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Artículos científicos

Evaluación del lenguaje en preescolares del norte de la ciudad de Durango, Durango, México

Language evaluation in preschoolers in the north of the city of Durango, Durango., Mexico

Avaliação da linguagem em pré-escolares no norte da cidade de Durango, Durango, México

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Resumen

El porcentaje de niños latinoamericanos en edad preescolar con deficiencia en el desarrollo del lenguaje oscila entre 10 % y 80 %. **Objetivo:** Conocer el porcentaje de deficiencia en el lenguaje de niños preescolares del norte de la ciudad de Durango, Durango (México), para lo cual se empleó el cuestionario de madurez neuropsicológica infantil. **Metodología:** El estudio fue no experimental, observacional, transeccional y descriptivo, en un universo de trabajo de 833 niños, para lo que se consideró 95 % de confiabilidad en una muestra estadísticamente significativa de 214 participantes; sin embargo, debido a la culminación del ciclo escolar, solo fue posible evaluar a 148 participantes en el periodo de noviembre de 2017 a junio de 2018. El grupo estudiado fue dividido en 4 subgrupos: 55-60 meses de edad, 61-66 meses de edad, 67-72 meses de edad y 73-78 meses de edad.

Resultados: El alfa de Cronbach de las variables estudiadas fue 0.618. Se observaron deficiencias en las dos áreas del lenguaje evaluadas: lenguaje verbal y lenguaje no verbal. En los cuatro grupos estudiados, la mayor deficiencia se observó en el área del lenguaje verbal con porcentajes que oscilaron entre -80.5 % y -95.9 % en fluidez verbal; lenguaje expresivo con -27.5 % al -55.2 %; lenguaje comprensivo con -15.7 % al -31.1 % y lenguaje articulatorio con -14.1 % al -19.3 %. Las demás variables del grupo de lenguaje no verbal —estructuración espacial, psicomotricidad, visopercepción y memoria icónica— presentaron porcentajes de deficiencia menores a los observados en las variables de lenguaje verbal, aunque se destacan atención con -39.5 % al -43.2 %, ritmo con -2.9 % al -34.5 %, visopercepción con -10.6 % al -25.7 %, estructuración espacial con -3.5 % al -11.1 %, memoria icónica con -6.8 %, psicomotricidad con -3.6 %. Todos los grupos de edad estudiados presentaron deficiencia en seis o más variables del instrumento de evaluación empleado. Las variables del lenguaje no verbal que presentaron resultados satisfactorios por grupo de meses de edad fueron las siguientes: estructuración espacial en el grupo de 55-60 y en el de 67-72; psicomotricidad en el grupo de 55-60, 61-66 y 67-72; visopercepción en el grupo de 55-60; memoria icónica en los grupos de 55-60 y 67-72. **Conclusión:** De las áreas de lenguaje evaluadas, la de mayor afectación fue lenguaje verbal, lo cual permite considerar la necesidad de implementar la evaluación del desarrollo del lenguaje en la población infantil preescolar para considerar la oportunidad de optimizarlo.

Palabras claves: lenguaje no verbal, lenguaje verbal, retraso del lenguaje.

Abstract

The percentage of Latin American children of preschool age, with deficiencies in language development, ranges from 10% to 80%. **Objective:** To know the percentage of deficiency in the language of preschool children in the north of the city of Durango, Dgo., Mexico, using the child neuropsychological maturity questionnaire. **Methodology:** The study was non-experimental, observational, transectional and descriptive in a work universe of 833 children, considering a statistically significant sample of 214 participants with 95% reliability, but due to the completion of the school year it was only possible to evaluate 148 participants in a period from November 2017 to June 2018. The studied group was divided into four subgroups: a group of 55-60 months of age, second group of 61-66 months of age, third group of 67-72 months of age and the fourth group 73-78 months of age.

Results: Cronbach's Alpha of the studied variables was 0.618, observing deficiencies in the two evaluated language areas, verbal language and non-verbal language. In the four groups studied, the greatest deficiency was observed in the area of verbal language, with percentages that ranged from -80.5% to -95.9% in verbal fluency; expressive language with -27.5% to -55.2%; comprehensive language with -15.7% to -31.1% and articulatory language with -14.1% to -19.3%. The other variables of the non-verbal language group, which are spatial structuring, psychomotor skills, visual perception and iconic memory, presented lower percentages of deficiency than those observed in the verbal language variables, highlighting attention with -39.5% to -43.2%, rhythm with -2.9% to -34.5%, visoperception with -10.6% to -25.7%, spatial structuring with -3.5% to -11.1%, iconic memory with -6.8%, psychomotor skills with -3.6%. All the age groups studied showed deficiency in six or more variables of the evaluation instrument used. The non-verbal language variables that presented satisfactory results, by age group were: spatial structuring in the 55-60 group and in the 67-72 group; psychomotor skills in the 55-60, 61-66 and 67-72 group; visoperception in the 55-60 group; iconic memory in groups 55-60 and 67-72. **Conclusion:** The language area most affected was verbal language, which allows considering the need to implement the evaluation of language development in the preschool child population to consider the opportunity to improve the development of children's language.

Keywords: non-verbal language, verbal language, language delay.

Resumo

A porcentagem de crianças pré-escolares latino-americanas com deficiências no desenvolvimento da linguagem varia de 10% a 80%. Objetivo: Conhecer a porcentagem de deficiência de linguagem em crianças pré-escolares do norte da cidade de Durango, Durango (México), para as quais foi utilizado o questionário de maturidade neuropsicológica infantil. Metodologia: O estudo foi não experimental, observacional, transversal e descritivo, em um universo de trabalho de 833 crianças, para o qual foi considerada confiabilidade de 95% em uma amostra estatisticamente significativa de 214 participantes; Porém, devido ao término do ano letivo, só foi possível avaliar 148 participantes no período de novembro de 2017 a junho de 2018. O grupo estudado foi dividido em 4 subgrupos: 55-60 meses de idade, 61-66 meses, 67-72 meses de idade e 73-78 meses de idade.

Resultados: o alfa de Cronbach das variáveis estudadas foi de 0,618. Foram observadas deficiências nas duas áreas de linguagem avaliadas: linguagem verbal e linguagem não verbal. Nos quatro grupos estudados, a maior deficiência foi observada na área de linguagem verbal com percentuais que variaram entre -80,5% e -95,9% na fluência verbal; linguagem expressiva com -27,5% a -55,2%; linguagem abrangente com -15,7% a -31,1% e linguagem articulatória com -14,1% a -19,3%. As demais variáveis do grupo linguagem não verbal - estruturação espacial, habilidades psicomotoras, percepção visual e memória icônica - apresentaram percentuais de deficiência inferiores aos observados nas variáveis de linguagem verbal, embora atenção se destaque com -39,5% a -43,2%, ritmo com -2,9% a -34,5%, percepção visual com -10,6% a -25,7%, estruturação espacial com -3,5% a -11,1%, memória icônica com -6,8%, habilidades psicomotoras com -3,6%. Todas as faixas etárias estudadas apresentaram deficiência em seis ou mais variáveis do instrumento de avaliação utilizado. As variáveis de linguagem não verbal que apresentaram resultados satisfatórios por faixa etária foram: estruturação espacial no grupo 55-60 e no grupo 67-72; habilidades psicomotoras no grupo 55-60, 61-66 e 67-72; visopercepção no grupo 55-60; memória icônica nos grupos 55-60 e 67-72. Conclusão: Das áreas de linguagem avaliadas, a mais afetada foi a linguagem verbal, o que permite considerar a necessidade de implementar a avaliação do desenvolvimento da linguagem na população pré-escolar para considerar a oportunidade de otimizá-la.

Palavras-chave: linguagem não verbal, linguagem verbal, atraso de linguagem.

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Introduction

Derived from what has been observed in various investigations, it can be pointed out that between 10% and 80% of the Latin American preschool population has a deficit in language development, which is why the concern arises to know the status of this problem in children from the north of the city of Durango, Durango (Mexico).

Language development is an important process for satisfactory communication and understanding among members of society, hence it is relevant to evaluate it from the earliest stages of life to promote communication skills that in turn favor cognitive development. According to Corral (May 18, 2018), “language is the basis of human communication that allows us to express ourselves and understand others, and depending on how we use it, we are going to build and interpret the world in a different way” (par. 1).

In preschool children, it is essential to know the level of language development, especially in those who are close to the formal beginning of their school education, since it is known that the exposure and early development of language in these infants allows predicting language skills. and cognitive, as well as their consequent academic achievements (Romeo et al., 2018). Therefore, the timely identification of the level of development of language and oral communication in children constitutes a concern for parents, teachers and educators, since the evolution in communication, school learning and personality in general depends on this factor (Torres, 2018).

Preschool age is an exceptional period where the child's potential can be used to the maximum, since biologically it is a stage in which neural connections are established that will constitute the basis of neurocognitive processes for preschool learning. (Escobar, 2006; Portellano, Matreos y Martínez, 2006; Romeo *et al.*, 2018).

There are many and varied efforts that have been made in different parts of the world to identify the level of language development and its characteristics in preschool-age children, which is why a summary of some of the most outstanding is presented below. In the first place, it can be indicated - based on the investigation of Ríos-Flórez, Marulanda, Ruiz and Jiménez (2016) - that it has not been shown that premature birth affects the development of infant language.

On the other hand, Rojas, Muñoz, Burbano and Pacheco (2019) carried out a study in Colombian institutions with a sample of 261 children with ages between 3 and 5 years; the

results showed oral language alterations in 46.4% and mixed alteration was the most common with 18.4%, followed by alteration of the expressive level with 15.3%.

Vasconcelos et al. (2015) in a sample of 539 students between 4 and 10 years of age, in Belo Horizonte (Brazil), identified that 33.6% of the participants had oral language disorders.

Ilha, Barichello, Rosa de Oliveira, Barichello and Keske (2017), in the city of Santa María (Brazil), evaluated 866 children from 3 to 8 years 11 months of age from private and public schools. Their findings showed that 26% of the sample suffered atypical phonological acquisition (phonological disorders), which was more latent in public school students.

Samelli, Rondón-Melo, Rabelo and Molini-Avejonas (2017) worked with 479 children between 2 and 5 years of age belonging to different health centers in the west of Sao Pablo (Brazil). In the results they found that 26.9% had deficits in language production, and 8.6% in language comprehension.

Schonhaut, Maggiolo, De Barbieri, Rojas and Salgado (2007) —in a 2006 study with children from 3 to 5 years of age in the metropolitan region of Chile— detected through the speech therapy test that 219 children (48.8%) had difficulties of language, while in another survey carried out in the same area, but in 2007, they found that 36% of the participants also had this type of linguistic problems (Schonhaut, Maggiolo, Herrera, Acevedo y García, 2008).

Núñez, Granada, Cáceres and Pomés (2017) they analyzed the production and understanding of speech in preschool children of the Talca commune, seventh region of Chile; To do this, they compared 20 preschoolers with specific language disorders and 20 students with typical development. Their conclusions showed that there were no significant differences in the production of both groups, although they were detected in speech understanding in favor of children with typical language development.

Cáceres-Zúñiga, Ramos-Enriquez, Díaz-Gutierrez and Chamorro-Cáceres (2018) —in Talca (Chile) - in a sample made up of 112 preschool participants found that 37.5% suffered from receptive vocabulary.

Hurtado-Gamboa and Guerrero-Olalla (2018), when studying the prevalence of delay in the development of comprehensive and expressive language in 138 children aged 1 to 3 years 11 months from child development centers in Ecuador, found comprehensive language delay in 34.7 % of the participants, and expressive language delay in 46.3% of the students.

Peñañiel-Pinenla and Acosta-Ceballos (2018), in a study carried out on 154 children aged 1 to 3 years 11 months - also from child development centers in Quito (Ecuador) -, determined that the prevalence of language delay comprehension was 22.08%, and expressive language was 42.21%.

Quiroz-Arciniega, Quiroz-Arciniega and Ruales-Paredes (2019), in 177 children from 1 to 3 years 11 months old - from child development centers of the Tungurahua Province (Ecuador) - observed that 44.89% had comprehensive language delay , and 71.43% expressive language.

Morales-Maza and Ruales-Paredes (2019) in child development centers of the Pichincha Province (Ecuador), examined 57 children from 1 to 3 years 11 months of age, and found that 42.11% had problems in terms of comprehensive language, and 85.96% in expressive language.

Díaz, Gallestey, Vargas-Machuca and Aguilar Velarde (2017) conducted an investigation with children under 5 years of age from Loreto, Ayacucho, Huancavelica, and Apurímac (Peru) to identify the influence of socioeconomic factors on motor and language development. The results showed that children from rural areas, children of mothers with low education and belonging to households with unsatisfied basic needs, exhibit lower values in the two development areas.

Oré-Quiquia, Tito-Donayre and Villafuerte-Martínez (2018) in a study carried out in mixed schools in the city of Lima (Peru) with the PLON-R test in 123 children from 5 to 6 years of age identified 32.5% with delay in language development.

Gómez-Altamirano and Rodríguez-Sánchez (2017) conducted a study with 50 five-year-old children —30 from public schools and 20 from private schools in the city of Cajamarca (Peru) - to determine the level of language. The data collected showed that 34% of the population in public schools had a low level of language, while in private schools the percentage was 22%.

Valdivia-Álvarez, I., Gárate-Sánchez, Regal-Cabrera, Castillo-Izquierdo and Sáez (2014), in an investigation developed in Havana (Cuba) with 45 participants from 18 months to 5 years of age from the Juan Manuel pediatric hospital Márquez —all with college-level parents— found that 80% of the children had primary language retardation.

Eadie et al. (2015) “in a study carried out on 1494 Australian children aged 4 years, they found 40.8% with a language disorder” (p. 578-584). For their part, Blumenfeld et al.

(2018) evaluated 138 participants from a health care center in Argentina. The results showed that 11.6% had a delay in language development.

Granados, Castañeda and Mora (2019) worked with 80 preschoolers (32 girls and 48 boys) with an average age of 5 years and 8 months from public schools in Xalapa, Veracruz (Mexico). These authors assessed verbal intelligence with the Wechsler scale for preschool and primary levels, in addition to soft neurological signs and storytelling. The results showed significant differences in the level of narrative coherence due to moderate to severe language difficulties.

Finally, the National Institute for the Evaluation of Education (INEE) (2011), at the national level in Mexico, identified 10% of the population with deficiencies in language and communication.

Overall objective

The objective of this work was to evaluate language in preschool children from the north of the city of Durango, Durango (Mexico) using the child neuropsychological maturity questionnaire.

Methodology

The study was non-experimental, transectional and descriptive, since data was collected in a single moment with the purpose of describing the behavior of the variables by using the mean obtained. (Hernández, Fernández y Baptista, 2014).

Sampling

For the development of the research, the selection of a randomly selected probabilistic sample was considered from a population of 833 preschool students belonging to the northern urban area of the capital of the state of Durango, Durango (Mexico), with a confidence level 95% and a margin of error of 5%. The sample—defined by the finite population formula—consisted of 264 participants. However, due to time constraints due to the completion of the school year, only 148 participants were evaluated. The criteria chosen to select the sample were the following (Arias, Villasís y Miranda, 2016; Fuentes, 2015):

Inclusion

1. Boys and girls from five to six years old.
2. Students who were in the third grade of preschool.
3. The preschool had to belong to the northern urban area of the capital of the state of Durango.
4. Children whose parents and managers agreed with the evaluation.

Exclusion

1. Those who did not attend the day of the test.
2. Age outside the defined range.
3. Children with a disability.
4. Indisposition to take the test.

Elimination

1. Children whose parents were not at the informational meeting.
2. Children whose parents did not authorize participation in the study.
3. Incomplete evaluation.

Material used

For this work, as a research instrument, the infant neuropsychological maturity questionnaire (Cumanin) was used, reproducing the battery 148 times for its application in the same number of participants. The Cumanin is an instrument that allows to identify the degree of neuropsychological maturity of each child, as well as those who show signs of brain dysfunction or lesions (Portellano et al., 2006).

The test consists of 13 sections (psychomotor skills, articulatory language, expressive language, comprehensive language, spatial structuring, visual perception, iconic memory, rhythm, verbal fluency, attention, reading, writing and laterality) with a total of 83 questions, each of the which is valued as success (one) or error (zero), and information on laterality of the hand, eye and foot is also recorded (Morales and Rincón, 2016).

This test must be applied in a relatively spacious room or office (more than 20 square meters), with adequate lighting and as few objects as possible, with a table and a chair whose

sizes are adjusted to the age of the child. Likewise, the order indicated in the notebook must be followed to apply all the variables, except for reading and writing, which will only be used after the age of five (Portellano et al., 2006).

For the analysis of the results, age must be converted from years to months. Verbal development is obtained by adding articulatory, expressive and comprehensive languages. Non-verbal development is made up of direct scores for psychomotor skills, spatial structuring, visual perception, iconic memory, and rhythm. And the global development is obtained by adding verbal development and non-verbal development (Portellano *et al.*, 2006)

The Cumanin is not an instrument to assess intellectual development, but to identify the degree of neuropsychological maturity of each child, as well as those cases that show signs of brain dysfunction or injury; This with the aim of being able to design specific treatment programs that allow them to improve their capacities (Portellano et al., 2006).

Regarding human resources, 5 researchers participated, as well as 148 participants for the evaluations, 17 principals, 17 teachers from the study groups and 148 parents. The financial resource for the investigation was approximately \$ 20,000. Most of it was used in the computer equipment and the application battery, which was provided by the Faculty of Psychology and Human Communication Therapy of the Juárez University of the State of Durango. Finally, the physical resources were 17 classrooms, 4 tables, 17 schools and 8 chairs.

Procedure

The work was carried out between November 2017 and June 2018 in the northern urban area of the city of Durango, Durango (Mexico). The preschool schools that the Durango State Secretary of Education (SEED) has registered in the study area and the number of evaluated participants from each school were the following (table 1):

Tabla 1. Preescolares de estudio

Escuelas	Participantes a evaluar
1. María Montessori	8
2. Gabino Barreda	7
3. Diana Laura Rojas Reyes	9
4. Martín González Vázquez	12
5. Alfonso Reyes	14
6. Carmen Serdán a la Triste	10
7. León Felipe	13
8. José Manuel Puig Causaran	7
9. Topiltzin	12
10. Amelia Gamero de Ramírez	6
11. Fray Diego de la Cadena	9
12. Nicolás Bravo	8
13. Luis Braille	7
14. Justo Sierra	10
15. María Luisa Ross Landa	5
16. Federico Chopin	3
17. Catarino Herrera Barraza	8
TOTAL	148

Fuente: Elaboración propia

Once the participating schools were identified, they first interacted with the directors of each institution to request permission to carry out the research work. Then, the authorization of the teachers of each group was requested to apply the instrument and, finally, a meeting was held with the parents, who signed the informed consent to evaluate the selected sample.

The data were captured in a Microsoft Excel spreadsheet, which was used for descriptive statistical analysis, using the mean of the direct scores resulting from each of the 10 variables considered in the Cumanin.

Results

The results obtained in the direct Cumanin score showed a Crombach alpha of 0.618 in the sample of 148 evaluated participants, of which 68 were girls (43.9%) and 80 were boys (56.1%), aged between 55 and 78 months. .

The smallest number of participants studied was in the 55-60 months of age group, while the majority of participants were in the 61-66 and 67-72 months of age groups (Table 2):

Tabla 2. Distribución de edad por meses cumplidos

Grupo de edad	Niñas	%	Niños	%	Total	%
55-60	0	0.0	2	1.4	2	1.4
61-66	23	15.5	32	21.6	55	37.2
67-72	29	19.6	38	25.7	67	45.3
73-78	13	8.8	11	7.4	24	16.2
Total	65	43.9	83	56.1	148	100.0

Fuente: Elaboración propia

In the 55-60 month-old group, of the 10 variables studied, the first 5 show values above the Cumanin mean, and 5 with values below (Table 3):

Tabla 3. Resultados del grupo de 55-60 meses de edad (n = 2)

VARIABLES	Media obtenida	Porcentaje mayor o menor a la media del Cumanin	Media del Cumanin
Lenguaje articulatorio	13	19.3	10.9
Lenguaje expresivo	3	-27.5	4.14
Fluidez verbal	0.5	-95.9	12.06
Lenguaje comprensivo	3.5	-17.6	4.25
Estructuración espacial	7.5	0.1	7.49
Psicomotricidad	9.5	28.4	7.4
Visopercepción	7.5	11.4	6.73
Memoria icónica	5.5	0.4	5.48
Ritmo	1.5	-34.5	2.29
Atención	6	-39.5	9.91

Fuente: Elaboración propia

In the 61-66 month-old group, 9 of the 10 variables were observed with values below the Cumanin mean, and only one with a result above the mean (Table 4):

Tabla 4. Resultados del grupo de 61-66 meses de edad (n = 55)

Variabes	Media obtenida	Porcentaje de deficiencia	Media del Cumanin
Psicomotricidad	8.2	5.1	7.8
Lenguaje articulatorio	9.7	-18.5	11.9
Lenguaje expresivo	2.7	-47.1	5.1
Fluidez verbal	2.4	-86.9	18.3
Lenguaje comprensivo	3.1	-31.1	4.5
Estructuración espacial	8.2	-3.5	8.5
Visopercepción	7.1	-18.4	8.7
Memoria icónica	5.5	-6.8	5.9
Ritmo	1.9	-32.1	2.8
Atención	6.7	-43.2	11.8

Fuente: Elaboración propia

In the 67-72-month-old group, only 3 variables were observed with values above the mean, and the rest below the Cumanin mean (Table 5):

Tabla 5. Participantes del grupo de 67-72 meses de edad (n = 67)

Variabes	Media obtenida	Porcentaje de deficiencia	Media del Cumanin
Estructuración espacial	9.9	13.8	8.7
Psicomotricidad	8.3	1.2	8.2
Memoria icónica	6.4	1.6	6.3
Lenguaje articulatorio	11	-14.1	12.8
Lenguaje expresivo	3.2	-46.7	6
Fluidez verbal	3.8	-80.5	19.5
Lenguaje comprensivo	4	-18.4	4.9
Visopercepción	9.3	-10.6	10.4
Ritmo	3.4	-2.9	3.5
Atención	7.9	-41.0	13.4

Fuente: Elaboración propia

In the 73-78-month-old group, only one variable shows results above the mean, and nine below the Cumanin mean (table 6):

Tabla 6. Participantes del grupo de 73-78 meses de edad (n = 24)

VARIABLES	Media obtenida	Porcentaje de deficiencia	Media del Cumanin
Memoria icónica	6.6	1.5	6.5
Lenguaje articulatorio	11	-18.5	13.5
Lenguaje expresivo	3	-55.2	6.7
Fluidez verbal	2	-90.8	21.7
Lenguaje comprensivo	4.3	-15.7	5.1
Estructuración espacial	8	-11.1	9
Psicomotricidad	8	-3.6	8.3
Visopercepción	8.4	-25.7	11.3
Ritmo	2.7	-22.9	3.5
Atención	8.7	-39.6	14.4

Fuente: Elaboración propia

Discussion

In the present study, language was evaluated in 148 preschool children in the northern area of the city of Durango, Durango (Mexico), and although the sample studied was not 264 -which was statistically defined as significant for the present study-, the reliability of the results obtained —assessed by Cronbach's alpha— was satisfactory with 0.618, which allows a reliable analysis of the results.

In the four groups studied, most of the variables - both in the area of verbal language and in the area of non-verbal language - were observed with results below the Cumanin mean value, a reference point for considering normal language development . In this sense, the verbal fluency variable with the lowest value stands out in the verbal language section, followed by expressive language, comprehensive language and articulatory language. Considering that the area of verbal language is the most affected, it can be identified as an important reason that interferes with the cognitive development of the preschool population studied.

The timely identification of the level of language development and oral communication in children is a concern for parents, teachers and educators, since the evolution in communication, school learning and personality in general depends on the level of language development (Torres, 2018). Therefore, and observing the results of this study with high percentages of deficiency, it becomes important to address this problem that affects the preschool population, as expressed Torres (2018), Escobar (2006), Portellano *et al.* (2006) y Romeo *et al.* (2018).

Conclusions

The studied population presented values below what is referred to as normal by Cumanin in at least 6 of the 10 variables studied, which affects the development of verbal and non-verbal language; Therefore, it is suggested to implement from the preschool stage strategies that serve to optimize language, an essential tool for the social and educational development of the child.

The limitation that occurred in the course of the research was related to the availability of time, since the completion of the school year prevented the entire initially defined sample from studying. Even so, having achieved a satisfactory Cronbach's alpha in the results obtained, it can be indicated that the analysis process was reliable.

Therefore, the implementation of systematic language assessments from the beginning and throughout the child's preschool education is recommended, since in this way it is feasible to identify the specific care needs that the infant requires for optimal preschool development in terms of to your communication skills.

New lines of research

Observing the results obtained by this work, it is possible to identify the need to open new lines of research on the development of language in the preschool population, since in this way there would be the opportunity to improve educational attention, which will reduce the problems of verbal and non-verbal language.

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Metodología	Reyes-Verdín Flor <u>Dayana</u> «principal» <u>Ríos-Valles José Alejandro</u> , «igual» <u>Salas-Name Sagrario Lizeth</u> «que apoya» Soto-Rivera Jesús Abraham «que apoya» Herrera-Vargas Isela Vanessa «que apoya»
Software	Reyes-Verdín Flor <u>Dayana</u> «principal» <u>Ríos-Valles José Alejandro</u> , «igual» <u>Salas-Name Sagrario Lizeth</u> «que apoya» Soto-Rivera Jesús Abraham «que apoya» Herrera-Vargas Isela Vanessa «que apoya»
Validación	<u>Ríos-Valles José Alejandro</u>
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Escritura - Preparación del borrador original	Reyes-Verdín Flor <u>Dayana</u> «principal» <u>Ríos-Valles José Alejandro</u> , «igual»
Escritura - Revisión y edición	Reyes-Verdín Flor <u>Dayana</u> «principal» <u>Ríos-Valles José Alejandro</u> , «igual» <u>Salas-Name Sagrario Lizeth</u> «que apoya» Soto-Rivera Jesús Abraham «que apoya» Herrera-Vargas Isela Vanessa «que apoya»
Visualización	Reyes-Verdín Flor <u>Dayana</u> «principal» <u>Ríos-Valles José Alejandro</u> , «igual» <u>Salas-Name Sagrario Lizeth</u> «que apoya» Soto-Rivera Jesús Abraham «que apoya» Herrera-Vargas Isela Vanessa «que apoya»
Supervisión	Reyes-Verdín Flor <u>Dayana</u>
Administración de	Reyes-Verdín Flor <u>Dayana</u>

Proyectos	
Adquisición de fondos	Reyes-Verdín Flor <u>Dayana</u> «principal» <u>Ríos-Valles José Alejandro</u> , «igual» <u>Salas-Name Sagrario Lizeth</u> «que apoya» Soto-Rivera Jesús Abraham «que apoya» Herrera-Vargas Isela Vanessa «que apoya»