



# Child drawing - evolution and applicability in speech-language clinic

## Desenho infantil – evolução e aplicabilidades na clínica fonoaudiológica

## Diseño infantil - evolución y aplicabilidad en la clínica fonoaudiológica

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### **Abstract**

**Aim:** To describe and analyze the evolution of children's design with typical language development in childhood education and to discuss its applicability in the speech-language clinic. **Methods:** Data collection was performed at a kindergarten school, with 25 students from two to five years of age, from July to September, 2017. Three distinct activities were performed in a group, with a one-month interval between them, according to the age group. For the classification of the design, it was used the proposal of Lowenfeld and Brittain. The qualitative analysis was based on Montanini. The data were analyzed using the Fisher exact test and the Friedman test. **Results:** There was a significant difference in the classification of the design, according to the age groups. When considering its evolution, considering the three meetings, no significant difference was observed. **Conclusion:** From the qualitative and quantitative analyzes, it was observed the evolution of the child's design, as the child develops. Considering the importance of studies on children's design for speech therapy, it is suggested that other interventions related to the evolution of design be developed individually and with a longer time interval between data collection.

**Keywords:** Design; Child, Child Development; Language Development

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Authors' contributions:

DG was responsible for the underlying of this study, data collection, analysis, results discussion and manuscript elaboration. RFD followed all the research development, collaborated with the writing and made critic review of the manuscript.

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## Resumo

**Objetivos:** Descrever e analisar a evolução do desenho de crianças com desenvolvimento típico de linguagem na Educação Infantil e discutir a sua aplicabilidade na clínica fonoaudiológica. **Métodos:** A coleta de dados foi realizada em uma escola de educação infantil, com 25 alunos de dois a cinco anos de idade, no período de julho a setembro de 2017. Foram realizadas três atividades distintas, em grupo, com intervalo de um mês entre elas, conforme a faixa etária. Para a classificação dos desenhos utilizou-se a proposta de Lowenfeld e Brittain. A análise qualitativa baseou-se em Montanini. Os dados obtidos foram analisados por meio do teste exato de Fisher e o teste de Friedman. **Resultados:** Verificou-se diferença significativa, quanto à classificação dos desenhos, entre as faixas etárias. Ao considerar a sua evolução, baseado nos três encontros, não se observou diferença relevante. **Conclusão:** Observou-se, a partir das análises qualitativa e quantitativa, evolução do desenho infantil, à medida que a criança vai se desenvolvendo. Dada a importância de estudos sobre o desenho infantil para a Fonoaudiologia, sugere-se que outras intervenções relacionadas à evolução do desenho sejam desenvolvidas, de forma individual e com maior intervalo de tempo entre as coletas de dados.

**Palavras-chave:** Desenho; Criança; Desenvolvimento Infantil; Desenvolvimento da Linguagem

## Resumen

**Objetivo:** Describir y analizar la evolución del diseño de niños con desarrollo típico de lenguaje de la Educación Infantil y discutir su aplicabilidad en la clínica fonoaudiológica. **Procedimientos:** La recolección de datos fue realizada en una escuela de educación infantil, con 25 alumnos de dos a cinco años de edad, en el período de julio a septiembre de 2017. Se realizaron tres actividades distintas, en grupo, un intervalo de un mes entre ellas, según el grupo de edad. Para la clasificación de los diseños se utilizó la propuesta de Lowenfeld y Brittain. El análisis cualitativo se basó en Montanini. Los datos obtenidos se analizaron mediante la prueba exacta de Fisher y la prueba de Friedman. **Resultados:** Se verificó una diferencia significativa en cuanto a la clasificación de los diseños, según las franjas de edad. Al considerar su evolución, considerando los tres encuentros, no se observó diferencia relevante. **Conclusión:** Se observó, a partir de los análisis cualitativo y cuantitativo, evolución del diseño infantil, a medida que el niño se va desarrollando. Teniendo en cuenta la importancia de los estudios sobre el diseño infantil para la terapia del habla, se sugiere que otras intervenciones relacionadas con la evolución del diseño se desarrollen individualmente y con un intervalo de tiempo más largo entre la recopilación de datos.

**Palabras clave:** Diseño; Niño; Desarrollo Infantil; Desarrollo del Lenguaje

## Introduction

One of the oldest ways of communication is graphic representation of thoughts and feelings. As a way to register his/her history primitive man let his/her mark and his/her deeds in cave drawings. During child development, drawing also appears as the first form of expression, before the domain of reading and writing<sup>1</sup>.

Before reading and writing, the child communicates with the world through other language skills, such as speech, playing, body movements and drawing. Despite not knowing how to write and how to read, the infant establishes bounds with the world where he/she lives in, expressing to people with whom he/she lives with his/her feelings, ideas and wishes. The drawing is one of the resources

which provides these bounds, and as far as the child grows, realizes that is able to represent objects and emotions, symbolically<sup>1,2,3</sup>.

In the beginning of his/her development, the child starts to explore his/her body and the environment in which he/she is inserted; manipulates objects, materials and toys, besides integrating with people around, in a dynamic and spontaneous way. Due to those interactions, organizes the thought, elaborating knowledge, which is an active and living process<sup>4,5,6</sup>.

The first years of child's development are important to language development, since it is on this stage that he/she starts to establish learning patterns, activities and his/her own sense of subject as a being, generating reflexes in his/her life. To the child, the drawing is considered one expression of

the world and not just a simple imitation, because the child draws according to interior model, according to mind representation, which he/she possesses from the object to be drawn<sup>7</sup>.

Lowendeld and Brittain<sup>7</sup> supported the idea that drawing is important to child's development, because it is through this process that the child develops the capacity of representing and expressing what he/she feels and sees, besides stimulating creativity. Thereby, authors established two phases to development of drawing: scribbles and preschematic phase.

The first phase, the scribbles one, occurs with two or four years old children, who produce traits with meaning which evolve to drawings with content, being those recognized by adults afterwards. Scribbles are classified in three categories: deranged, controlled and attribution of names<sup>7</sup>.

In the deranged, the child's first traits vary in length and direction. While the child realizes them, he/she can be looking at a different side. Sometimes, they do not exactly happen in paper, but on the walls and furniture. In the controlled phase, the child starts to discover that there is a connection between movements, and he/she has already discovered the view control that it does. This phase happens around six months after the emergence of deranged scribbles phase. From the attribution of meanings to scribbles phase it is indicated a transformation in the child's thought, which starts the drawing presenting some idea of what he/she is going to do and it is also influenced by what he/she has already done<sup>7</sup>.

In the second phase, preschematic, which happens between four and seven years of age, occurs the first attempt of representations. Around four years old, children already draw some recognizable forms, but, at times, it is hard to analyze what they are trying to represent. The circle and cross-sectional movements converted in recognizable forms, and this attempted of representation directly proceed directly in the scribbles phases. Generally, the first symbol created is a human figure, with a circle, that indicates head, and two vertical lines, that represent the legs. These clues are found in seven-year-old children<sup>7</sup>.

According to Rahal & Rolim<sup>9</sup>, child's drawing is a spontaneous language and, therefore, a mean and material which contribute to the enrichment of speech therapy diagnosis. These authors made a study with the objective of analyzing the develop-

ment in the preschool phase, in children with and without alteration in language development, and concluded that the graphic aspect of drawing contributes with one more data to the phono audiology evaluation, but averted that drawing should not be interpreted in a superficial way<sup>10</sup>.

In this sense, it is common the speech therapist to ask the patients' drawings during evaluation and during speech therapy, with the intent of understanding emotional, physiological and cognitive aspects, besides promoting therapists-patient<sup>9,10</sup> bound or promoting the interaction between patients, in a group activity<sup>2</sup>. Free drawing allows these children to develop creativity, invention, imagination which should be in resonance with the child's look, attending the stages of symbolic, affective-emotional, social, physic, linguistic and physiological development<sup>2,6</sup>.

Despite the lack of studies which represent the importance and applicability of drawing in speech's therapy, it is a resource frequently used in speech and language fields. It is believed that the use of this symbolic resource by the speech therapist, in evaluation or therapy, can and should be subsidized through investigations that show aspects, since their evaluation until their meaning and importance of therapy setting.

Based on the assumptions aforementioned, this study aims to describe and analyse the evolution of children's drawing in children's education, with typical language development, and discuss its applicability in speech therapy clinic.

## Material and Methods

The present study is characterized as an observational, longitudinal/cross-sectional, qualitative/quantitative research. The project was submitted to Ethics Committee of the education institute in which was developed and it was approved under the protocol number 65166116.4.0000.5523.

The collection took place in the period from July to September of 2017 and was realized in a children's education school, which is filantropic, based on the city of Caxias do Sul - South of Brazil. So that the students could participate in the study, it was necessary a school authorization through Institucional Term of Authorization and by their parents through Informed Consent Form.

The aforementioned school receives two-year-old to five-year-old children, divided in: nursery



school I e II, kindergarten I, II e IIB, and pre school I e II. Overall, there are 116 children, distributed in seven classes. To this study, were selected seven children with typical language development, to each one of age groups: two, three, four, and five. The children were selected, randomly, through calling list given by the school's principal. So they could participate in the study, were considered the falling inclusion criteria: ages between two and five years old completed, in the period of data collection; typical language development and permission to participate in the study, through TCLE. Were excluded from the study the children who were receiving speech therapy; who did not have the questionnaire filled by their parents; who failed in the hearing screening and who presented evident neurological, cognitive or psychological alterations. Besides this, the children who did not appear to the school in collection day were excluded from this study, resulting in groups of four subjects, minimum.

Before beginning data collection, parents/guardians that allowed their children's participation in the study responded one questionnaire on their children's language development, including mother's gestational age, gestational time, whether there was some intercorrence; whether the child spoke/speaks wrong; whether uses any medication; when spoke the first words; does or did speech therapy. In addition to the questionnaire answered by the parents, the children were submitted to a hearing screening, which was realized through Pediatric Audiometer PA5, properly calibrated, according to Inmetro norms.

The data were collected in the school, in one private room, on three monthly meetings and classrooms, in three meetings, according arranged with the teacher, previously.

Each child receive one piece of paper (size A4), lineless, and it was available color pencil, crayon, black pencil and eraser. The material was in the center of the table so each child could use it. In each meeting, was available the time of 60 minutes to perform the proposed task. To perform the task proposal by the researcher, the children were observed and filmed to posterior behavior analyses.

On the first meeting, the researcher presented herself to the participants and, after that, showed all the materials which would be provided. It was required, in objective and simple way, that every child drew a figure of himself. In the second meeting, it was realized the reading of the children's story Three Little Pigs. After that, it was required that each child did a drawing about the listened story. On the last meeting, it was asked that the children drew themselves, again. Therefore, it was possible a comparison with the first drawing of a human figure realized by them.

The drawings were analyzed considering the classification of Lowenfeld and Brittain<sup>7</sup> and the shootings were analyzed in a qualitative way, based on the study of Montanini<sup>11</sup>.

The method proposed by Montanini<sup>11</sup> was applied aiming checking if the child coordinates what was anticipated, what is being produced and what was produced (anticipations, momentaneous organizations and retrospection). This investigation was realized through directed questioning to each child, as well as the author who made this study.

The collected drawings were organized by growing order of age and education, according to Table 1. The analysis of children's graphic production was realized individually and between age groups.



**Table 1.** Subjects Characterization

| Subjects | Age | Sex    | Class           |
|----------|-----|--------|-----------------|
| 1        | 2   | Male   | Nursery I       |
| 2        | 2   | Male   | Nursery I       |
| 3        | 2   | Male   | Nursery I       |
| 4        | 2   | Male   | Nursery I       |
| 5        | 3   | Male   | Nursery II      |
| 6        | 3   | Male   | Nursery II      |
| 7        | 3   | Female | Nursery II      |
| 8        | 3   | Female | Nursery II      |
| 9        | 3   | Male   | Nursery II      |
| 10       | 3   | Male   | Nursery II      |
| 11       | 3   | Male   | Nursery II      |
| 13       | 4   | Male   | Kindergarten I  |
| 14       | 4   | Male   | Kindergarten I  |
| 15       | 4   | Male   | Kindergarten I  |
| 16       | 4   | Female | Kindergarten I  |
| 17       | 4   | Male   | Kindergarten II |
| 18       | 4   | Female | Kindergarten II |
| 19       | 4   | Female | Kindergarten II |
| 20       | 5   | Female | Preschool I     |
| 21       | 5   | Male   | Preschool I     |
| 22       | 5   | Male   | Preschool I     |
| 23       | 5   | Female | Preschool I     |
| 24       | 5   | Female | Preschool I     |
| 25       | 5   | Female | Preschool I     |

To describe the sample profile were developed tables of categorical variables frequency, with values of absolute frequency (n) and percentual (%), and descriptive statistics of continuum variable,

with average values, standard deviation, minimum and maximum value, medium and quartiles.

In Table 2 it is found the classification related to age and sex of the sample.

**Table 2.** Subjects characterization according to age and sex

| Age    | N (%)      |
|--------|------------|
| 2      | 4 (16.67%) |
| 3      | 7 (29.17%) |
| 4      | 7 (29.17%) |
| 5      | 6 (25%)    |
| Sex    | N (%)      |
| Female | 9 (37.5%)  |
| Male   | 15 (62.5%) |
| Total: | 24 (100%)  |

Legenda: N – number of subjects.

To variable categorical comparison was used the exact test of Fisher. To stage comparison of child's drawing between three meetings was used Friedman test. The level of meaning adopted for the statistics tests was 5 %, that is,  $p < 0.05$ .

## Results

In Table 3 it is verified the classification of drawings according to the age group, in the three meetings.

**Table 3.** Comparison of drawings classification, in each meeting, considering children's age group\*\*

| Lowenfeld e Brittain classification    |       |                            |                            |                                       |                           |          |
|----------------------------------------|-------|----------------------------|----------------------------|---------------------------------------|---------------------------|----------|
| Meetings                               | Age   | Garatuja disordered<br>N/% | Garatuja controlled<br>N/% | Names attribution to scribbles<br>N/% | Preschematic phase<br>N/% | p value  |
| 1st meeting<br>human figure<br>drawing | 3     | 100                        | 0                          | 0                                     | 0                         | *p<0.001 |
|                                        |       | 7                          | 0                          | 0                                     | 0                         |          |
|                                        | 4     | 100                        | 0                          | 0                                     | 0                         |          |
|                                        |       | 1                          | 6                          | 0                                     | 0                         |          |
|                                        | 5     | 14.29                      | 85.71                      | 0                                     | 0                         |          |
|                                        |       | 0                          | 2                          | 2                                     | 2                         |          |
|                                        |       | 0                          | 33.33                      | 33.33                                 | 33.33                     |          |
| 2nd meeting<br>graphic<br>reproduction | 2     | 4                          | 0                          | 0                                     | 0                         | *p<0.001 |
|                                        |       | 100                        | 0                          | 0                                     | 0                         |          |
|                                        | 3     | 7                          | 0                          | 0                                     | 0                         |          |
|                                        |       | 100                        | 0                          | 0                                     | 0                         |          |
|                                        | 4     | 1                          | 6                          | 0                                     | 0                         |          |
| 5                                      | 14.29 | 85.71                      | 0                          | 0                                     |                           |          |
|                                        |       | 0                          | 1                          | 2                                     | 3                         |          |
|                                        |       | 0                          | 16.67                      | 33.33                                 | 50                        |          |
| 3rd meeting<br>human figure<br>drawing | 2     | 4                          | 0                          | 0                                     | 0                         | *p<0.001 |
|                                        |       | 100                        | 0                          | 0                                     | 0                         |          |
|                                        | 3     | 7                          | 0                          | 0                                     | 0                         |          |
|                                        |       | 100                        | 0                          | 0                                     | 0                         |          |
|                                        | 4     | 1                          | 6                          | 0                                     | 0                         |          |
| 5                                      | 14.29 | 85.71                      | 0                          | 0                                     |                           |          |
|                                        |       | 0                          | 1                          | 2                                     | 3                         |          |
|                                        |       | 0                          | 16.67                      | 33.33                                 | 50                        |          |

Legend: N - number of subjects.

\*\* Fisher exact test

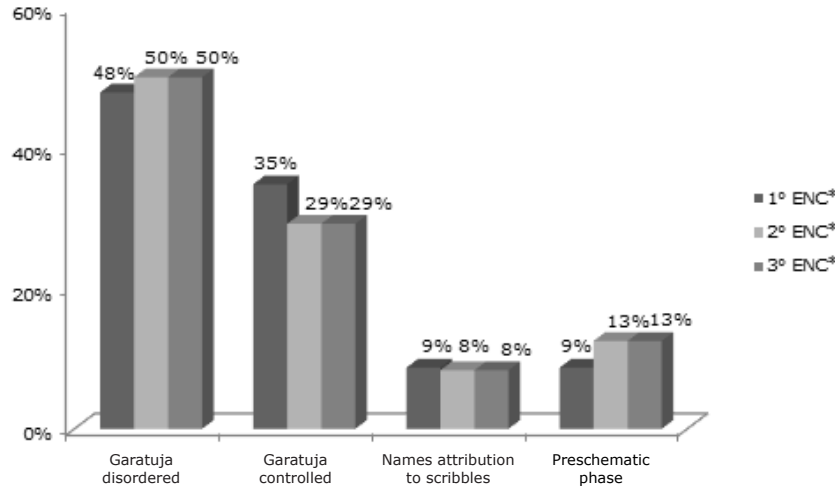
\*p<0.05

By the results, it was verified a significant difference between age groups in the three meetings. It was noted, in the three collections of drawings, greater frequency of scribbles disordered in the child's group between two and three year of age; of controlled scribbles in the four-year-old age

group; and names attribution to scribbles and preschematic phase in five-year-old of age.

Graphic 1 indicates the child's drawings evolution, considering three collections of data realized, monthly.

**Graphic 1.** Comparison of child's drawings stages between three collection of data\*\*



Legend: ENC – meeting.  
\*\*Friedman Test  
\*p=0.135

Considering drawing classification used in this study, it was observed that in break of time researched of its evolution it was not sufficient.

The qualitative analyses was made based on Montanini<sup>11</sup>, being observed behaviors such as anticipation, momentous organization and retro-spection about the drawing. It was observed:

- *Age group of two years old:* the communication was hard, due to the fact of the children being in the beginning of phonological acquisition, making it hard the comprehension of their speech, by the researcher. The one who responded the required questions kept the same idea from the start to the end (FIGURE 1).



**Figure 1.** Drawing made by subject 3 (2 years)



- *Age group of three years old:* only one child kept the same idea to begin the drawing and finish it. The other ones started drawing, for instance, one house and in the end, drew three little pigs. Beside the cases in which the child drew something that was part of the hearing story (FIGURE 2).



**Figure 2.** Drawing made by subject 6 (3 years)

- *Age group of four years old:* it was possible to observe that the majority kept the same idea and, in the final drawing, added more things, such as: “I will draw the three little pigs”; in the second question the child kept the same idea and the final question drew the three little pigs, the wolf and the little house (FIGURE 3).



**Figure 3.** Drawing made subject 16 (4 years)

- *Age group of five years old:* there were different situations. There was a child that kept the same idea, the child that changed the answer in each question, and those who drew the family, instead of the story that was told, and those that, in the final, drew other elements, besides the initial idea (FIGURE 4).



**Figure 4.** Drawing made by subject 25 (5 years)

## Discussion

It was noted a significant difference in the drawing evolution, considering the age group. In children of two and three years old, it was noted greater frequency of disordered scribbles, in the four-year-olds it was verified greater evidence of controlled scribbles, and with five-year-olds it was verified names attribution to scribbles and preschematic phase.

The child starts to draw meaninglessly and evolves to meaningless traits, until forming drawings with some context, until it is recognized by the adult<sup>5,7</sup>. The scribbles done by the children, initially, happen by a satisfaction feeling, by the organic, rhythm and of learning physiology development<sup>6</sup>.

In the study in question, it was verified that there was no significant difference in the drawing collection, considering the three meetings realized. It can be said that one month break between each meeting was not sufficient to be verified in the drawing evolution, individually.

Lowenfeld and Brittain<sup>7</sup> observed in their study, that one child takes around six months to evolve from disordered scribbles to controlled scribbles and that, as the time goes by, the child firms his traits, becoming drawings and, therefore, it evolves to the other stages of drawing development.

The data obtained in this study revealed that the drawing evolution seems to be dynamic and it is not, necessarily, linear. This can be observed through the percentage of disorder scribbles that increased in the second and in the third collection. Still, controlled scribbles and the names attribution kept stabilized in the second and the third collection



data, while disorder scribbles and the pre-schematic phase increased the occurrence percentage.

In this study, the children were questioned during the graphic of a hearing story, to verify their coordination between what was anticipated, what was produced and what was realized (anticipations, monometeneum organization and retrospection), according to methodology applied by Montanini<sup>11</sup>. The children of two year old produced meaningless traits, only back and forth movement, making it difficult the interpretation, by the researcher, about what was being drawn.

With three year old children, there was one discrepancy between what the child had projected and the drawing that had finished. It is possible to think that they have the intention of drawing something to represent the heard story, but, mixed with what is in their mind and what they have the wish to draw.

According to Montanini<sup>11</sup>, in this first moment, the child's drawing is involuntary; child draws to make lines without specific drawing. Since the first traits, the child's drawing is a creation. The pleasure of the trait, initially sporadic, becomes intentional<sup>6</sup>.

On the elder children, of four and five year old, there was one improvement of traits. The drawings started to gain forms and make sense. The most of them kept the same original idea and is also influenced by what they have already done. In the same phase, the child will announce what is drawn. This corroborates the results observed by Lowerfield and Brittain<sup>7</sup>, which refer to naming scribbles phase; the child starts to design with some idea and is also influenced by what has already done.

Luchese e Reily<sup>10</sup> realized one study in which were interviewed five clinical speech therapist, six teachers and three students of the last year, representing three undergraduate courses of speech therapy in the interior of São Paulo state. This work aimed to cover subjects with different views on child's drawings and their appliance on speech therapy: the student as a learner, the teacher as mediator figure of knowledge and the clinic representing the acquisition of knowledge through practice.

In the performed interview, most of speech therapists answered that they use drawings, in both evaluation and therapy. In evaluation, generally it is used with the objective of observing the child's cognitive, emotional and physiological aspects, beyond helping to create with the therapist. In therapy, the

drawing assumes diverse roles, since constructor of concepts of special and corporal schemes, and lexical learning, until helping in exercises of oral motricity and voice<sup>10</sup>.

In the author's study, cited earlier, the majority of interviewees reported not having received theoretical base related to drawing in graduation. They referred to the necessity of a speech therapist knowing more about the theoretical fundamentals of drawings, given the frequency in which it is used. Also, they highlighted the small amount of publications about drawing restricting the acquisition of this specific knowledge<sup>10</sup>.

According to Rahal & Rolim<sup>9</sup>, child's drawing is a spontaneous language and, because of that, one environment in which contributes to the enrichment of speech therapy diagnosis. These authors realized one study aiming to analyse the development of drawing in preschool period in children, with or without language development alteration. Besides this, they discussed the possibility of application of one evolutive scale in speech evaluation, in order to use the data collected as an assistance of comprehension and case of progress.

Rahal & Rolim<sup>9</sup> used the development scale of graphic expression proposal by Lowefeld & Brittain<sup>7</sup> to analyze drawings. In accordance with child's drawings, without alteration and lated in language development, showed that graphic drawing contributed with speech therapy evaluation, however, such resource should not be interpreted superficially<sup>9</sup> or isolated. The same classification was used to the analyses of this study.

In the speech therapy, in the case of the two bilingual deaf children, the authors observed that drawing impulsed and developed the schemes of knowledge that collaborated in learning new knowledge, such as observe and identify, compare, plan, relate and infrared. Besides, this resource provided the narration and exchange of knowledge between participants<sup>2</sup>.

In the psychology field, drawing was considered important to the child's cognitive evaluation. It is highlighted in its application is easy and fits into different cultural contexts. Besides, drawing should be always combined with other measures to intellectual evaluation function due to the fact of being one directed instrument to evaluate only one non-verbal aspect of child's cognitive functioning<sup>1</sup>.

Due to available time to the execution of this research, it was verified as limitations the fact of

the collection of data were made in groups and the short time breaks, between one collection and the other (only one month).

Given the importance of these studies to speech therapy, it is suggested other interventions related to the evolution of child's drawing being developed, in an individual way and longer time break between collections of data. This allows confirming if there is, indeed, a meaningful evolution of drawings made by children, making possible the establishment of stages, as north instruments to the speech therapist. Besides, it is advised that these investigations were realized in the phonotherapy scope, in order to problematize and demonstrate the importance of the use of drawing in therapeutic setting.

## Conclusion

The classification to drawing evolution of child's drawing in this study, that contemplates the phase of scribbles and preschematic phase, reinforced that there is evolution in the child's drawing, as long as the child develops, according to the age group. Besides, four-year-old children are capable of anticipating, keeping the idea of what they are going to draw, adding, many times, details to their graphic final production.

Given the importance of the studies of child's drawing to speech therapy, it is indicated that other interventions related to evolution of drawing are developed, in an individual way with longer breaks of time between data collection.

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