based on child neurodevelopment, in order to strengthen the family-school bond, and thereby improve the teaching and learning process of children. The method used in the systematization of information was the deductive method, with a quantitative, qualitative and mixed approach. It is concluded that it is essential to achieve educational objectives, the participation of parents in the educational process of early education students. It was also identified that the families most involved with the school and most committed to education have better performing children. It is recommended to continue the review of such articles to increase and improve the participation of mothers and fathers in the educational process of early education students.

Keywords: Infant neurodevelopment, parental involvement, early childhood..

Resumen: Durante los primeros años de vida, el ser humano sienta las bases del desarrollo neurofisiológico. Es importante que durante la primera infancia se proporcione una educación de calidad aunada a condiciones de vida favorables. El propósito principal de esta revisión es mejorar la participación de las madres y padres en el proceso educativo de los estudiantes de educación inicial, en base al neurodesarrollo infantil, con la finalidad de fortalecer el vínculo familia-escuela y con ello mejorar el proceso de enseñanza y aprendizaje de los niños. El método empleado en la sistematización de la información es el método deductivo con enfoque cuantitativo, cualitativo y mixto. Se concluye que es fundamental para lograr los objetivos educativos, la participación de los padres de familia en el proceso educativo de los estudiantes de educación inicial. Se identificó que las familias más involucradas con la escuela y más comprometidas en la educación tienen niños con un mejor desempeño. Se recomienda continuar con la revisión de este tipo de artículos para incrementar y mejorar la participación de las madres y padres en el proceso educativo de los estudiantes de educación inicial.

Palabras clave: neurodesarrollo infantil, participación de padres, primera infancia..

Introduction

The first years of life are essential. However, not all children are exposed to early experiences that allow them to reach their full developmental potential. According to UNICEF (2016), the problems faced by early

childhood education in Latin American countries are varied and due to multiple causes. In the same vein, it points out:

We can point out among the most significant the problems of adaptation and integration, as well as the development of cognitive capacities and potentialities. In short, many of our children do not develop their capacities and abilities in an integrated manner. (p. 6)

These difficulties are evidenced with greater emphasis in the process of formal school initiation of the child, the participation of the parents being indispensable.

This has made children the center of attention and concern of the family, professionals in various disciplines and the government. Society recognizes and values the importance of children in a very special way because they are the leaders of tomorrow's society (Martínez et al., 2015). However, despite the changes in pedagogy, the efforts of educators and parents, there is still no evidence of an integral development of the child in its cognitive, affective and volitional functions, fundamental for learning and its development itself same (Good y Jere, 2012).

In this sense, the UNESCO (2004) states that the articulation of family and school gives as a result better learning in boys and girls; likewise, it recognizes mothers and fathers as the first educators of their sons and daughters, a fact that demonstrates the positive impact that a quality early education can have on the development and learning of children; and finally, the family appears as a privileged space to achieve an expansion of the coverage of early childhood education.

For his part, Corvalán & McMeekin (2006) states that in Latin America, since the 1990s, more importance has been given to the involvement of families in the education of their children: "giving them a degree of responsibility for the results obtained by the students, always understanding that, ultimately, the public powers have the first responsibility to provide quality education for all" (p. 17). To strengthen social, educational and emotional ties, the participation of the family in the education of their children is essential.

Today, it is recognized that the family-school binomial assumes and shares the responsibility of educating. The family plays a main role in the formation and integral education of children in a permanent way throughout their lives, but with greater importance during the first three years of life, the age at which children begin to develop autonomy and independence, allowing them establish the first social relationships outside their home. It is precisely during this process where the family must place greater emphasis and contribute to the integral development of children in society, providing them with affection, values, cultural and economic conditions. Later, it will give way to school, making it the central unit where the social integration and socialization of the child will take place (Anabalón et al., 2008).

The evidence provided by research from the field of Psychology, Nutrition and Neurosciences, reveals that the first years of life are critical in the formation of intelligence, personality and social behaviors, because brain cells are formed during the first two years. Likewise, they have

shown that during the first five years of life, the brain develops faster than ever and it is estimated that every second 700 new neural connections are formed, allowing the brain to grow by fifty percent (Shonkoff, Boyce, & McEwen, 2009). The factors for the development of the child's brain are early experiences, and interaction with the physical and social environment that surrounds him.

Frith (2005) warns that knowledge of the anatomical and physiological structures that make up the Central Nervous System (CNS) is essential to understand the learning process. The CNS is made up of the encephalon (made up of the brain, cerebellum and brain stem) and the spinal cord, and it is the one that decants and takes care of what can be learned, how and how fast (González, 2018, p. 15). Knowledge about the neurodevelopmental processes that take place in early childhood constitutes a starting point for pedagogical practice (Cabrera et al., 2017). Thanks to the knowledge of the functioning of the brain, it has allowed us to understand behaviors, feelings, motivations, attention and higher mental functions: learning, memory and language in children, being able to plan activities for them at the appropriate time according to their preparation (Tudela, 2017).

In this regard, Martínez (2010) mentions:

The neuroscientific findings highlight that the brain is not predetermined, but is formed and shaped in a process of continuous interaction with the environment and the experiences that it provides, which decisively influences the structural organization of this organ, on its cytoarchitecture and on the extension of the neural networks that occur between its millions of neurons, and that lay the foundations for the formation of more complex capacities to the same extent that the gradual maturation occurs of said structures. (p. 71)

In this sense, Medina et al. (2015) defines neurodevelopment as “a dynamic process of interaction between the organism and the environment that results in the organic and functional maturation of the nervous system, the development of psychic functions and the structuring of the personality” (p. 566). Being undeniable, that early childhood is the stage of greatest importance for the human being.

Then the need arises for educators to delve into the understanding of the functioning and potential of the brain during the first years of life, or what we know as infant neurodevelopment, assessing its importance in the need to provide a good quality of life to the child, allowing develop in the future in the various areas of development (Parra, Rodríguez, & Chinome, 2016). This will allow educators to apply new educational methodologies that make it possible to achieve the proposed competencies for the teaching-learning process of students. At the same time, it will allow parents to actively accompany their children in their educational process, stimulating them and providing them with a favorable environment for their integral development.

Tudela (2017) maintains that the child's education “begins at home,” and in this first stage of development, parents play a fundamental role, because they are the ones who initiate the knowledge of the social and

cultural world in the child. Parents' preparation and family maturity will have a significant influence on their behavior and the path they will follow in the future. When the child enters school, it is the teacher, through his pedagogical preparation and his knowledge of the characteristics of the student and his family, who becomes the student's guide, and it is important that during this process the children should be always supported by parents.

On the other hand, "if the conditions are favorable and stimulating this will have immediate repercussions on learning and development, if they are unfavorable or limited, they will act negatively, damaging said development, sometimes irreversibly" (López, & Siverio, 2005, cited by Gutiérrez, Ruíz, & Ávila, 2016, p. 17). The first educators of children are mothers and fathers. The learning space par excellence is the home. Educational institutions continue and strengthen with their specialized knowledge what the family has started and continues to do. In the school institution, boys and girls are loaned for teachers to enhance and enrich what they have already learned (Reveco, 2000). Therefore, it is vital that parents take an active role in the education of their children and work together with educational institutions and teachers, in order to achieve a comprehensive training of students.

In Peru, early childhood care and education in the country has made great progress in recent decades. Among the positive aspects, the recognition of early childhood as a priority of the State and public policies in favor of children under 6 years of age in the country stand out. The Ministry of Education of Peru (2015) indicates that "the importance of involving parents in the effective stimulation of children in educational institutions through early stimulation programs from the beginning, is with the objective of achieving the child neurodevelopment" (p. 21).

With these considerations in mind, this article raises the following questions: What is the role that parental participation plays in the educational process?; what dimensions of parental involvement are important to the educational process?; how does understanding child neurodevelopment improve children's learning?

In this sense, the purpose of the research was focused on conducting a critical review of articles related to the participation of parents in the educational process and the impact of child neurodevelopment with a cognitive approach at present, extracted from certain databases, corresponding to the years 2015 to 2020, carried out methodically, identifying the strategies applied to improve and strengthen the participation of the parents of initial-level students, analyzing relevant aspects that allow improvements in the teaching-learning process of their children. In such a way that it contributes to the knowledge of the object of study, enabling the contribution of new knowledge based on child neurodevelopment, an area little addressed in educational systems, improving the educational quality that children receive.

The main objective of the research is to identify and analyze the scientific production on strategies, programs and research aimed at improving the participation of parents in the educational process of early

childhood students, based on child neurodevelopment, during these last five years (2015 to 2020); showing the main research applied to improve the participation of parents in the educational process of early childhood students; based on child neurodevelopment, in order to strengthen the family-school link and improve the teaching and learning process of children.

The study variables correspond to child neurodevelopment and the participation of parents in the educational process, which should be applied with initial education students.

Materials and Methods

This research is a review, for its realization has taken into account empirical articles, extracted from the bases of Scopus, EBSCO, ProQuest and Google Scholar, having preferentially considered the years 2015 to 2020; and considering the study variables child neurodevelopment and the participation of parents in the educational process; the articles taken have been published in Spanish, English and Portuguese.

Likewise, articles have been taken from Iberoamerican education journals, taking into consideration for their selection similar criteria used in the search in the databases indicated and of course based on the corresponding variables; in both cases, articles prepared by expert researchers.

In the same way, research works and existing theses in the repositories of the universities of Peru and the world have been considered, using criteria similar to those indicated above for their search, taking into account the variables under study.

In this review, the descriptive analytical method was applied in the search for information, identifying and reviewing article by article, by reading and identifying strategies used by the authors to improve the participation of parents in the education process of initial education students. At the same time, the deductive method was used, which is characterized by starting from the generality of the content of the article and reaching the specificity of the relevant content to be considered in this research. According to this nature, the result was a review article, not original, not experimental, with a quantitative approach.

The target audience for this research corresponds mainly to professionals who work as teachers in initial education and to parents of initial education students, being able to extend to teachers of basic and higher education, university and non-university, postgraduate students of the university, in order to enhance the skills to propose improvement plans for the participation of parents in the educational process of initial education students.

The limitations in this research are related to the databases, not having been possible to consider all those that currently exist.

Results

The results of the analysis of the articles, indicate that the researchers show an interest in addressing the issues related to child neurodevelopment and the participation of parents in the educational process of their children.

Sánchez et al. (2016) investigated the relationship between the parents' participation and expectations about their children's school education in the context of a public school in southern Chile: "Demonstrating that both variables are key in the educational process of children, there is evidence of a direct relationship with learning outcomes. A mixed sequential-explanatory design was used" (p. 347). From the results obtained, this authors also state that there is the challenge of facing the barriers that hinder the participation of parents from home, and this difficulty can be addressed with the design of participation spaces compatible with the working hours of parents.

Research by Boonk et al. (2018), discusses the progress made in the last decade, regarding parental participation and its correlation with academic performance. They divide their analysis into three sections based on age: early childhood education, elementary school, and middle school and beyond. Regarding the participation indicators, the authors point out (Table 1):

Table 1. *Participation indicators*

Table 1
Participation indicators

Parental Involvement Dimension	Indicators
Participation in the home	Educational expectations/aspirations Assessment of education/academic achievement Read with children Educational trips (going to the library or museum) Academic pressure/control Participation in learning activities at home Homework assistance/help Discussions between parents and children about school experiences Parent-child discussions on course/program selection Parent-child discussions about post-secondary plans Parental support/encouragement in learning
Participation in school	Rules for setting parental/TV limits Attendance at Parent Teacher Association (PTA) meetings Volunteering at school Visiting the classroom Attendance at school or class events Participation in school functions (such as being a member of the PTA) Communication between parents and teachers about academic performance Communication between parents and teachers about problems or difficulties in school

Fuente: Información obtenida de Boonk et al., 2018.

For their part, Gutiérrez & Ruiz (2018), reliably demonstrate that the neurological development of children is mainly determined by the social context in which they develop. Their findings confirm that it is not only children's centers that trigger neurological development; furthermore, the social, economic and cultural context in which the child develops provides and generates stimuli to promote said development. For this reason,

it is essential to highlight the fundamental and forceful role of development education, highlighting at all times its constant link; it should be emphasized that education is a social responsibility, composed of various factors and in partnership with various educational agents, who must create adequate stimuli under favorable conditions to enhance development, taking as a starting point the central activity that directs said course. (Gutiérrez & Ruiz, 2018, p. 47)

The statistical results obtained in the present study show how the immediate context affects or favors the neurological development of children.

Hornby & Blackwell (2018), in order to provide an update on the 2011 article (model that discussed four types of barriers to establishing

effective parental involvement in education: individual parental and family barriers; child factors; teacher-parent factors and social factors), and the current situation with regard to parental involvement, a small-scale study was conducted with 11 primary schools in the UK. The results indicated that while the above factors were still important, the pressure on parents due to decreased support for families from outside agencies and services means that schools are developing broader roles in supporting children.

Bezenkova et al. (2018), in their research shows that the place and role of the family in the process of preparing the child for school has been proven. An empirical study is described, the purpose of which was to determine the family's idea of the core of the child's school preparation process and the subjects involved in this process. The results of the study showed that parents do not trust their abilities, they are more likely to believe that they will not be able to prepare their child by themselves. The results obtained confirm the need to develop social cooperation between educational institutions in the process of preparing the child for school with the mandatory inclusion of the family as a social institution in this process. Social cooperation between preschool educational institutions, general schools and families to prepare the child for school.

For his part, Moreno (2018) highlights the importance of the availability of management, coordination and teachers to keep their knowledge up to date about children and to assess the role of parents in the child's education. In addition to that, it is essential to guarantee the participation of parents in the school, that teachers have the ability to speak, listen and learn with them, many times getting rid of the mistaken idea that their professional knowledge overlaps the knowledge of the family. In this way, it is hoped that together, the school and the family can join forces in defense of an education that respects the right of the child to live their childhood with dignity, enjoying what is their right: family coexistence and early childhood education.

Sarmiento & Zapata (2014), refer that in recent years, for example, the relevance of the interaction between the family and the school has been reflected mainly in the effects on the performance and learning outcomes of students, as in the results of the SERCE and PISA international exams. Based on the bibliographic review of theoretical models and factors related to family participation, the authors propose a conceptual model where participation in school should be understood as work that involves the student, the family and the school, and the community in four dimensions: (i) help the family with the academic experience of the students; (ii) communication between family and school; (iii) family participation in governance and school activities; and (iv) community integration to support students' academic experience. This conceptual model proposal was validated through a qualitative analysis of the data from the Niños del milenio longitudinal study in Peru (third round).

Pereira & Rivas (2019), highlights in relation to his research, the imminent need to involve the family in school activities, to the extent that this relationship is strengthened, the conditions are more favorable for

the success of boys and girls in the educational process. Discussion and dialogue with parents should be encouraged in the school environment. The existence of difficulties contributed to the distance between the family and the school. The first due to the lack of time corroborated by many parents and the second for having support tools to support the lifestyles of the families of their students. In this section the analysis of the works under the quantitative approach developed in the countries of Uruguay, Ecuador and Peru is carried out.

Parental styles from the perspective of parents and children, influence daily educational practices as it manifests itself in their autonomy and control of emotions. Capano, González & Massonnier (2016) in an research carried out in Montevideo (Uruguay), they captured the bidirectionality and the perception of parents and children about parenting styles, and their influence on school behaviors and the process of their learning, concluding that parental relational styles charge more meaning if the different contexts in which both parents and children live and develop are also taken into account, since these contexts can reinforce or contradict these styles.

Likewise, we found in the city of Quito (Ecuador) the researchers Echeverría & Jazmín (2018) that carried out a study that determines the relationship between permissive parents and the school performance of students of regular basic education. Through a positivist paradigm and a quantitative methodology of descriptive level and correlational type, they used the survey technique, with its instrument the questionnaire, to analyze the relationship between permissive parents and school behavior, concluding that the higher the behavior of permissive parents, the lower the school performance and vice versa, which corroborates both the contributions of the theory on the subject and that found by other previous field studies, and the educational processes are revalidated as the first positive or negative effect on school performance.

It is an applied research of pre-experimental design carried out in the city of Lima (Peru) by the researcher Paliza (2019) determined the application of the program "School and Family Together" executed in the Initial Educational Institution No. 068 of the district of El Agustino, jurisdiction belonging to UGEL 05, department of Lima; it has an effect on the integral development of the student of the II cycle of initial education. This program consists of a series of activities with parents, the purpose of which is to promote their active participation for the benefit of the integral development of their sons and daughters.

Addressing the general problem that is the absence of the father of the family in the educational process, quantitative research was analyzed that expanded the panorama about the figures and percentages in which these problems occur. Thus we find Rosero (2017) in the city of Guayaquil (Ecuador) who carried out a descriptive, applied research, shows us through methodological tools that the absence and lack of parental care affects the behavior and learning of students. The objective of the research is to be able to reverse through an awareness plan and the use of tools the

situation of lack of attention of parents towards their children and thus improve behaviors and learning.

From the analysis of the articles with a qualitative approach developed in the countries of Venezuela, Chile, Ecuador, Peru and Spain.

Cóndor & Remache (2018), in their research, investigates the views of principals and teachers about educational quality and the main difficulties facing education today. It also evaluates the performance of the teacher in the classroom, through observation of the class and permanent pedagogical reflection of the teaching processes in the classroom. The results obtained allowed us to know the real strengths and weaknesses existing in teaching.

López & Guaimaro (2016) carry out a qualitative research carried out in Caracas (Venezuela), where information is collected about how the family is a determining factor in the development of the child both at home and in schools. The research is based on theories that describe how this development that begins in families evolves. Thus, Bronfenbrenner Ecological Theory of Development, the Attachment Theory developed by John Bowlby and Albert Bandura's Theory, show us the reality of families and the importance of the participation of parents in the educational process of their children to so that they have more and better learning. The contribution that this research gives us with respect to the role of the parent in improving learning is that the performance of parents in the education of their children is unquestionable, recognizing the importance of the participation of parents in the educational process.

In the analysis of the qualitative indexed journal reports, we find Razeto (2016) who, in his research carried out in Valdivia (Chile), postulates the need to think about creating new strategies to achieve the participation of parents in the education of their children, through an analysis of the benefits and forms of parental participation to promote a link between family and school using home visits as an instrument for collecting information. This research provides us with the need to carry out national empirical studies and to be able to use instruments such as home visits to justify the effectiveness in the best of the family-school alliance practices through the promotion of this technique and others.

We know that the participation of parents through Parent Schools is of vital importance to improve educational quality because it creates community and generates solidarity between families and the school. It serves as a space to share competencies and experiences to learn from them. It promotes the commitment of parents to get involved in the lives of their children. Through research, this conception has been strengthened and demonstrated its importance in improving learning, as supported by Cano (2015) in Madrid (Spain), by specifying that the general objective of the research carried out of a descriptive non-experimental type formulated that the general objective had been to inquire about the training processes of the Schools of Parents from the perspective of its members: participating parents and professional staff, in order to propose improvement guidelines in the development of these

Schools to promote the exercise of shared responsibility between the family and the school.

The authors Guzmán, Bastidas & Mendoza (2019) in Ecuador analyze through their research that has a mixed approach, the role of the family as the main socializing entity that favors the emotional development of the child, ensuring a personal and social identity. Teaching at home is complex because it generates anxiety in families as they see themselves vulnerable in fulfilling the role established by society and by the vocation of being parents. For the foundation of this research, a theoretical framework of the two variables was approached using observation and survey techniques. From the results it is concluded that parents contribute to the integral growth of their children by providing the necessary and conducive environments for the quality of learning.

Discussion

This research was carried out on a meticulous review of articles that analyze the scientific production on parent participation, based on child neurodevelopment, it was found that the participation of parents in the educational process of their children, constitutes a fundamental pillar to strengthen the family-school link and improve the teaching and learning process of children. What we have to understand that there is a direct relationship between the categories of analysis. It can be seen that the participation of parents efficiently affects the educational process of their children, they tend to be related to good performance in the teaching-learning process, experiencing improvements in the exchange of information (communication) as well as intervention in activities (participation). In general terms, the authors consulted agree that the participation of parents, based on the understanding of child neurodevelopment, generates positive benefits in the educational process of their children and improves the teaching-learning process. It is advisable to continue with the review of this type of articles to increase and improve the participation of parents in the education of their children, being an active support for the improvement of learning. Thus, the participation of parents brings essential contributions to school development in addition to fostering a favorable environment for child development.

Conclusions

In this work, it was identified that the participation of parents in the educational process of initial education students is essential to achieve educational objectives. Likewise, the responsibility of the family in the quality of their children's education was identified. In this regard, it was possible to identify that the families more involved with the school and more committed to education have children with a better performance than those families that are not. In the same way, it allowed to identify

that addressing this relationship between the participation of parents and the improvement in the educational process of their children, could give positive results in the improvement of the quality of learning of children and adolescents.

In this sense, it was identified that involving families in children's education is a shared responsibility among educational authorities, where teachers assume a leading role. Finally, it is recommended to develop strategies that allow the family to be actively incorporated into the educational process of their children.

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