

Proyectos de estimulación temprana: características esenciales desde la visión meta analítica

Early stimulation projects: essential characteristics from the analytical goal

Diego Bonilla-Jurado**¹Myrian Pérez-Constante****Patricio Jami-Vargas****Marco Camacho –Escobar**

Universidad Estatal de Bolívar, Guaranda, Ecuador

¹Universidad Técnica de Ambato, Ecuador**Correo(s) electrónico(s):**

administracion@bhconsultores.com

mb.perez@uta.edu.ec

tfjamito@hotmail.com

marancames59@yahoo.com

Recibido: 10 de marzo de 2018

Aceptado: 15 de octubre de 2018

Resumen: Esta investigación desarrolla las principales teorías de la estimulación temprana y lo que conlleva la estructuración de los constructos para, desde allí, diseñar proyectos de estimulación temprana completos. Es decir, con el resultado del meta análisis los indicadores por constructo serán los que se cuantifiquen en el monitoreo, seguimiento y evaluación de proyectos de estimulación temprana. La metodología que se utilizó en este trabajo fue mixta, a través de la modalidad bibliográfica, ya que se recurrió a investigaciones previas. Para la validación del modelo teórico se utilizó el meta análisis que validó cuatro constructos y trece indicadores por medio del análisis dimensional e indicadores.

Palabras clave: Estimulación temprana; Descriptores; Meta análisis; Perspectiva teórica

Abstract: This research develops the main theories of early stimulation and what entails the structuring of the constructs, from there, designing complete early stimulation projects. That is, with the result of the Meta-analysis, the indicators by construct will be those that are quantified in the monitoring, monitoring and evaluation of early stimulation projects. The methodology used in this work was mixed, through the bibliographic modality, since previous research was used. For the validation of the theoretical model, Metaanalysis was used, which validated four constructs and thirteen indicators, by means of dimensional analysis and indicators

Keywords: Early stimulation, Descriptors, Meta-analysis, Theoretical perspective

Introduction

The acquisition of children's language topic is a subject for which the specialists of several branches have been interested, understanding it from comprehensibly different perspectives. (Salguero, Álvarez, Verane and Santelices, 2012)

The first serious considerations on the subject of language acquisition are due to Aristotle, who - apart from distinguishing three moments in the acquisition of language - affirms that the linguistic apparatus of the child and his ability to understand language develop independently (Field, 2010). However, we can not speak of a real beginning of studies on children's language until the eighteenth century, where the spirit of observation sets the basis for an investigation based on the facts, even if they are occasional. (Cué, Díaz, Díaz and Valdés, 2008)

Several authors have seen the great importance that such studies could have for the development of linguistics. In these, the idea that the study of children's language is indispensable in the field of general linguistics, and especially in the new principles of phonology to the investigation of children's language, stands out. (Talento and Perdomo, 2011)

Thus, at the end of the 18th century, the diarist approach began with the observation of isolated cases made by the parents themselves. These noted from the time the child began to say his first words until the age of four or five years. One of the most outstanding contributions was the one carried out by Stern in 1907, who published a series of detailed observations on the progress of his children. (Down, Darezzo, Nunes and Dupas, 2011)

In terms of the evolutionary processes, the physical development is in the lapse of the first years of life, as is the basis on which psychological development is instituted although this is quite independent of the physical characteristics, in this way the motor development occupies an intermediate place between physical and psychological development as it depends not only on the development of related muscles and nerves but also on sensory capacities of perception. (Martínez, García, Poblano and Madlen, 2010)

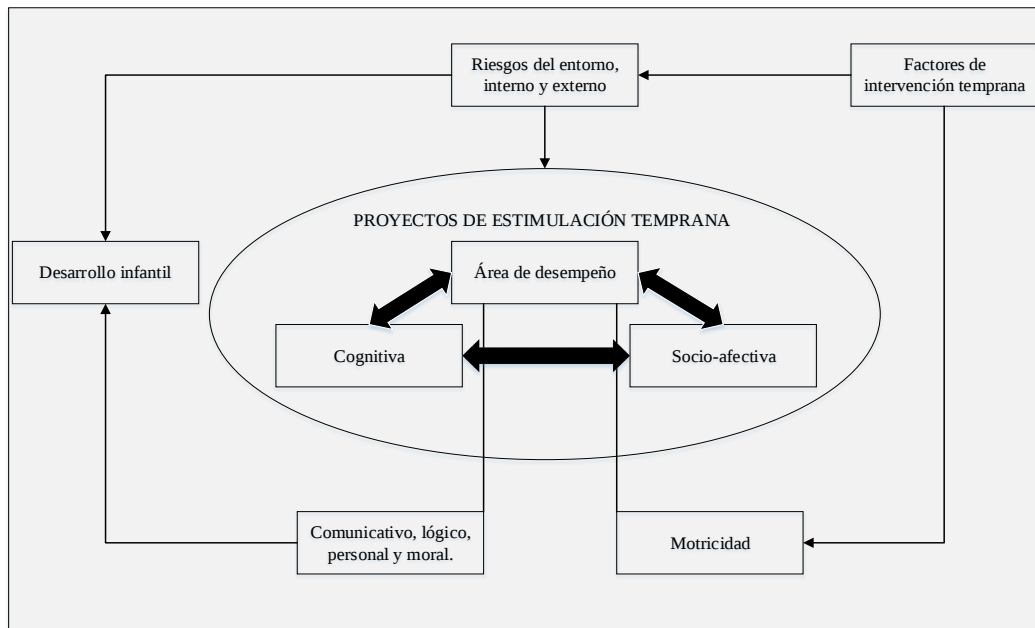
Development

Early stimulation. Conceptualization

Different terms have been used to select the actions that have been addressed to avoid the difficulties of children with clear deficiencies or simply of groups included as vulnerable as a substitute for the term of early stimulation that seems to evoke a desire for acceleration in

the normal development process of the individual. What is intended is to maximize the physical and intellectual possibilities of the child through regulated and continuous stimulation carried out in all sensory areas, but without forcing in any sense the logical course of the maturation of the central nervous system. (Cuevas, 2012)

Graph 1. Theoretical model of early stimulation projects



Source: self made

Prior to the analytical meta-analysis, a theoretical model of graph 1 was obtained, which analyzed constructs that facilitated the literature review, in addition to checking the model according to previous investigations. The bibliographic review of the model is then developed.

Motor development of language and hearing: the study of human development has become one of the main sources of knowledge, which has made possible the construction of important tools. In the course of childhood, the motor and sensory-perceptual capacities are transformed in a reciprocal way, parallel to the process of maturation of the nervous system, whose structures are organized, differentiated and specialized. (Navarro, 2005)

Cognitive development in language learning: cognition is understood as the set of processes from which information is obtained through the senses. The memory is analyzed, sent to the appropriate cortical centers for future consultation, and used in the resolution of problems. In this way the cognitive is interrelated with higher mental processes in relation to the acquisition of new behavioral processes. (Field, 2011)

The language and process of socialization: the environment in which the child develops (lives, grows and plays) plays an essential role in the development and acquisition of communication and oral language. The language is shaped thanks to the exposure of correct linguistic models and to determine situations that favor its practice consolidation, improvement and generalization. (Ibáñez, Mudarray, 2004)

Acting towards communicative needs: the infant conceives language as a means to investigate and know reality (Busquets and Sosa, 2009). The basic linguistic functions described by Halliday consist of inducing the infant to the functions of the language so that the detailed intentional strategy in its heuristic model acquires meaning against the positive attitude of the children, that is, it complements the communicative functions and increases the potential of the infant (Ardila, 2013)

Development areas: to organize the activities that will be developed with families and their children it is important to have a division by areas that must be addressed in relation to the child's need. (Quinteros, 2011)

Cognitive area: refers to the ability of the child to make their own decisions in the environment in which it develops and begin to order the reality to which it is exposed. This is done through structures and mental associations that allow you to explore, compare, choose, ask, classify (Manley, Roberts, Doyle, Schmidt, Anderson and Harrington, 2013). The experiences that the infant acquires increase their level of thinking, in a way that perfects their memory and perception. (Gordillo, 2013)

Motricity: is used to refer to the coordinated and complex movements performed by infants and involve the locomotor system. This motor system is coordinated by the cerebral cortex and secondary structures that modulate it, so that its execution is from the head to the feet.

The motor abilities are exercised in different ways in each child, for that reason they must be trained and induced in an early process. (Gordillo, 2013, Rodríguez and Iglesias, 2009)

Fine motor: its reference is destined towards the refinement process of the gross motor control point, it is determined after a skill that is a result of the maturation of the neurological system (Marzal, Parra and Colmenero, 2011). The control of fine motor skills in the infant is a development cycle and is taken as a relevant event to estimate their age of development. In this way, fine motor skills are based on the experiences and knowledge that the infant acquires, and are reflected through their muscle strength, coordination and normal sensitivity. (Pinango and Vega, 2018)

Thick motor skills: unlike fine motor skills, gross motor skills exert a greater energy, but this in turn demands patience, something that at this age does not abound. This is how it refers to the control of the general muscular movements of the body that lead the child from the absolute dependence to move alone. From the moment that a coarse motor control is obtained, a fine motor control is developed by perfecting the small and precise movements. (Marzal, Parra and Colmenero 2011)

Early intervention factors: there are a number of factors that affect the development of the child's motor skills. They are classified into: a) endogenous factor, is related to the maturation and genetics of the child, includes the disorders and their characteristics that are usually inherited; b) exogenous factor, is that which intervenes in the development that is generated from the outside; c) physical factor, it is considered to food, sanitary conditions, among other factors; d) social factor, is related to the relational environment that is associated with the infant. (Grande, 2011)

In this way it can be considered that the formation and evolution of motor skills progresses and stimulates their evolution (Grande, 2011). The health sciences professional must recognize the behaviors that appear in children, and once their strengths and weaknesses are known, they can reinforce and intervene in their growth and development. (Rodríguez, Gómez y Prieto, 2017)The research carried out has a qualitative and quantitative approach, with descriptive scope.

The statistic analysis used to corroborate the quality of the information found in the databases and documentary sources is the meta analysis, which identifies a series of processes in which computer tools such as the ForestPlotGenerator were used, which facilitated the representation of the information through a forest diagram. V.2016 Excel was used to represent the results obtained from journals dedicated to health sciences.

The automated databases made available to anyone any available and up-to-date information about research related to early stimulation.

The databases are a source of secondary resources that facilitate obtaining homogeneous or heterogeneous information that can be retrievable through systematic networks of scientific information. These have complete bibliographical records or references, organized in fields that cover all aspects of the information (title, author, summary, etc.).

Once the databases have been selected, the constructs, descriptors or keywords are established. These constructs are the main concepts or the variables of the study problem or research theme (Day and Gastel, 2008). These main axes served as key descriptors to start the search.

The selection criteria were defined through the objectives of the review, that is, the question to which the work tries to answer. Other aspects that determined the relevance of the bibliographic source that was used were: a) reliability of the results, b) results obtained, c) applicability of the study results in the work to be performed. (Vera, 2009)

The systematization of the information obtained allowed a complex subject to be simpler and its objectivity to be easily reached through reasoned reduction. This methodology is applicable in the elaboration of a process of segmentation of information, the office program that was used for this activity was the Excel 2016. This system of organization is a cognitive tool that consists in representing the knowledge by means of a graphic way and synthetic, oriented to efficient and meaningful learning. Table 1 shows the results obtained.

Table 1. Analysis of theoretical constructs

Dimension	Indicator	EEUU	Spain	Chile	Bolivia	Colombia	Mexico	Australia
-----------	-----------	------	-------	-------	---------	----------	--------	-----------

Performance area	Cognitive	32	4	17	15	12	66	2
	Socio-affective	21	117	75	1	12	69	3
	Language and Hearing	58	97	34	5	15	122	59
Motricidad	Fine motor skills	3	73	59	3	28	31	9
	Gross motor skills	8	47	110	2	32	41	2
Early intervention factors	Riesgos prenatales	162	95	76	76	12	14	122
	Perinatal risks	2	10	3	2	1	12	44
	Postnatal risk	9	112	124	10	20	204	2
	Environmental risks	53	35	20	28	17	47	29
Child development	Communicative development	56	35	34	0	3	1	2
	Logical thinking	2	63	78	0	12	14	1
	Personal development	4	6	3	0	21	145	2
	Moral development	23	65	130	34	193	120	22

Source: self-made.

As Table 1 shows through the constructs system organization, the generation of precision of the theoretical model was obtained by means of an adjustment and contrast of the indicators

and dimensions of each article, in order to be able to specify which country was the most researched has elaborated in relation to the research line. The system that corroborates the organization of information and constructs is called a descriptor counter that identifies the origin of the article, which in turn reflects which country makes the greatest scientific contributions on the topic of study.

Once the information obtained through the descriptor counter was analyzed, the following investigative relationship could be determined, according to the dimensions of the investigation. Graph 2 shows the levels of studies according to the construct by the performance area.

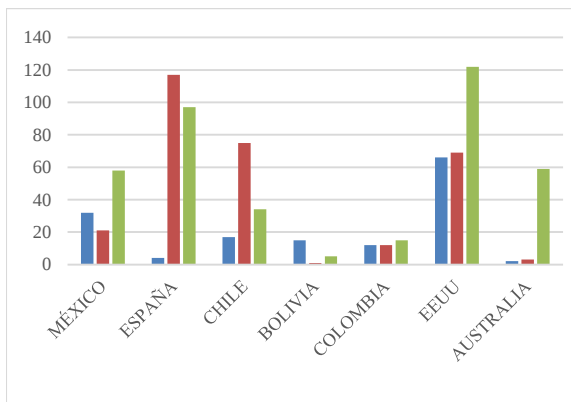


Gráfico 2. Construction, performance

Source: self-made.

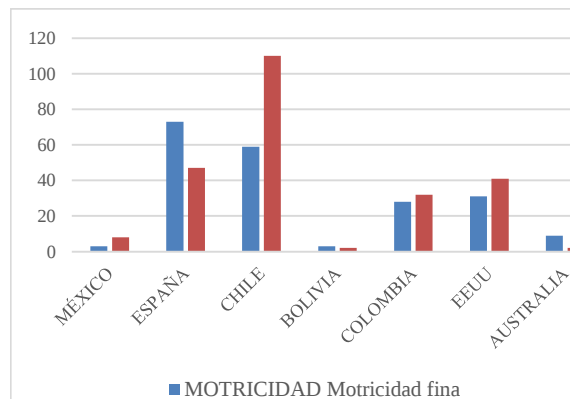
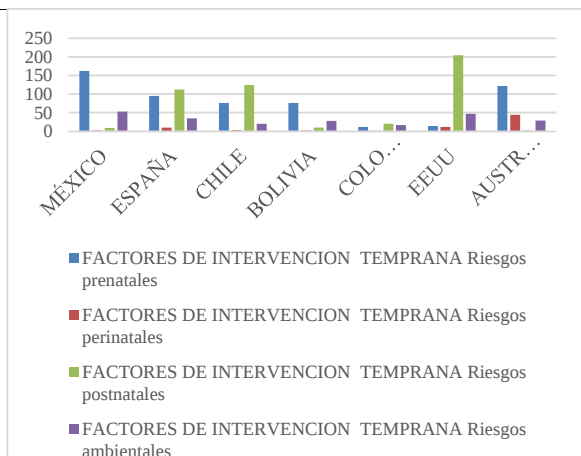
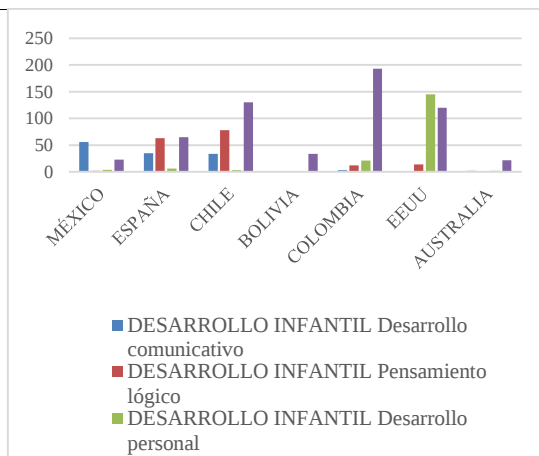


Gráfico 3. Constructo,

As determined in graph 2, the origin of the literature in relation to the performance area dimension shows that the United States has greater analysis in the area of cognitivism, Spain shows a predominance in the socio-affective indicator, and the United States presents the scope of greater studies in the language and hearing areas.

In graph 3, as shown by the analysis of the motor dimension, it is seen that Spain has made important studies related to fine motor skills, and Chile stands out in the gross motor studies, since the scenarios of each population are different.

**Graph 4. Construct, Motor factors****Graph 5. Construction, Child development**

Source: self-made.

Figure 4 can be analyzed with respect to the dimension of early intervention factors that Mexico indicates a higher trend of studies in the indicator of prenatal risks; in the area of perinatal risks Australia has studies, but the research in this indicator is weak. The United States shows a large number of studies in relation to the indicator postnatal risks. In Mexico there are few studies in the environmental risk indicator, it can be assumed that it is an indicator that has not had much relevance in previous studies.

In Figure 5 the child development dimension, Mexico has relevant studies in relation to the communicative development indicator, in Chile there are latent studies in relation to logical thinking, which is why an approach to bibliographic analysis in that region should be carried out. With permanent studies, the United States shows that it has a predominance in the infant's personal development indicator. Colombia in recent years has focused on researching characteristics that are linked to the moral development indicator, making it predominant in studies of this line of research.

Based on the review of the literature, it was possible to obtain the structuring of the constructs in which the research model could be determined. The descriptors of the constructs analysis facilitated the adjustment and contrast of the literary revision. In this way four dimensions were: a) Performance area, b) Motor skills, c) early intervention factors, d) Child development.

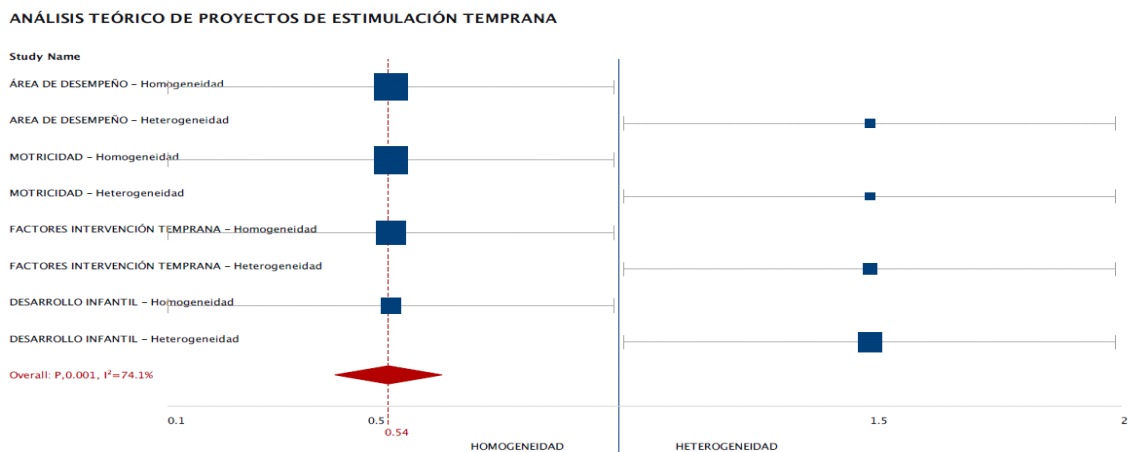
	Homogeneity	% Homo	Heterogeneity	% Heter	Study population	% Total study sample
Performance area	25	83%	5	17%	30	100%
Motor skills	26	87%	4	13%	30	100%
Early intervention factors	22	73%	8	27%	30	100%
Child development	13	43%	17	57%	30	100%

Table 2. Frequencies of the study population

Source: self made

Consequently, the homogeneity and heterogeneity analysis that was obtained from a frequency table was performed in table 2. In this sense, homogeneity is the fundamental element in the research and theoretical analysis since it allows to specify the validity of the information obtained in the course of the investigation.

The values of heterogeneity (1-2) and homogeneity (0.1-1) are visualized through the values in the X axis, in column two the lower confidence level Lower Confidence (LCL), and in the third column the highest confidence level Upper Confidence (UCL), half of the graph of the forest diagram shows that the vertical line symbolizes the null effect of the studies. That is, they do not represent a significant value for determining the quality of the information, value located in the first column as "Odds Ratio" (OR), it presents the typical average difference or the relative risk with a value of one, as represented by the graphic 6.



Graph 6. Forest Diagram - Validation of constructs

Source: Self made.

The overall effect is calculated by means of the average value of the homogeneity and heterogeneity impact of the studies in each function, its value is 0.54, represented in a red diamond, whose location shows that there was greater homogeneity in the investigation because it is located on the left side of the null effect line.

As mentioned above, the use of this statistic facilitates the coupling and contrast of all the results obtained through different scales of qualitative assessment used in the studies examined.

Conclusions

To complete the research, the foundation of the study criteria constructs for the model of early stimulation projects was concluded, by means of a systematic method of information management called meta-analysis, information search strategies were evaluated, Inclusion criteria and exclusion of the respective information to each construct, the quality of the same and the quantitative analysis of the studies examined, obtaining as a result that the research used mostly reliable database articles, sources with no older to five years in Spanish and English. The homogeneity of the study was established with a determinant mean of 0.54 based on the analytical criteria of the researchers, thus presenting superiority in the heterogeneity.

In this way, the constructs show a great binding relationship to early stimulation projects since they identify strategic functions, guidelines that contribute to the quality of information. Thus, with a study population of thirty bibliographical sources, a model was obtained referring to projects related to society in the area of early stimulation that should be directed by higher education institutions since it demonstrates the main factors that they must be taken into account when stipulating the planning and executing it.

Bibliographic references

Ardila, R. (2013). Los orígenes del conductismo, Watson y el manifiesto conductista de 1913. *Revista Latinoamericana de Psicología*, 45(2), 315-319.

- Busquets, S., y Sosa, S. (2009). Desarrollo de la intención comunicativa en niños de 9 a 24 meses. *Cuadernos Facultad de Humanidades y Ciencias Sociales de la Universidad Nacional de Jujuy*, (37), 195-220.
- Campo, L. (2010). Importancia del desarrollo motor en relación con los procesos evolutivos del lenguaje y la cognición en niños de 3 a 7 años de la ciudad de Barranquilla (Colombia). *Salud Uninorte*, 26(1), 65-76.
- Campo Terner, L. A. (2011). Características del desarrollo adaptativo en niños de 3 a 7 años de la ciudad de Barranquilla. *Psychologia. Avances de la disciplina*, 5, 95-104. Recuperado de <http://www.redalyc.org/articulo.oa?id=297224105008>
- Cué Bruguera, M., Díaz Alonso, G., Díaz Martínez, A. G., y Valdés Abreu, M. D. L. C. (2008). El artículo de revisión. *Revista Iberoamericana de Enfermería Comunitaria*, 1(6), 1-11. <https://doi.org/10.1590/S0864-34662008000400011>
- Cuevas, P. G. (2012). Orígenes y Evolución de la Atención Temprana. Una Perspectiva Histórica de la Génesis de la Atención Temprana en Nuestro País. Agentes Contextos y Procesos Origins and Evolution of Early Childhood Intervention. A Historical Perspective of the Genesis. *Psicología educativa*, 18(2), 107-122. Recuperado de <https://doi.org/http://dx.doi.org/10.5093/ed2012a12>
- Day, R. A., y Gastel, B. (2008). Cómo escribir y publicar trabajos científicos. *Revista Cubana de Salud Pública*, 34(3), 1-3. Recuperado de <https://doi.org/10.1590/S0864-34662008000300018>
- Down, D., Darezzo, M., Nunes, R., y Dupas, G. (2011). Independencia del niño con síndrome de Down: la experiencia de la familia. *Latino-Am. Enfermagem*, 19(4).
- Gordillo, P. (2013). *La Importancia de la estimulación temprana en el área Motriz Fina de los niños/as De 0 a 24 meses en el centro de desarrollo infantil «Pequeños Traviesos» de la ciudad de Latacunga*”. Universidad Técnica de Ambato. Ecuador.
- Grande, P. (2011). Coordinación interinstitucional en Atención Temprana en la Comunidad de Madrid (área 10). *Educación Inclusiva*, 4 (área 10), 47 citation_lastpage=66.
- Ibáñez López, P., Mudarra Sánchez, M. J., y Alfonso Ibáñez, C. (2004). Un estudio sobre el método estitsológicomultisensorial de atención temprana. *Revista Española de*

Orientación y Psicopedagogía, 15(2), 107-127.
<https://doi.org/http://dx.doi.org/10.5944/reop.vol.16.num.1.2005.11365>

- Manley, B., Roberts, R., Doyle, L. Schmidt, B., Anderson, P., Barrington, K., et al. (2013). Cognitive Models as Bridge between Brain and Behavior. *Child Development*, 35(4), 102.<https://doi.org/10.1006/pmed.1998.0279>
- Martínez Cruz, C., García Alonso, P., Poblano, A., y Madlen, M. (2010). Estimulación temprana de audición y lenguaje para niños con alto riesgo de secuelas neurológicas. *Acta Pediátrica de México*, 31(6), 304-310.
- Marzal, M., Parra, P., y Colmenero, M. (2011). La medición de impacto y evaluación de programas de alfabetización en información para bibliotecas escolares. *Revista española de Documentación Científica*, 34(2), 190-211. Recuperado de <https://doi.org/10.3989/redc.2011.2.780>
- Navarro, H. (2005). *Manual para la evaluación de impacto de proyectos y programas de lucha contra la pobreza*. Recuperado de http://guia.oitcinterfor.org/sites/default/files/conocimientos/manual_ev_imp_proy_sociales_CEPAL.pdf
- Pina, J. (2007). *Análisis de un modelo de seguimiento en atención temprana*. Universidad Complutense de Madrid, Madrid.
- Pinango, A., y Vega, L. (2018). Estimulación auditiva como base para la adquisición y desarrollo del lenguaje. *Revista caribeña de Ciencias Sociales*, 11(6), 1-20. Recuperado de <http://www.eumed.net/rev/caribe/2018/04/estimulacion-auditiva-lenguaje.html>
- Quinteros, L. (2015). *La estimulación temprana y el desarrollo de la motricidad fina en niños de 3 a 5 años con discapacidad visual*. Universidad Técnica de Ambato. Ecuador.
- Rodríguez, C., y Iglesias, C. (s. /f.). Hacia una Pedagogía para la atención integral a las personas con necesidades educativas especiales. *Mediateca. rimed. cu*. Recuperado de <http://mediateca.rimed.cu/media/document/4733.pdf>
- Rodríguez, M. T., Gómez, I. M., y Prieto, A. (2017). La educación psicomotriz en su contribución al desarrollo del lenguaje en niños que presentan necesidades específicas de apoyo educativo. *Revista de investigación en Logopedia*, 1(4), 89-106.

- Salguero Santana, M., Álvarez Arrieta, Y., Verane Dubalón, D., y Santelices Jiménez, B. (2012). El desarrollo del lenguaje. Detección precoz de los retrasos/ trastornos en la adquisición del lenguaje. *Revista Cubana de Tecnología de la Salud*, 43-57.
- Talento, C. Y., y Perdomo González, E. (2011). La estimulación temprana en el desarrollo creativo de los niños de la primera infancia. *Varona*, (52), 29-34.
- Vera Carrasco, O. (2009). Cómo escribir artículos de revisión. *Med La Paz*, 15(1), 63-69.