Revista ARACÊ
ISSN: 2358-2472

THE CHILD AND THE IDEA OF NUMBER: REFLECTIONS, PERSPECTIVES AND PRACTICAL ACTIVITIES

https://doi.org/10.56238/arev7n1-106

Submitted on: 10/12/2024 **Publication date:** 10/01/2025

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ABSTRACT

The article brings an excerpt from the educational product activity book: "How does the child understand the number? Practical activities and reflections", and fulfills the objective of presenting results and perceptions about the construction of number from the activity "The Silver Box", which aims to contribute to the training of teachers who teach mathematics in the early years of Basic Education and to stimulate the construction of the idea of number in children through educational games. These are theoretical and practical reflections of teachers in a master's research carried out in first-year classes of Elementary School, which addressed collaborative practices in the teaching of mathematics with reflections on the construction of the concept of number by children. This product lists educational activities involving the Piagetian concept of number, as well as reflections arising from experiences with the materials involved in the investigation. The results and discussions about the children's inference in the activity were analyzed from the records in field diaries, audios, photographs and videos and the children's interactions in the classroom context during the research, with the propositions, speeches and actions of the children analyzed in a qualitative way and that guided the elaboration of the product on screen. The results of the material point to the stimulation of the learning of the participating students, signaling how teachers can intervene in order to enhance these learnings, perceiving children's behaviors and thoughts that can lead them to the construction of the concept of number.

Keywords: Concept of number. Gaming. Collaboration. Mathematics.

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ISSN: 2358-2472

INTRODUCTION

This article is part of an Educational Product, activity book, entitled "How does the child understand the number? Practical activities and reflections", elaborated in the context of the master's dissertation research, which dealt with collaborative practices between teachers who teach mathematics, weaving reflections on the construction of the concept of number by the child. This research was developed within the scope of the professional master's degree of the Graduate Program in Teaching in Science and Mathematics Education (IEMCI) of the Institute of Mathematics and Scientific Education (IEMCI) of the Federal University of Pará (UFPA), intending to contribute to the training of teachers who teach mathematics in the early years of Basic Education and to the numerical learning process of riverside children.[4]

The product in question intertwines the theory of learning numbers by Jean Piaget and Constance Kamii (2012) with the pedagogical practices of teachers who teach mathematics in the Early Years of public schools in classes of the first year of Elementary School. This construction is part of a collaborative work proposal in which the research teacher and collaborating teachers, together and based on theoretical studies on the subject, proposed relational activities for the participating children to reflect on quantities, equality between quantities, and the conservation of existing quantities.

This process was developed over the course of a school semester and integrated moments of theoretical training, practical actions of initial diagnosis on the perception of the concept of number of the participating children; moments of reflection on the practice carried out, and elaboration/creation of activities that would foster in children curiosity about the mathematical object "numbers". Activities were carried out that sought to involve the children in a process of construction of practical-reflective knowledge, in which the action on the objects, the relationship between them, the children's reflective thinking, together with the educational motivation aroused by the game were the main focus and provided the children with the desire to understand and learn in a creative and autonomous way.

The activities were designed through reflections of those involved and had as their motto the importance of mathematics and the perception of the concept of number, in life in

[4] In this article, the term "ribeirinhos" and its suffix derivations are not used, since the populations living on the banks of the rivers believe that the term and its derivations despise them, diminish them in relation to other people and communities. For this reason, the term "streams" and its derivatives are adopted, except in citations of official documents and theoretical contributions used.

society, for children. The propositions were supported by the investigative look arising from the experiences on equality and conservation of discontinuous quantities (Piaget; Szeminska, 1981) experienced with these students. Intending to raise reflections on the importance of learning the perception of the concept of number in their cognitive development, it was sought to problematize the pedagogical practices developed and redirect them in the classroom, based on the study developed.

Thus, the aforementioned product addresses the conception of the concept of number, understanding that its construction requires mastery of the different relations of signifier and signified in different situations of analysis and situations. It requires the conceptualization of reality in order to act effectively in the face of the flexibility of symbols and signs (Kamii, 2012). These conceptions are not only formed in school, but such an educational environment constitutes a significant space for learning this concept. It is not ignored that the graphic representation of the number is necessary, and it is the role of the school to promote this, so that the numerical representations are strongly present and are worked on in order to promote the learning of mathematical concepts and procedures.

In view of the above, the objective is to present results and perceptions about the construction of the number from the activity "The Silver Box". To this end, the text is organized into four sections: In the first, reflective dialogue with theory, an overview of Piageti's approach to number is outlined, in which the theoretical positions adopted are justified; in the second, the methodology for organizing the master's research that generated the product presented is presented; in the third, the path taken to carry out the investigative experience is presented, from the diagnosis to the proposition of the activities, with the cutout of the silver box; and in the fourth section, the results and discussions that may support a teaching work are presented, using the forms of investigation, records, and analyses highlighted in the text, in order to leverage the conceptual construction of the number of students in various learning contexts.

REFLECTIVE DIALOGUE WITH THEORY

In the various practices of social life, in the formal, informal and non-formal spheres, the skills arising from mathematical skills are indispensable to all citizens. In the context of schooling, determining such competencies in the form of goals for children who attend school is a major challenge for the entire school system (D'Ambrósio, 2022). When it comes to the perception of the concept of number, it is taken as a process that goes

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ISSN: 2358-2472

through a few years of schooling in Elementary School and goes beyond the canonical writing process usually used in educational institutions in the Early Years (Kamii, 2012).

Kamii and Declark (1991) point out that mathematics is far beyond algorithms, symbols and signs, and that mathematical thinking is the product of the elementary reflexive actions that each subject performs in the psychic interaction with the object. They point out that it is necessary to understand that mathematical concepts are constituted to the extent that reflective thinking produces logical-mathematical relations, not only when one observes graphic records. One thinks mathematically without the need for symbols or numerical signs, these are socially institutionalized elements throughout history.

Kamii (2012) when discussing number states, anchored in Piagetian concepts, that number is a synthesis of two types of relationship elaborated by the child between objects through thought or reflective abstraction, that is, a synthesis between order and hierarchical inclusion. In order, the child is led to observe and count objects, mentally organizing them without counting twice, and in hierarchical inclusion he is able to think of the elements of an ordered series as a set in which a subsequent one is always added to one. Therefore, "number is something that each human being builds through the creation and coordination of relationships" (Kamii, 2012, p. 28).

In this sense, Neto (2005) highlights that the relationship between numerical thinking and registration becomes closer to the extent that external symbols and signs are related to mathematical reflective thinking, establishing an imbrication between signifier; symbolic system, and meaning. He defines number as "a mental construction that each child makes from the relationships he establishes between sets of objects" (Neto, 2005, p. 94). In this line of thought of the aforementioned authors, an adult educated with the concept of consolidated number will think of the numeral '12' as a representation of 'twelve elements' of the collection, as 'a dozen elements', as 'a ten plus two units' of elements of the collection and so on because he has already developed formal reflective mathematical thinking.

However, when the child begins the schooling process, he will not immediately recognize this relationship established between symbology and mathematical thinking. She deals with everyday situations without necessarily knowing the mathematical symbols and signs; he counts the elements of a collection, distributes sweets and toys in the group of friends; group and select the toys you win; he knows what is too much and what is too little in contrastive relations. Some children write the numeral and even recognize it, deduce it, as a representation of quantity, however, they still do it in a photographic way, as a representation of something apparent. In view of this, it is up to the teacher of the early years to create situations in which relational reflective thinking is stimulated and effective.

Piaget (2008) and followers of his studies consider that the concepts of equality, conservation and reversibility are assumptions that need to be mastered by children so that they can develop the learning of number in a meaningful way. Vergnaud (1996), in turn, evaluates that "There is no truly operative algebra without knowledge of the theories related to the conservation of equality. These are not the only useful cognitive elements, but they are decisive" (Vergnaud, 1996, p. 160). Such considerations lead to the conclusion that the construction of algebraic thinking goes through the consolidation of the inclusion process, but for this to happen, the conservation of equality is necessary.

Nunes (2009), when referring to such concepts, mentions that "the understanding of these basic concepts is not a prerequisite for learning: it develops as the child thinks and solves problems" (Nunes, 2009, p. 43). This statement does not mean that the child does not master equality, conservation, reversibility and classification or will not be able to understand the idea of number, but that this concept is only consolidated to the extent that he masters the skills of conservation, equality and reversibility.

Based on his Piagetian studies, Kamii (2012) states that there are some misconceptions regarding the teaching of number based on the use of this theory. This is because there are methods that propose to "teach" the child to make equality, conservation, classification and reversibility, concepts that cannot be teached. For the author, this type of directed teaching does not make the child reflect on the task, in addition to being an erroneous proposition of the theory, since "the number is constructed by each child from all kinds of relationships that he creates between objects" (Kamii, 2012, p. 16).

Learning the conception of number is relational and requires the child to make inferences about the elements that make up the collection. Numerical writing is the representation of mental processes that involves mathematical logical knowledge. Teixeira (2005, p. 19) mentions that to represent "means to make something absent present or to be in the place of" It is then understood that, as numerical writing is representation, it establishes a relationship with the elements to which it refers. By saying that I have 12 bananas, the numeral twelve plays a determining role in the amount of bananas desired. This numeral determines the number of elements, Piagetian number idea, but not the element.

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The child in the first year of Elementary School perceives the elements, bananas, and the observed quantity of them, but still does not establish the "distinction between internal and external representations, of a semiotic character given by signs, symbols or graphics" (Teixeira, 2005, p. 20). At this stage of development, the child perceives the signs, but does not yet make the quantifiable mental relationship with the signs or mathematical symbols with which he interacts.

All knowledge, regardless of nature, whether scientific or common sense, presupposes a systematic organization to arrive at some conservation and later at a definition, and numbers are no different. "A number is only intelligible to the extent that it remains itself, whatever the disposition of the units of which it is composed: this is what is called the "invariance of the number" (Piaget; Szeminska, 1981, p. 24). To think about number for Piaget is to think of conservation as a fundamental principle in the constitution of this concept and he defines conservation as the presence of a fixed reference system, largely independent of perception, representation and linguistic information. It depends, rather, on the presence of a coherent and organized reference of beliefs, that is, a true conceptual scheme.

In the symbolic relation of the number, the numeral "12" should represent only a group containing twelve elements and not an approximate variant of the number. When referring to this numeral quantitatively, it must be said that twelve bananas is, in an infinite succession, what in Piagetian theory, a process of relations, is called conservation of number. Twelve involves an inclusion of elements that can be repeated successively without ceasing to exist a conservation of quantity (Santos, 2019; Santos, Manfredo, Costa, 2022).

Santos *et al* (2022) also state that the number twelve can be a relation of addition, subtraction, multiplication, or division of elements that characterizes it as unique and that it can exist by itself or manifest itself by symbolic means. E.g.: 8=4; 9+3; 1+11; 20-8; 15-3; 3x4; 2x6; 36÷3; 120÷10. This relationship Kluth (2010) calls the appearance of the number "authentic" when it constitutes the perceptual relationship of plurality of each individual, or "symbolic or inauthentic", when it uses symbols to manifest itself in a process of logical equivalence, a pattern.

Returning to the thought of Piaget and Zseminska (1981) and Fayal (2012), it is reiterated that the notion of number has its solid basis and is based on the logical relationship established by individuals with the perceptible elements, but that it is

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constituted as a concept from the reflective abstraction in the face of reality. This logical process is constituted in the mental relationship in a cognitive conflict between the perceptible controllable by actions.

METHODOLOGICAL REFERRAL

The construction of the product was possible from activities carried out in two public schools on the Island of Cotijuba-Belém-PA, with children in the first year of Elementary School I at the beginning of the school year (February and March). From the municipal school participated 20 children, of which nine are boys and eleven girls living on the islands of Cotijuba and Paquetá. All twenty children aged between 5 and 6 years old.

The school of the state education network serves riverside children from different nearby islands that constitute the school demand, with 24 children being served, and it is an inclusive school[5]. During the research period, there was an initial enrollment of a student with a report for Global Developmental Disorder (GDD). Of this total, there are eleven girls and thirteen boys, all residents of Cotijuba Island, 13 children in the class came from daycare and the others were students retained or did not get a place in school in previous years. These children waited until they reached the minimum age of six years to enter the state schools (cf. Law 11.274/2006), [6]under these conditions there were eight children.

The intention, during the research carried out, was to capture as much information as possible about the process of teaching and learning the concept of number in a collaborative work. To record the course of the investigative experience, participant observation was used, through which it was intended to experience the daily life of the school and the classroom in moments before and during the elaboration of the product

In order to discuss emerging issues in the teaching practice of teachers who teach mathematics in the Early Years through the teaching-learning process delimited in the investigation with students from the first year of Elementary School, we sought subsidies in Piaget's psychogenetic studies (Piaget; Inhelder, 1975, Piaget, 1964, 1978, Piaget; Szeminska, 1981, and Kamii; Declarke 1991, Kamii, 2012) who over the years have

[5] Inclusive classes are those formed by typical and atypical students.
[6] Law 11,278/2006 modifies the text of arts. 29, 30, 32 and 87 of the Law of Guidelines and Bases of National Education, Law No. 9,394, of December 20, 1996, which establishes the guidelines and bases of national education, and provides for the duration of 9 (nine) years for elementary education, with mandatory enrollment from 6 (six) years of age.

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developed research within this area of study. The ideas of these authors are not only the theoretical contribution of the research, but also the guide for analysis and propositions of the actions carried out with the students participating in the proposed activities.

Based on the results presented in the initial diagnosis, it was jointly decided that four relational activities would be carried out with the children. In this text about the generated product, we only talk about the activity "The Silver Box". In this activity, the most important thing is not for the child to get the answer right, but to perceive the relationship that the quantifiable elements establish with each other, both at the time of the activities and in different contexts.

THE DEVELOPMENT OF EXPERIMENTS

DIAGNOSTIC EVALUATION

Initially, after readings of the book "The child and the number" by Constance Kamii (2012) and with meetings between teachers of the investigated classes, the basic questions were chosen for the realization of the experience. It was thus decided to maintain the interrogative and guiding bases used by the author, since, although the materials were different in structure, the objectives of the conservation test were the same.

The experiments should always be carried out by two experimenters, because in this collaborative process the observation of gestures and attitudes of the children are very relevant to the research and can be perceived with better clarity in this action of sharing responsibilities. 'Twelve' elements were chosen as the main quantifiable basis, as Kamii says that Piaget referred to very small numbers, smaller than seven, as "perceptual numbers, that is, they can be distinguished only with the eye, in a barely perceptible way" (Kamii, 2012, p. 11-12). In this case, the 'twelve' is constituted as a non-perceptible quantity. Santos (2019, p. 84) states that "twelve is the smallest numeral that allows greater grouping: by one, two, three, four, six and by itself".

THE ACTION

Basic questions and guidelines to be carried out in the initial diagnostic experience:

- Place the same amount of objects that I placed. No more, no less.
- Is there more here (experimenter's collection) or here (child's collection)? How do you know?

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The child is asked to choose which materials he would like to carry out the experiment with: a minimum of twelve units for the experimenter and the others for the children's use. To carry out the number conservation test, the material is arranged in rows of twelve and the children are asked to place the same amount placed by the experimenter on the table, no more, no less. This first activity foresees diagnosing whether or not the children can achieve equality of quantities.

Figure 1: Child performing the conservation test

Source: research collection.

PROOF OF EQUALITY OF QUANTITIES

For children who are unable to perform the first stage of the activity successfully, the experimenters should place the material in rows of correspondence one by one, and ask if there is the same amount in the rows. Then, collect the material that was lined up and place them in different shapes: circles, semicircles, wavy lines, piles and ask again that they represent the same quantity.

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Figure 2: The Equality of Quantities Test.

Source: research collection.

According to the answers presented, the following experiment should be continued with the conservation test. The children's answers from the survey were recorded in photos, videos and field diary for later analysis and then systematized in a table. The analysis is carried out below with Results and discussions obtained in the investigation.

PROOF OF CONSERVATION OF QUANTITIES

After the equality test experiment has been carried out, proceed to the conservation test, to be developed with some different experiments. Immediately after the proof of equality in one-to-one correspondence, it is proceeded as follows:

1st moment: the arrangement of the cards is modified, spacing them out in front of the children's gaze and the question is asked: Where are there more, or are there the same number of elements?

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Figure 3: Proof of quantity conservation

Source: Research collection.

2nd moment: the material arranged in one of the rows is taken and the child is asked: Where are there more, or are there the same number of elements?

3rd moment: the activity carried out by Piaget and Szeminska (1981, p. 54) is resumed. Six containers of transparent material and different shapes and sizes are placed as follows: A1, A2, A3 for the experimenter and B1, B2 and B3 for the child with similar shapes. Then, both the experimenter and the child are requested, by term-to-term correspondence, to place the elements inside the container. When there are twelve elements in the vessel, the experimenter asks the questions: "Where are there more elements? or "Do the containers contain the same amount?"

4th moment: In a visual sequence, the experimenter transfers the contents of container A1 to container A2, and sequentially from A2 to container A3. Then the child is asked: "Where are there more elements, in container A3 or container A1?" or "Do containers have the same amount?".

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Figure 3: Proof of Conservation of Quantities.

Source: Research collection.

The procedure for analyzing the experiment involving the conservation of discontinuous quantities should be carried out with all children, even those who have not been able to achieve equality of quantities.

PROPOSITIONS OF ACTIVITIES

From the above-mentioned diagnosis, the possibilities of activities to be developed for children are listed. The activities listed here are based on the criteria of games and activities presented by Kamii; DeVries (1991) in which winning the game is not essential, but the fact that there is the possibility of interaction between the participants, that there is cooperation and affectivity.

Kamii; DeVries (1991) present criteria for a game or activity to be meaningful to group learning: every activity or game must be interesting or challenging for the participants, and there must be some pre-established climax; allowing children to self-assess their performance; and allow everyone to actively participate from beginning to end of the activity.

In this sharing of thought, activities are sought that everyone can actively participate in, regardless of the development and perception of the concept of number, the challenge is to imagine how and where to exercise action in the face of the rules of the activity, because it is by making inferences about the existing relationships that the concept of

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number is built (Kamii, 2012). The following is a description of the activity "The Silver Box[7]" and its procedures.

GAME: THE SILVER BOX

Figure 5. The silver box

Source: Research collection (2019).

Objectives	Improve number sense; Develop logical, mathematical notions.
Materials	Split box with space to separate quantities; miscellaneous objects for counting.

PROCEDURES AND ANALYSIS

Procedures: The Silver Box set consists of a small box (9 x 1.5 x 17.5 cm) with a cardboard division in the center. The partition must have an opening with a small passage that allows the transfer of objects from one side to the other.

The box has different variations, and can have more divisions inside, as well as vary the number of elements to be used. Depending on the year of education of each class, different elements can be placed inside the box and agree on what each one can represent. Example: Red beads are worth a ten, blue ones ones and green ones hundreds. In this activity, the standard box with only one partition is used and the quantifiable

[7] Assembly model is included in the educational product available in https://educapes.capes.gov.br/handle/capes/567103.

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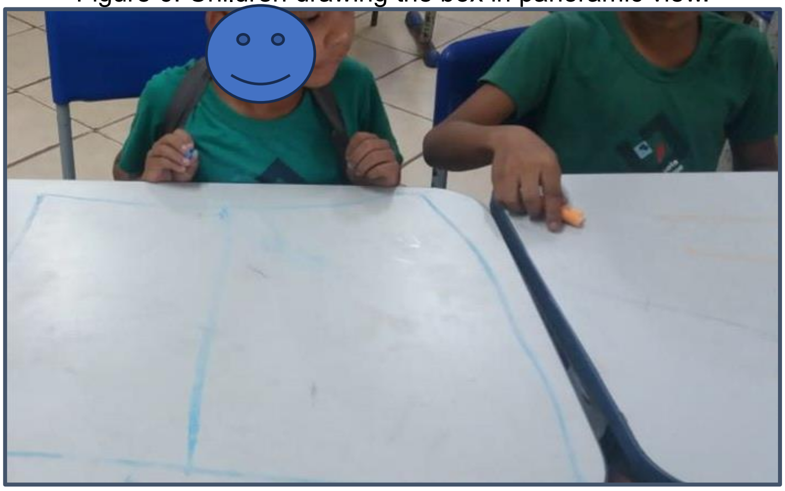
elements are twelve. This activity is similar to the "Test Involving Counting Game" (Kamii; Declark, 1991, p. 39) in an arrangement that does not involve direct comparison.

In the silver box game, the negotiations of meanings are very important, since the evaluative objectives that underpinned the action are intrinsically linked to them, and there may be variations in possibilities. However, if the activity is too open, without the intended criteria (what to represent, how to represent, what each element represents, what each symbol represents, etc.), the game can lose quality and meaning for learning and evaluation. When the child does not understand the rules, interest in the game is lost, so the rules must be very clear and without too much complexity in order to motivate, arousing interest in the challenge.

To start the activity, children are asked to draw the box, in a panoramic view. Soon after, they choose the elements and quantities that they can use in the activity. It should be noted that inside the box there are twelve elements and that they can take as many chosen elements as they want. The minimum quantity is not stipulated as a criterion, because it is intended that the children infer that if there are twelve elements in the box, in order for them to represent the quantities that would be on each side of the box, at least twelve elements are needed.

Figure 6: Children drawing the box in panoramic view.



Fort: Research Collection.

After the count is carried out, and the elements are placed inside the box, the box must be shaken from side to side so that the elements inside it run from side to side through the hole, and the children are asked to say what quantity should remain in each part of the box and represent them with the elements used.

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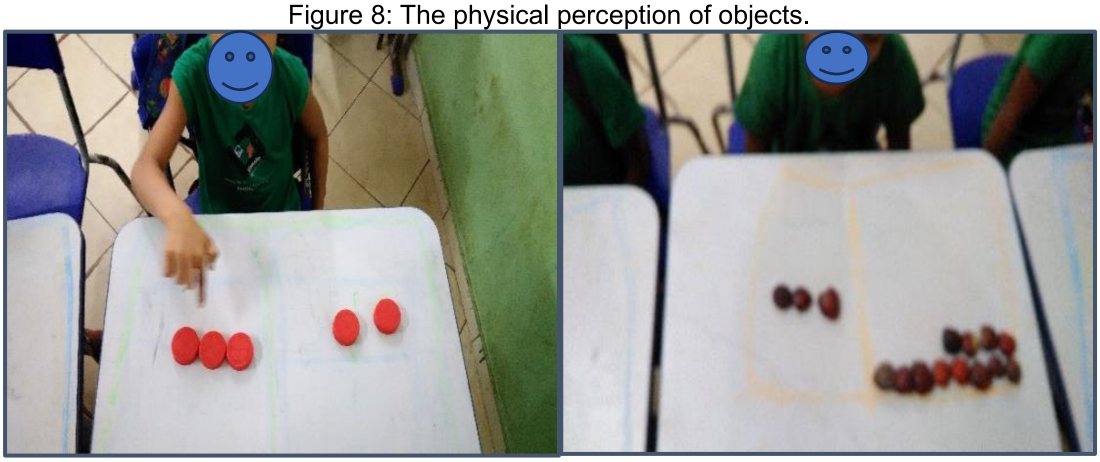
Figure 7: Activity with the silver box: counting of elements.

Source: Research Collection.

In this activity, it is necessary for the experimenter to allow the child to make their representations according to their possibilities and encouraging them to participate, because it is from this moment that the inferences made in the perception of the concept of number are perceived.

Figure 8: The physical perception of objects.



Source: Research Collection.

In the case of the answers presented by the children in figure 8, it is observed that equality and conservation have not yet been achieved, because the mobile and variable relationship of the elements of the box still embarrass them at the moment of the representation of logical thinking. Because they do not present a quantity greater than twelve, it is noted that the perception of numerical equality is already present in some moments, as they perceive that twelve is the total, but they have not yet mastered the possible segmentations of this quantity, because conservation is still under development.

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It is noted that the children, when representing the quantities with a number of elements less than twelve, act in such a way as to perceive the discontinuous quantities, but they are confused when representing them, which differs from figure 9 below.

Figure 9: Children who have not yet undergone conservation

Source: Research Collection.

At another point in the experiment activity, figure 8, it is also noticed that the children used different strategies to represent the quantities. There are children who choose to take a quantity greater than twelve elements, but when representing the quantity they keep the twelve elements on each side of the box. This occurs because these children perceive twelve as a continuous whole, but they infer that this whole is formed by parts, but there is still no complete mastery of these quantifiable variables. A continuous process of development, as we will see in the following figure.

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Figure 10: Children who keep the amount equal

Source: Research Collection.

There are also children who only pick up twelve elements. Children who develop this type of thinking show that they are able to make both equality and conservation of quantities, thus mastering the perception of the concept of number, which is noticeable in figures 10 and 11.

Figure 11: Children who keep the amount equitable

Source: Research collection (2019).

They already know that the quantity twelve is invariable as to its elementary representation, which would make it unnecessary in their conceptions to take more or less elements to represent such a quantity. They realize that the quantity twelve can be subdivided into different smaller quantities and that putting them together will always be the original quantity: twelve.

RESULTS AND DISCUSSION

The children's answers to the product-generating research are grouped in the following table, adopting the Hierarchical Order of the development of the Piagetian elementary number. Each type of response is described below and exemplified in the table.

Answer Type 1: Incorrect answer without explanation or accompanied by vague, subjective, or inappropriate explanations.

In the first moment of the experiment, in the type I answers, the children participating in the research choose to say that in the row that has the largest size, it is always the one that has the most. When answering the question "where is there more?" these children infer that there is always more where the size is larger. They ignore the spaces between the elements and the numerical quantity, performing a perceptual analysis of the elements, there are perceptual differences about the elements.

Answer Type 2: Correct answer without explanations or accompanied by vague, subjective, or inappropriate explanations.

In the answers to the questions asked in the second moment, some children think that there were more elements in the row because they took into account the length of the row formed by the seeds, while others chose to think that in the piled seeds there are more because they considered that the height formed by the seeds indicated a greater quantity. Once again, children ignore the quantitative numerical idea and stick to the visual perception of the elements.

Type 3 Answer: Correct answer accompanied by appropriate explanations.

The third moment allows the children to visualize the transformation of the elements in terms of the apparent volume they present. There are children who focus their answers, during the experiment, on the existing quantity and present arguments that corroborate conservative thinking.

In addition to the relationships between types of answers and the age of the participants, it should also be examined whether the types of answers vary depending on the nature of the arrangement of the elements. It should be said that when the activities presented are replicated, it should be considered in relation to six-year-old children, who can give Type I responses, that they should be the most susceptible to physical factors, which interfere in the perception and representation of quantities. It seems that at 6 years of age, children have difficulties in providing an appropriate justification in relation to any of the situations in the experiment, even if they can get the answer right. This difficulty is

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particularly marked in relation to conservation, both in terms of the number of deviations in the responses, and in terms of the frequency of Type III responses, which are rare in the participating age group.

The following table presents some concepts about the number thinking developed by children in the initial diagnosis.

Table - The concept of number conservation.

CONCEPT OF NUMBER	STUDENT PERCEPTIONS		SCHOOL
	EQUALITY	CONSERVATION	NUMBER OF STUDENTS
Level I. Students are unable to make the equality of quantities, as well as the conservation of the elements of the set.	–	–	
Level II. Students are able to achieve quantitative equality of the elements of the set, but they still do not retain it.	+	–	
Level III. Students achieve equality and conservation of the elements of the set and respond satisfactorily to counter-arguments	+	+	

Source: adapted from Kamii (2012). Legend: The (+) sign indicates that the child has mastered the requirement and the (-) sign indicates that the child has not yet mastered the requirement.

This chart can be used at different times throughout the school year by teachers, since it will quantitatively indicate the qualitative evolution of children regarding the concept of number. It is recommended to be used as an initial diagnosis at the beginning of the school year and at the end of each evaluation period so that progress can be analyzed and perceived.

The numbers presented should not be seen as closed knowledge, and may present variations consistent with the individuality of the children. Even if a child has not been able to achieve equality or conservation of quantities at the time of the evaluation, it does not mean that there is no mastery of such knowledge, but that internal or external agents have interfered in their answers. However, the analysis of the conducts in relation to the numbers serves as a guide for perceiving the progress and proposing interventions.

In a broader perception of the cognitive development process, it is noted that there is a line that tends to be gradual and progressive, but that is not always processed in the same way for all children. This varies according to the experiences lived with the different types of objects in their relationships inside and outside the school space. It is emphasized that during the performance of the activities, children should be instigated to interact with

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objects in a perceptual and relational way, which tends to cause greater development and learning.

Children experience mathematics as a social practice of mathematical language acquisition, in which the mathematical signifiers they come across are apparent symbols with little meaning. But they can see that there is a quantifiable relationship between the elements of a collection (plus, minus, bigger, smaller, long, short...). This perceptual relationship is a journey in the search for the construction of the concept of number, which for Piaget (Piaget, 1978; Piaget; Szeminska, 1981) is the result of biological maturation in contact with the practices of social action and reflection.

At the end of the application of the activity, it can be observed that the children become subjects who construct their own knowledge and that the teachers are mediators of this construction. The development of the concept of number by children requires constructive actions that allow dialogues with themselves, with teachers and with their peers. The school is not the only place where one learns about the number, nor are the teachers the only ones responsible for this learning. However, it is up to both to create situations in which numerical reasoning is grounded and valued.

FINAL CONSIDERATIONS

The experiences carried out by the children in the activity booklet: "How does the child understand the number? Practical activities and reflections" resulting from a professional master's research (Santos, 2019) were brought in the form of an excerpt in this article, whose objective was to present results and perceptions about the construction of the number from the activity "The Silver Box. |This and the others carried out in the aforementioned master's research were relevant for the identification of evidence about teaching and learning mathematics.

Regarding the process of construction of the concept of number by children, it is noted that the learning of numbers, before being recorded on paper, is an oral and reflective construction in which children form their small groups of mathematical counts and perceive numerical symbols as something perceptual, the numerical census Spinillo (2006).

Most children, at the beginning of the first year of elementary school, recognize numerals even greater than one hundred, but they are not yet able to achieve the equality of twelve elements of a collection; they write numerals and add symbolic elements, but they still do not realize the conservation of discontinuous quantities of elements of a collection when placed in different arrangements and forms. Children in the first year of Elementary School have already started the process of building the number sense, but have not yet developed the perception of the concept of number; The school teaches the relationship between numeral and quantity, but little works on the concept of number or even the development of number sense.

Instead of trying to teach them, the number sense and the perception of number need to be related to children's daily situations, in order to encourage their reflective thinking. Number is not taught in classrooms because it is a skill that is transformed into knowledge throughout development. It was emphasized in the literature presented that the sense of number cannot be taught, transmitted as knowledge from teachers to children, but it can be developed, and it is up to teachers to create environments and activities in which they foster numerical thinking.

The activities presented here place children in situations of similarity with situations experienced inside or outside school. They allow these students to compare elements of the same collection in actions of object movement, requiring perceptible actions and reflective thinking about the object in different situations. These are activities that seek to involve children in a process of construction of practical-reflective knowledge, in which action on the objects to be related, the child's reflective thinking, together with the educational motivation that plays awakens him, are the main focus, seeking to awaken and provide them with the desire to understand and learn in a meaningful way.

In the example "The Silver Box" brought here, children search for their answers and ask their own questions, and in this relationship of self-questioning knowledge is built. The experience with this activity points out that children can learn in these games and that teachers can intervene in order to enhance these learnings.

Therefore, it is urgent to reflect that it is no longer appropriate to put children in the classroom and limit them to the content of the day, only using pencil and paper. It is necessary to encourage communication, proposition, debate of points of view, interaction with technological and cultural instruments, which nowadays provide us with information from a simple movement of the thumb. Look at a group of children at the beginning of each year and investigate what sociocultural practices they are involved in, what they know because they are inserted in and interact with these practices

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ISSN: 2358-2472

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