

Evidence of the application of didactics in the classrooms, after training on fine psychomotricity provided to early childhood education teachers

Evidencia de la didáctica como resultado de un programa de formación docente en psicomotricidad fina

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Abstract: This article is the result of the convergence of three scientific visions, didactics, teacher training, and psychomotricity after analyzing the outcomes of the Participatory Action Research (PAR) carried out in the state of Carabobo-Venezuela, by using a sample formed by 12 teachers who designed 16 fine psychomotricity activities for various levels of early childhood education after being trained on this particular area. The design of these activities includes cognitive, sensory, and motor aspects, as well as the usage of stimulating and sensitive materials. Also, it attends children's needs taking into consideration the syllabus and projects of each classroom. Teacher training not only provides learning to the teacher but also provides a sense of reflection and empathy with the global processes that favor the integral development of children being the didactic of training the trainers fundamental axis to be transmitted and evidenced in the present work. The 16 activities were validated through the expert judgment technique. The experts specialized in the early childhood education field have different performance profiles and years of experience. The reliability of expert judgment was determined by the degree of agreement between them applying the Kendall rank correlation coefficient.

Key words: Didactics, teacher training, psychomotricity, early childhood education.

Resumen: Este artículo es el resultado de la convergencia de tres visiones científicas, didáctica, formación docente y psicomotricidad tras analizar los resultados de una Investigación Acción Participativa (IAP) realizada en el estado Carabobo-Venezuela, a través de una muestra de 12 docentes. Se diseñaron 16 actividades de psicomotricidad fina para varios niveles de educación infantil después de recibir capacitación en esta área, en particular. El diseño de estas actividades incluye aspectos cognitivos, sensoriales y motores, así como el uso de materiales estimulantes y sensibles. Además, atiende las necesidades de los niños teniendo en cuenta el programa y los proyectos de cada aula. La formación docente no solo brinda aprendizajes al docente sino que también brinda un sentido de reflexión y empatía con los procesos globales que favorecen el desarrollo integral de los niños, siendo la didáctica de la formación de los docentes un eje fundamental a transmitir y evidenciar en el presente trabajo. Las 16 actividades fueron validadas mediante la técnica de juicio de expertos. Los expertos especializados en el campo de la educación infantil tienen diferentes perfiles de desempeño y años de experiencia. La confiabilidad del juicio de expertos se determinó por el grado de acuerdo entre ellos, aplicando el coeficiente de correlación de rango de Kendall.

Palabras claves: Didáctica, formación docente, psicomotricidad, educación infantil.

Introduction

Early childhood education understood as the first stage of the educational system being crucial in the infant development, attending various facets that are part of child development as mentioned by Cardemil & Román (2014) which are self-knowledge, the natural environment, body development through sensoriality and coordination, affective, creative and socialization aspects. Early Childhood Education shares general principles with Psychomotor Education: the learning

must be meaningful, providing information related to the student's previous knowledge; it should be globalizer and multimodal by selecting various contents, objectives and, methodologies.

The learning must be individualized, respecting the pace, needs, and interests of each student. It should use an active and playful methodology that relates physical and mental activity with the constructive through the action, the experimentation and above all the game (León 2012; Prieto et al., 2021; Tobias, 2007). One of the most important aspects that is evident in the development of the infant in the infant stage is its ability to manifest with facts the maturity of its neurological system, through psychomotor skills, evidencing a close relationship between the brain and psychomotor skills

as stated by Segura et al. (2017) in their study; aspects such as laterality, observation capacity, spatial notion, the beginning of graphism are aspects that require countless neurological resources implemented by the learner and of course enhanced by the figure of the teacher, through fine psychomotor activities that require stimulation from neurodidactics as proposed by Luria in his model of input, processing and out watching the environment using the words of Jiménez (2007). The stimulation of fine psychomotor skills is based on the selection of each of the materials to be used and the level of awareness of the sensory, cognitive, motor, experimentation and meaning processes implicit in each of the activities, with sensory inputs and experimentation through the senses being crucial in this process. Fine psychomotor skills are a transversal axis in the activities of the infant stage, the path to be followed to achieve graphism, being this according to Córdoba (2013) «movements that require greater precision. Generally, they are movements that require hand-eye coordination» (p.64). adding that they are movements that can be coordinated or uncoordinated that are performed with the distal part of the body, in the case of the upper limbs with the hands and fingers, such movements present an evolution until reaching precision, strength, pressure, and coordination, where not only the aspect of the corporeality is involved as the movement of muscles and bone structures, but it involves a neurological work where actions are involved as mentioned by the referenced author, hand-eye coordination, perception, attention and concentration, sensation, among others.

That is why it is necessary to adequately train educators using a flexible, personal and evolutionary process (Marcelo, 2014) as well as their constant update in didactic aspects necessary to carry out activities that meet the characteristics mentioned in the paragraphs above and following what is established in the initial education syllabus in a global way and based on the knowledge and implementation of innovative and inclusive teaching methodologies for the diversity of teaching and learning styles that reduce the possible obstacles presented in the classroom (Fernández & Espada, 2017). In tune with this context, pedagogical principles, supported by foundational theories of early childhood education (Peralta, 2008), and recent contributions related to development and learning (Berlinski & Schady, 2015; Heckman, 2011), have directly guided decision-making and pedagogical practices in various contexts of initial education, in addition to being considered in teacher training as a

valid reference for a pedagogy based on a rights-based approach. That is why it is of vital importance to avoid models of passive practices where children perform activities with no real meaning, activities that are commonly performed only on cards, and static materials that do not give infant students the possibility to feel, process and interpret the information through the materials, this proposal is of crucial importance not only for teachers, This proposal is crucially important not only for the teachers, but also for the children at this stage, since having a level of awareness of the planning that responds to the interests and needs of the classroom population, using aspects of their real context, and internalizing the aspects to be worked on in each of the activities will make a relevant difference in the results and the fulfillment of the objectives at this stage.

Children during early childhood education find in their body and their movements the way to come into direct contact with the reality that surrounds them, building the first knowledge about the world in which they are growing and developing. Studies like the one conducted by the Suggate et al. (2019) mention how the activities performed during the Early Childhood Education related to the development of fine psychomotricity have an essential influence, not only in spatial cognitive skills but in language and reading.

In this study it is corroborated how graphomotor stimulation with scriptural elements has an impact on the academic development during Early Childhood Education using the motor processes; another study that corroborates said information is the one by authors Martzog & Suggate (2019). If it is taken into account that children in the Early Childhood stage internalize through pleasure and the senses, we can support the didactic and pedagogical proposal of this research with significant and experimental activities to prepare the children in the acquisition of skills during the first stage of the education.

The continuous exploration of the body as a source of sensations, the search for the options of action, and functions that the body fulfills, will develop the necessary experiences that will support the cognitive processing of children. Likewise, affective interactions linked to motor activities and the play will be the basis for the children's emotional growth. As mentioned by Rodríguez et al. (2017), on the conclusions of their study, it is highlighted that training of motor skills in a globalized way benefits, without doubt, the social and emotional development of the children, including their communicative, cognitive, and motor aspects.

The progress of motor skills in the early childhood education stage must have a comprehensive, globalizing, and interdisciplinary vision since the fact of developing motor skills through several areas is justified in the foundation of globality and interdependence, both of them crucial in the advancement of this stage (Vaca, 1996; Ruiz, 2003). The relationship between motor performance and cognitive functioning is increasingly recognized. The result of the study conducted by Houwen et al., in 2019, shows that the intra and the inter-individual variability characterize skills that are especially important when evaluating children in preschool age. This conclusion addresses the fact that activities related to fine motor skills must respond to the interests of the students, which at this crucial stage are experimentation, sensory stimulation, and the pleasure of acting; the activities proposed in this research meet said interests after a process of training and updating by teachers.

Based on the above, the intention is to influence all areas of children's behavior through the interrelation with the motor, sensory, and cognitive aspects included in the contents by contributing to the improvement of their comprehensive and global education as a human being. Said aspects are corroborated in the study by De Lourdes Cró & Pinho (2016), where affectivity and emotionality are worked through the psychomotricity oriented to the acquisition of a series of skills through experimentation and meaning in the activities performed. McClelland & Cameron, in 2019, classified these types of activities as pre-academic tasks, relating them positively to literacy and mathematics results.

The activities designed by the teachers aim to demonstrate the structure and intentionality of the fine psychomotor activities that entail to the benefit of optimization of cognitive development in children, converging in these, motor processes such as: observation capacity, laterality, concept of spatial notion, pincer grasp, grip, pressure, among others, with superior intellectual processes and executive functions, such as: attention and concentration, reasoning, observation capacity, analysis, deduction, among others, being corroborated by the study carried out by Cameron et al., in 2012. Said study yielded that stimulation of executive functions and fine motor skills predicted a higher achievement in several subtests when the children of the referred study started the kindergarten. That study is closely related to the fine motor activities approach of the current study and the development of affectivity and social skills through playfulness and the sensation of pleasure generated by the use of sensitive

materials, which of course, merit didactic actions by part of the teachers.

Currently, early learning theories state that space and materials by themselves, provoke motivation in children, becoming mobile or static objects significant stimuli capable of exciting and directing specifically child behavior (Medrano, 1994).

After the training process of the teachers that participated in this research, the importance of using sensitive materials with tactile, gustatory, and olfactory characteristics as activators of a pleasant experience in children was evident; learning by the pleasure of acting and thinking, and thus reaching their maximum cognitive potential. The study conducted by Oberer et al. (2017) confirms that gross and fine motor skills are significantly correlated with the executive functions.

The activities designed by the teachers can be done inside and outside the classroom. The sensitive inputs are of vital importance in the promotion of the cognitive aspect; therefore, the teachers who participated in the research used their didactic competencies to achieve maximum participation and optimal development of the said activities. It is then validated that the educational field becomes the first promoter of strategic, technical, and material applications used in the teaching and learning processes that constitute the actions that teachers apply promoting, developing, and promoting the construction of the notion and knowledge. Another study argues that the involvement of pedagogical processes in fine motor skills has an impact on attention, fine motor skills and general knowledge, which in turn are predictors of skills in mathematics, reading and science in primary education (Grissmer et al., 2010).

When the teaching includes fine psychomotricity elements in the curriculum of early childhood education, it accompanies the child development of all his cognitive or instrumental, affective, and relational aspects. The school contributes to searching well-being in childhood, by prioritizing the design and the start of an exciting personal project in that child's life, taking into consideration further options and stipulations of the near future. From here, it lies the commitment of early childhood education by favoring the beginning of the journey's population with the best conditions, basing pedagogical praxis on responding to the population's concerns with a vast and assorted repertoire of experiences where they can learn more and more and with greater pleasure.

The didactic proposal of this research, after analysis and reflection by the teachers, are the significant and

experimental activities with a variety of materials that benefit the child, using comprehensive, interactive, and dynamic stimulations with their environment. Mérida-Serrano et al., (2018), confirm the usage of above stimulations stating on their research that exploration, interaction, discovery, diversification, and adequate use of time and space, in activities performed within a teaching framework by projects, would be more meaningful and enjoyable for children, enabling close, every day and family learning contexts in the construction of their knowledge.

The primary condition for including such characteristics in teaching is to allow the teachers to determine their needs and requirements in aspects that favor psychomotor programs, as presented in this research. Another study that supports the role of the teacher in promoting didactics is the presented by the author Kocer (2012), his work through qualitative research aims to strengthen fine motor skills. It is the objective of this investigation to evaluate the creative and didactic processes of a group of early childhood teachers after the fine psychomotor training process using as training materials experimentation with sensitive elements, video projections, a bibliographic dossier, practical activities, design of new plans, conversations, conceptual and mental maps and, analysis and synthesis of theoretical material. The method selected for the study is the participatory action research (PAR) endorsed by the following authors Anderson (2009), Greenwood et al. (2000), Latorre (2013), Lewin et al. (1946), Martínez (2007) and Sandín (2003), allowing the teachers to build their knowledge, analyzing from prior knowledge to a new practice enriched through their processes, following the needs of the students and the demand of the center at the same time that it values the understanding of professional work as an attitude of research to improve practice, analyzing group situations and daily experiences, and thus contributing to problem solving (Molina, 2002).

Assigning to each activity values from 1 to 5 and, after the application of the expert judgment technique Cabero (2013) the result are the 16 activities with fine psychomotricity with an average rating between 4.4 and 4.7; being the rates of the learning activities that promote very high levels of stimulation between 4.4 and 4.6. The teachers managed to incorporate innovative didactic activities with a high degree of sensory, cognitive, creative, motor and, experimental stimulation with planning related to the syllabus and the classroom project, discriminating each immersed process. Teacher

training offers the possibility of guiding the practice in the knowledge of oneself, the environment for teaching, the subject, as well as the development of the syllabus and instructions, contributing with the enrichment of educational processes immersed in the activities providing the student with meaningful and constructivist learning which not only responds to an objective or dimension of the curriculum but also becomes a comprehensive and global stimulation for the child, responding correctly with the needs of an active, dynamic and multimodal educational model including the bases of psychomotricity and that also leads to think of a didactics of psychomotor skills based on an empathetic attitude (Toro, 2006), receptive and conducive to interactions without limiting the autonomous action of children (Álvarez, 2011), in favor of a personal formation, that allows a different view of the children's own body image and motor expression, and that also merits the daily incorporation of learning experiences contrary to the conventional practices that have been in force in the existential and school memory of scarce valuation of their needs and interests (Rodríguez & Fuensanta, 2018).

Table 1.
Sessions

Topics covered in the training sessions	Sources used in the trainings	Evidence of sources used
Evolutionary Development of children between 0 and 6 years-old.	Projection of videos	
Psychomotor behaviors of children between 0 and 6 years-old.	Bibliographic Dossier	
Theories of the evolutionary development of children between 0 and 6 years-old. Piaget's Theory, Neuropsychology.	Videos	
Theories of the development of psychomotor behaviors. Dra. Carmen Vilorio.	Practical activities.	
Theories of meaningful and experimental learning.	Design of new plans.	
Multisensory stimulation.	Conversations	
Review of the National Bolivarian syllabus for early childhood education.	Conceptual and mental maps.	
Cognitive aspects immersed in fine motor skills activities.	Analysis and synthesis of theoretical material.	

Materials and Methods

The method used for the development of this work is the participatory action research endorsed by the following authors Anderson (2009), Greenwood et al. (2000), Latorre (2013), Lewin et al. (1946), Martínez (2007) and Sandín (2003), that evaluated the center in a participatory way, allowing a conscious, reflective and critical process of the teachers being the protagonists of their change in practice. This type of research transforms and changes the physical, social, and cultural reality of a center, turning teachers into actors in the construction of their knowledge, discovering changes in their pedagogical practice. The training period was carried out for (15) days, in (6) sessions.

Participants

The study carried out at a private early childhood education center in Venezuela. It has a competitive staff in early education with professionals who are pre-school teachers, psychopedagogues, and professionals from other areas with a teaching component; with many years in the institution.

With respect to the educational and political context that schools in Venezuela are going through, although private schools in Venezuela are autonomous, they go through a series of transformations in terms of their pedagogical curricula, lacking stability to meet all the requirements established by educational policies, which are sometimes improvised to comply with government plans. In 2007, a reform was submitted to a national referendum under a popular consultation; however, it was rejected in the referendum. As a result, months later the president implemented a change in the curriculum system through an enabling law. However, this created confusion in the institution between carrying out programs that benefit children and take into account staff training or complying with established educational policies. Psychomotor skills is one of the areas eliminated in the new curriculum design. In the reform, the initial teacher must handle all learning areas and specialties: computer science, foreign language, special education and physical education. With respect to the educational levels taught, there are three equidistant, but individual structures in the same area, with the levels of Initial Education, Basic Education and High School. Ten early education teachers were part of this study, who are regular classroom teachers with training in early childhood education and psychopedagogy, and two physical education teachers who worked as teachers in the

psychomotricity room. Permission was obtained from the center's management, as well as the consent of the participants to voluntarily participate in the training sessions and in the observation sessions.

Tools

In order to know the content validity of the activities prepared by the teachers, expert judgment was used as an evaluation procedure. «The judgment of experts is defined as the informed opinion of people with a background in the subject, who are recognized by others as qualified experts in this, and who can give information, evidence, judgments, and evaluations» (Escobar-Pérez & Cuervo-Martínez, 2008, p.29). The use of expert judgment is a method that allowed to assess if the activities transmitted the information for which they were created.

The experts must be related to early childhood education and fine psychomotricity skills to evaluate the activities subject of their judgment properly. They also should have relevant professional experience and expertise Barroso & Cabero (2013). The selection of ten experts is a reliable estimate for the validity of the content of the designed activities Hyrkäs et al. (2003).

Procedure

The psychomotricity training sessions took place over two weeks through theoretical and practical seminars. They were carried out after a process of observation and evaluation of the planned activities in the area of fine and gross psychomotricity of 12 classrooms, ranging from level 0 to 3 of infant education. Next, the scheme of those activities was modified, taking into account essential aspects of significant and experimental psychomotricity through 4 objectives: (1) experimentation, (2) motor, (3) sensory, and (4) intellectual. Subsequently and during the following two months, a follow-up, advisory, and accompaniment tasks were carried out on such activities jointly with the teachers. Finally, experiential psychomotricity workshops were implemented in the school once a month, where teachers, including those from the psychomotricity room and students, actively participated in activities with sensitive material.

Analysis of data

The experts evaluated the activities proposed by the teachers taking into account that they were appropriate for this study, verifying the promotion of learning in a meaningful, experimental, creative, and

sensory way for the student. The evaluation scored each activity with values between 1 and 5, where one corresponds to the lowest level and five to the highest level of stimulation. The analyzes carried out with the SPSS program show that the experts believe that the activities proposed by the teachers promote very high levels of stimulation since the range of scores obtained is between 4.4 and 4.6. To select the experts, their academic background and experience were taken into consideration. Hyrkäs et al. (2002) state that ten experts would provide a reliable estimate of the content validity of an instrument (cited in Escobar-Pérez & Cuervo-Martínez, 2008). In the case of the research, the following experts participated: 4 preschool teachers (with 2m 10, 5 and 34 years of experience), 2 early education teachers (with 10 and 6 years of experience), 2 specialists in special education (30 and 25 years of experience), and two evaluators who also work in educational management (30 and 7 years of experience).

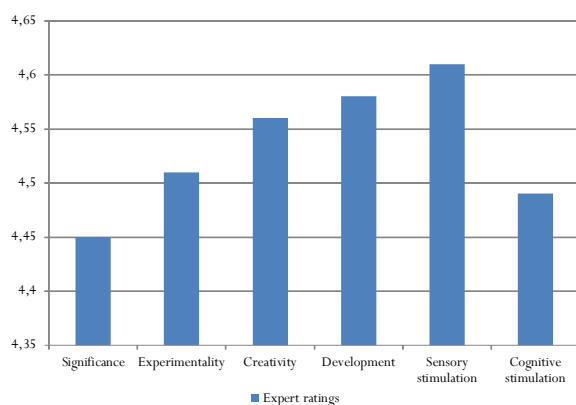


Figure 1: Average scores obtained in each of the criteria.

Results

The design of each activity is shown below, along with the aspects highlighted by the experts (the sheets are at the end of the article).

Sheet 01: In this planning model, which was based on experimental learning, through elements that stimulated the senses, touch and sight; it can be seen that the children have a sheet of paper with a circle and a glass full of cereals of different colours and sizes, the intention in this planning was to work on spatial notions (inside-outside), classification (by shape, size and colour), as well as the results of sensory experimentation and reasoning. The experts gave it an average score of 4.7, with the most highly valued aspects being sensory stimulation and creativity in its design. Reaching reasoning at an early age on the resolution and decision making through the elements.

Sheet 01	ACTIVITY: Inside and outside the plastic cup Developed by: Prof. L. P Age: from 2 to 4 years-old
Materials	A3 sheets, plastic cups, marker and cereals of different sizes and colors.
Description of the activity	Draw a circle in the center of the sheet, then, glue the plastic cup in the center of the circle, leaving the cereals on one side of the sheet. The child must discover what material he is working with and place it on the sheet or in the plastic cup.
Instruction	"Put as many cereals as possible inside the plastic cup"
Experimentation phase	Check if the children choose to put the cereal in the plastic cup or inside the circle. Let them work with the flavors, textures, and shapes of the material.
Sensitive factors integrated into the activity	<ul style="list-style-type: none"> • Visual: colors, size, and shape. • Taste. • Touch: surface, shape, and dimension. • Smell. • Auditory.
Motor objectives intended to work in the activity	<ul style="list-style-type: none"> • Spatial Notion: up, down, in, and out. • Pincer grasp. • Directional control.
Intellectual Objectives to work in the activity	<ul style="list-style-type: none"> • Observation ability. • Attention and concentration. • Visual discrimination. • Taste discrimination. • Tactile discrimination. • Experimentation. • Classification by shape, color and size.
PHOTOGRAPHIC EVIDENCE	

The aspects with high scores were sensory stimulation and creativity (Average = 4.7).


Sheet 02: The planning shows how the concrete elements correlate with the abstraction of the drawing and symbolic thought through the image, aspects such as fine psychomotor skills and basic mathematical notions were presented in the planning. The children had to decide, through a drawing showing a hen with eggs, whether to colour the eggs or, on the contrary, to experiment with the boiled eggs laid out on the table, trying to find a solution to integrate the element corresponding to the image and incorporate it into the

Sheet 02	ACTIVITY: THE CHICKEN EGGS Developed by: M. R. Age: from 3 to 5 years-old
Materials	A3 sheets, boiled eggs, activity book, basket and colored pencils.
Description of the activity	The activity is chosen from the book, and it contains a significant item that is boiled eggs. The children are asked to handle the item. The children will peel the boiled eggs and will place the eggshell in the area correspondent to chicken eggs.
Instruction	"Use the eggs from the basket, filling the eggs of the chicken."
Experimentation phase	Observe how children use the significant item in the activity.
Sensitive factors integrated into the activity	<ul style="list-style-type: none"> • Visual: colors, size, and shape. • Taste. • Touch: surface, shape, dimension, and temperature.
Motor objectives to work in the activity	<ul style="list-style-type: none"> • Spatial notion: inside and outside. • Pincer grasp. • Hand dexterity.
Intellectual Objectives to work in the activity	<ul style="list-style-type: none"> • Observation ability. • Attention and concentration. • Visual, gustatory and tactile discrimination • Experimentation. • Significant learning. • Correspondence of the specific element to the visual element.
PHOTOGRAPHIC EVIDENCE	

The aspects with high scores were experimentality and sensory stimulation (Average = 4.6)


drawing; some of them were able to find a solution by removing the shell and incorporating it into the image. The aspects most highly valued by the experts were experimentation and sensory stimulation (Mean=4.6).

Sheet 03: The teacher bases this planning not only on motor aspects, but also on cognitive, experimental and pre-calculation aspects, focusing on the mixture of elements that lead the child to experimentation and socialisation, seeking resolution in each of the stations; that lead the child not only to the pleasure of acting but also to think with the elements and how they can be classified, matched and serialised. The experts rated the level of cognitive stimulation, sensory stimulation, adaptation to development and creativity as the most valued aspects with an average of 4.8.

Sheet 03	ACTIVITY: CLASSIFICATION OF ELEMENTS Developed by: J. V. Age: from 4 to 6 years-old
Materials	Painted egg cartons, painted bottle lids, colored plastic bottles, colored pencils and clothespins.
Description of the activity	Using the clothespins, the children have to put the lids on the egg cartons according to the corresponding color, then screw the lids onto the plastic bottles of the same color. Place the colored pencils inside the plastic bottles of the same color. Group colored pencils, bottle lids, egg cartons, and plastic bottles by color.
Instruction	"Mix elements and colors."
Experimentation phase	Check if the children used all the motor skills in the activity.
Sensitive factors integrated into the activity	<ul style="list-style-type: none"> • Visual: colors, size, and shape. • Touch: surface, shape, dimension.
Motor objectives intended to work in the activity	<ul style="list-style-type: none"> • Spatial notion: inside and outside. • Pincer grasp. • Hand dexterity. • Pressure. • Grip.
Intellectual Objectives intended to work in the activity	<ul style="list-style-type: none"> • Observation ability. • Attention and concentration. • Visual discrimination. • Tactile discrimination. • Experimentation. • Significant learning. • One-to-One correspondence. • Classification by shape, color and size.
PHOTOGRAPHIC EVIDENCE	
	


The aspects with high scores were the level of cognitive and sensory stimulation, adaptation to development and creativity (Average = 4.8).

Sheet 04: In this planning, the teacher designed it on the basis of sensory experimentation and the search for reasoning on the part of the infant, transferring not only motor aspects, but also mathematical aspects, such as the correspondence term to term, in which the children were presented with a sheet of paper with a drawing of a banana, the element banana was placed on the table, and the children had to choose and select which elements they wanted to work with and discover how to match the visual element with the concrete element. As a result, the children experimented, worked with the banana peel, mashed it and matched the terms. The aspects most valued by the experts are cognitive and sensory stimulation (mean= 4.7).

Sheet 04	ACTIVITY: THE BANANA WITH FLAVOR TO BANANA. Developed by: D. Z. Age: from 4 to 5 years-old
Materials	Bananas peels, A4 sheets and glue.
Description of the activity	Children have to fill the shape on the sheet with a specific material.
Instruction	"Fill in the drawing using the banana peel as you like"
Experimentation phase	Demonstrate the phases of experimentation and discovery that children take to fill the shape with the specific material.
Sensitive factors integrated into the activity	<ul style="list-style-type: none"> • Visual: colors, size, and shape. • Touch: surface, shape, dimension, and temperature. • Taste: flavor.
Motor objectives to work in the activity	<ul style="list-style-type: none"> • Spatial notion: inside and outside. • Pincer grasp. • Hand dexterity. • Dimensionality. • Pressure. • Grip.
Intellectual Objectives to work in the activity	<ul style="list-style-type: none"> • Observation ability. • Attention and concentration. • Visual discrimination. • Tactile discrimination. • Experimentation. • Significant learning. • One-to-One correspondence. • Selection. • Decision making.
PHOTOGRAPHIC EVIDENCE	
	

The aspects with high scores were cognitive and sensory stimulation (Average = 4.7)


Sheet 05: In the activity World of plants, plant and fruit elements are arranged on a surface in the form of contextual structures such as buildings, houses, sun, clouds, trees, etc. The first year infants move into the space, the teacher shows the space with the intention that the children experiment, carry out a process of observation, discrimination and sensory stimulation, through this planning the children discovered the various elements, found the similarities of the landscapes giving a meaning to the same elements, and discovering what

Sheet 05	ACTIVITY: VEGETABLE WORLD Developed by: C. M. Age: from 1 to 2 years-old
Materials	Fruits, vegetables and plastic bags to cover the floor.
Description of the activity	Children should identify the figures on the plastic.
Instruction	"Discover and to taste the landscape."
Experimentation phase	Verify the experimentation phases before the creative pedagogical activity, identifying, testing, and touching the fruits and vegetables.
Sensitive factors integrated into the activity	<ul style="list-style-type: none"> • Visual: colors, dimensionality, and shape. • Touch: Surface, shape, dimension, and temperature. • Taste: Flavor. • Smell: Smells.
Motor objectives to work in the activity	<ul style="list-style-type: none"> • Space notion. • Pincer grasp. • Hand dexterity. • Pressure. • Grip. • Crush.
Intellectual Objectives to work in the activity	<ul style="list-style-type: none"> • Observation ability. • Attention and concentration. • Visual discrimination. • Tactile discrimination. • Experimentation. • Significant learning. • One-to-One correspondence. • Selection. • Decision making. • Identified forms, figures, colors and, flavors. • Oral expressive language. • Sensations.
PHOTOGRAPHIC EVIDENCE	
	

The aspect with high score was sensory stimulation (Average = 4.8)

each element corresponded to through the senses. The most highly valued by the experts was the sensory stimulation with a mean of 4.8.


Sheet 06: In the planning model of colouring with vegetables, the teacher designs an activity in which sensory stimulation, fine psychomotor skills, substitution of a writing element and reasoning are highlighted; The children had to colour with the vegetable elements, in the case of the carrot they had carrot puree and carrot sticks, and in the case of the tomato, the whole vegetable, and they had to discover how they wanted to colour it, with the tomato colouring being the most experimental. The most valued aspects were the level of cognitive stimulation and development with a mean of 4.8.

Sheet 06	ACTIVITY: COLORING WITH VEGETABLES Developed by: M. G. Age: from 2 to 3 years-old
Materials	Carrots, tomatoes, plastic bags to cover the floor, protection and A0 white sheets.
Description of the activity	Fill the shapes drawn on the paper with the replacement of the regular painting tool and verify their experimentations.
Instruction	"Paint the drawing with the tomato and the carrot"
Experimentation phase	Identify the phases of experimentation that present the creative pedagogical activity by coloring, identifying, testing, and touching the elements.
Sensitive factors integrated into the activity	<ul style="list-style-type: none"> • Visual: colors, dimensionality, and shape. • Touch: Surface, shape, dimension, and temperature. • Taste: Flavor. • Smell: Smells.
Motor objectives to work in the activity	<ul style="list-style-type: none"> • Space notion. • Pincer grasp - Manual dexterity. • Dimensionality. • Pressure. • Grip.
Intellectual Objectives to work in the activity	<ul style="list-style-type: none"> • Observation ability. • Attention and concentration. • Visual discrimination. • Tactile discrimination. • Experimentation. • Significant learning. • One-to-One correspondence. • Selection. • Decision making. • Sensations.
PHOTOGRAPHIC EVIDENCE	
	

The aspects with high scores were the level of cognitive stimulation and development (Average = 4.8)


Sheet 07: In the planning of decorating the fish tank, the teacher develops a planning, with the resource of the card, but with innovative elements, through eye-catching concrete materials, which allow visual stimulation, and work a little more rigorous in terms of the manipulation of the elements through fine psychomotor skills. The aspects most highlighted by the experts were creativity and sensory stimulation with an average of 4.6.

Sheet 08: The activity corresponding to this planning was the elaboration of a tree with disposable material, using hands, plastic bottles, among other elements, not only working on the motor aspects, but it also included

Sheet 07	ACTIVITY: DECORATING THE FISHBOWL Developed by: L.P Age: from 3 to 5 years-old
Materials	Sequins, the activity book, plants, markers, jelly and colored pencils.
Description of the activity	Select from the activity book the image corresponding to a fishbowl with fishes. Fill it with eye-catching and motivational elements like the color and the shine of the sequins.
Instruction	"Color the fishbowl"
Experimentation phase	Observe children's choices when selecting the various elements presented, such as colors, sequins, jelly, and leaves that simulate algae when doing the activity.
Sensitive factors integrated into the activity	<ul style="list-style-type: none"> • Visual: colors and shape. • Auditory: the activity was accompanied with sounds from the sea.
Motor objectives to work in the activity	<ul style="list-style-type: none"> • Spatial Notion: up, down, in, and out. • Pincer grasp. • Directional control.
Intellectual Objectives to work in the activity	<ul style="list-style-type: none"> • Observation ability. • Attention and concentration. • Visual discrimination. • Tactile discrimination. • Experimentation. • Classification by color and size.
PHOTOGRAPHIC EVIDENCE	
	

The aspects with high scores were creativity and sensory stimulation (Average = 4.6)


an adequate adaptation to the level of functioning of the youngest children, as they not only had to paint the elements using a variety of materials, but they could select according to their manual dexterity. The most important aspect highlighted by the experts was the adaptation to the level of development with an average of 4.5.

Sheet 08	ACTIVITY: DRAWING THE TREE Developed by: M. H. Age: from 4 to 5 years-old
Materials	A3 white sheets, finger paints, plastic bottles, and paint brushes.
Description of the activity	Paint a tree using recycled elements associated with the figure of the tree.
Instruction	"Draw a tree with flowers".
Experimentation phase	Identify which recycling element is associated with the flower. Find it out!
Sensitive factors integrated into the activity	<ul style="list-style-type: none"> • Visual: colors and shape. • Touch: feeling the dimension and texture of the elements.
Motor objectives to work in the activity	<ul style="list-style-type: none"> • Spatial Notion: up, down, in, and out. • Pincer grasp. • Directional control. • Usage of the brush. • Eye-hand coordination.
Intellectual Objectives to work in the activity	<ul style="list-style-type: none"> • Observation ability. • Attention and concentration. • Visual discrimination. • Tactile discrimination. • Experimentation. • Classification, by color and size.
PHOTOGRAPHIC EVIDENCE	
	

The aspect with high score was adaptation to the level of development (Average = 4.5).


Sheet 09: In the planning of the Natural World activity, the teacher worked with stereotypes of the urban world to make fillings with elements of the natu-

ral world, which allowed the children to experiment with different materials, and to be able to organise them appropriately in order to carry out the activity. The most valued aspect was the cognitive stimulation with an average of 4.9.

Sheet 09	ACTIVITY: NATURAL WORLD Developed by: M. R. Age: from 3 to 4 years-old
Materials	A3 white sheets, colored pencils, paint brushes, stones, leaves and glue.
Description of the activity	Create a landscape with the elements we find in nature.
Instruction	"Fill in the drawing"
Experimentation phase	The identification of the elements found in the environment which serve to fill the drawing.
Sensitive factors integrated into the activity	<ul style="list-style-type: none"> • Visual: colors and shape. • Touch: Feel the texture of elements.
Motor objectives to work in the activity	<ul style="list-style-type: none"> • Spatial Notion: up, down, in, and out. • Pincer grasp. • Directional control. • Usage of paint brush and other elements • Eye-hand coordination.
Intellectual Objectives to work in the activity	<ul style="list-style-type: none"> • Observation ability. • Attention and concentration. • Visual discrimination. • Tactile discrimination. • Experimentation. • Classification by color and size. • Correspondence of the visual element to the specific element. • Identification of the elements to be used. • Body language.
PHOTOGRAPHIC EVIDENCE	
	

The aspect with high score was cognitive stimulation (Average = 4.9)


Sheet 10: The design of the planning of the fruit trolley, shows the design of an activity, which contemplates the elaboration of a trolley using bananas and strawberries as main materials, the children had not only to put into practice their motor skills, but also

Sheet 10	ACTIVITY: THE CART MADE OF FRUIT Developed by: M. C. Age: From 3 to 4 years-old
Materials	Banana, strawberries and chopsticks.
Description of the activity	Build a cart with the banana, the strawberries and the chopsticks.
Instruction	"Build a cart made of fruit"
Experimentation phase	The reasoning for using the materials in order to build a cart with the fruits.
Sensitive factors integrated into the activity	<ul style="list-style-type: none"> • Visual: colors and shape. • Touch: Feel the texture of elements. • Taste: the taste of the fruit. • Smell: the smell of fruits.
Motor objectives to work in the activity	<ul style="list-style-type: none"> • Spatial Notion: up, down, in, and out. • Pincer grasp and punching. • Directional control. • Use of the stick • Eye-hand coordination.
Intellectual Objectives to work in the activity	<ul style="list-style-type: none"> • Observation ability. • Attention and concentration. • Visual discrimination. • Tactile discrimination. • Experimentation. • Size classification. • Correspondence. • Selection of elements. • Expressive oral language, verbal fluency, and vocabulary. • Construction and logic.
photographic evidence	
	

Except for the level of significance, the average for the other aspects was scored with 4.7.

their reasoning skills to reach the organisation of the elements that will provide them with such a resolution, to create a fruit trolley. Except for the level of significance, the rest of the aspects were evaluated with a mean score of 4.7


Sheet 11: The activity, painting with threads, seeks to work on psychomotor skills through creativity. The girls had a sheet of paper and had to use different threads with different colours to make a production; it should be noted that the manipulation of such a fine element allowed for greater effort at the level of fine tweezers. The most valued aspects were the sensory and cognitive stimulation with an average of 4.5.

Sheet 11	ACTIVITY: THREAD PAINTING Developed by: S. O. Age: From 4 to 5 years-old
Materials	Tempera, A3 white sheets and threads.
Description of the activity	Create, build and draw with colored threads and tempera on a sheet.
Instruction	"Paint figures with the threads."
Experimentation phase	Observe which figures the children created with the thread and the tempera.
Sensitive factors integrated into the activity	<ul style="list-style-type: none"> • Visual: colors and shape. • Touch: Feel the texture of elements.
Motor objectives to work in the activity	<ul style="list-style-type: none"> • Space notion. • Pincer grasp. • Directional control. • Eye-hand coordination.
Intellectual Objectives to work in the activity	<ul style="list-style-type: none"> • Observation ability. • Attention and concentration. • Visual discrimination. • Experimentation. • Creativity. • Oral expressive language. • Problem solving.
PHOTOGRAPHIC EVIDENCE	
	

The aspects with high scores were sensory and cognitive stimulation (Average = 4.5)


Sheet 12: In the planning of the activity of collecting balls, it can be seen how the teacher works with gross and fine psychomotor skills, seeking discrimination and classification through socialised work with the children, in a large space, where perception and movement play a fundamental role. It is a simple activity but involves various sensory, motor, cognitive and emotional processes. The aspects least valued by the experts were the levels of sensory stimulation and experimentation, achieving an average of 4.5.

Sheet 13: In the planning of the activity scribbling with chocolate, motor work is evident, with a high impact on multisensory stimulation, the children had to make various figures with cocoa powder, but also deduce what the material they were working with was, experimentation through the senses to reach the conclusion has been of vital importance in the design of

Sheet 12	ACTIVITY: PICKING UP BALL Developed by: ME. S Age: From 2 to 3 years-old
Materials	Plastic balls of different colors, sizes and textures.
Description of the activity	The activity consists of distributing balls of different sizes, colors and textures in the playground, the main goal of this activity is the selection of balls by the children and the strategies they develop to carry out the process.
Instruction	"Take the balls you want"
Experimentation phase	Observe how the children establish the classification.
Sensitive factors integrated into the activity	<ul style="list-style-type: none"> • Visual: colors. • Touch: feeling the dimension and texture of the elements.
Motor objectives to work in the activity	<ul style="list-style-type: none"> • Displacement. • Grip. • Kicking • Laterality • Lateral preference.
Intellectual Objectives to work in the activity	<ul style="list-style-type: none"> • Observation ability. • Attention and concentration. • Visual discrimination. • Experimentation. • Selection of elements. • Language, expressive oral, vocabulary. • Reasoning to group the elements. • Pre calculation: Classification by size and color.
PHOTOGRAPHIC EVIDENCE	
	

The aspects with high scores were the levels of sensory stimulation and experimentality (Average = 4.5)


this activity. The experts' evaluation gave this planning a rating of 4.7 on average, with the aspects having a high level of development at a significant, creative and cognitive level.

Sheet 13	ACTIVITY: DOODLING WITH COCOA POWDER Developed by: L.S. Age: From 2 to 5 years-old
Materials	Cocoa powder
Description of the activity	The children should make figures, drawings, or graphemes on the cocoa, making visual discrimination between the cocoa powder and the surface.
Instruction	"Doodle on the cocoa"
Experimentation phase	Observe the sensory selectivity in the face of a pleasant stimulus such as cocoa and observe the different doodling that they do.
Sensitive factors integrated into the activity	<ul style="list-style-type: none"> • Visual: cocoa and figures. • Touch: texture • Taste: cocoa flavor. • Smell: cocoa aroma.
Motor objectives to work in the activity	<ul style="list-style-type: none"> • Prewriting and doodling exercise. • Spatial notion. • Lateral preference.
Intellectual Objectives to work in the activity	<ul style="list-style-type: none"> • Observation ability. • Attention and concentration. • Visual discrimination. • Experimentation. • Selection of actions • Language (prewriting)
PHOTOGRAPHIC EVIDENCE	
	

The aspects with high scores were the level of creativity, significance and, cognitive stimulation (Average = 4.8).


Sheet 14: In the design of the planning of the minichef activity, the teacher developed an idea that not only aroused the motivation of the families and pupils, but also made it possible to work on concepts of spatial notion, fine psychomotor skills and sensory stimulation,

based on meaningful and experimental learning. The most highly valued aspects were the level of creativity and adaptation to development and sensory stimulation with an average of 4.8.

Sheet 14	ACTIVITY: MINI CHEF Developed by: C. M. Age: From 2 to 4 years-old
Materials	Bread, ham, cheese, cutlery, cutting boards, and napkins.
Description of the activity	Give a mini chef class working on making the sandwiches.
Instruction	"Make sandwiches"
Experimentation phase	The children should associate the activity with meaningful learning, reasoning about how to place the elements and about the right order to build the sandwich.
Sensitive factors integrated into the activity	<ul style="list-style-type: none"> • Visual: ingredients for the sandwich. • Touch: texture • Taste: flavor of the various elements • Smell: aroma of the ingredients.
Motor objectives to work in the activity	<ul style="list-style-type: none"> • Spatial notion: up, down, inside, and outside. • Lateral preference.
Intellectual Objectives to work in the activity	<ul style="list-style-type: none"> • Observation ability. • Attention and concentration. • Visual discrimination. • Memory. • Reasoning. • Follow up instructions. • Seriation. • Oral expressive language
PHOTOGRAPHIC EVIDENCE	
	

The aspects with high scores were the level of creativity, adaptation to development and, sensory stimulation (Average = 4.8).


Sheet 15: In the planning of free colouring, we see the design of an activity that seeks sensory stimulation, creativity and fine psychomotor skills. Being able to paint on large expanses and without limits allows the children to express their skills on the surface. The most valued aspect was cognitive stimulation with an average of 4.5.

Sheet 15	ACTIVITY: PAINTING Developed by: C.P. Age: From 2 to 4 years-old
Materials	Newspaper, paint brushes and tempera.
Description of the activity	Free style drawing on the newspaper sheets.
Instruction	"Paint the way you want"
Experimentation phase	Observe children's creations.
Sensitive factors integrated into the activity	<ul style="list-style-type: none"> • Visual: colors. • Touch: contact with the tempera.
Motor objectives to work in the activity	<ul style="list-style-type: none"> • Grasp of paint brushes. • Directional control. • Lateral preference in execution.
Intellectual Objectives to work in the activity	<ul style="list-style-type: none"> • Observation ability. • Attention and concentration. • Visual discrimination. • Memory. • Reasoning • Follow up instructions. • Oral expressive language.
PHOTOGRAPHIC EVIDENCE	
	

The aspect with high score was cognitive stimulation (Average = 4.5).

Sheet 16: In the design of the sensory circuit planning, the teacher shapes a planning aimed at nursery school

children, who deserve to awaken their sensory inputs and discover each of the elements exposed in the circuit, gross motor skills, fine psychomotor skills and experimentation of the elements nourish this planning through free movement through each station. The most valued aspect was the level of significance with an average of 4.8.

Sheet 16	ACTIVITY: SENSATIONS CIRCUIT Developed by: M. C. Age: From 6 months to 1 year-old
Materials	Jelly, cocoa, cream, and fruit puree.
Description of the activity	Build a sensorimotor circuit with elements and substances that stimulate the senses, achieving the discovery of the elements by the experimentation of the children when passing through various surfaces.
Instruction	"Crawl on the surface"
Experimentation phase	Observe which children enter the sensory circuit and who enjoys being there.
Sensitive factors integrated into the activity	<ul style="list-style-type: none"> • Visual: substance colors • Touch: texture and temperature of substances. • Odors of substances.
Motor objectives to work in the activity	<ul style="list-style-type: none"> • Crawling • Balance. • March.
Intellectual Objectives to work in the activity	<ul style="list-style-type: none"> • Observation ability. • Attention and concentration. • Visual discrimination. • Memory. • Reasoning. • Follow up instructions.
PHOTOGRAPHIC EVIDENCE	
	

The aspect with high score was the level of significance (Average = 4.8).

After observing in detail each of the plans that are the result of the psychomotor teacher training programme. Most of the activities obtained high scores with lower values in the development of significant learning. The activities were considered creative and adapted to the classroom project, being mostly designed by the teachers or creatively adapted through their workbooks, finding the middle ground between creativity and the need to respond to the levels and aspects necessary to stimulate the group. They were rated by the experts with an average of 4.56. Regarding the level of experimentation, the experts valued the use of experimentation through the senses. The majority of the activities designed offer the child the possibility of discovering and identifying various factors, aspects that we wish to highlight in this article, since planning at the infant stage is generally aimed at fulfilling educational programmes and content through the infant curriculum, but the interesting thing about this proposal is to understand that planning should also be oriented towards responding to the needs of the class group, with transversal objectives, but focused on stimulation and attention to neurological and perceptive processes that allow the infant to learn from its capacity, from its inner world; leaving aside for a moment the slogans, the criteria, and enduring a teaching practice committed

to empathy, observation and accompaniment so that the learner manages to make an effort to reason and reach conclusions through experimentation without underestimating the potential at an early age.

Discussion

In this research, when using a Participatory Action Research (PAR) methodology, the process of reflection and evaluation does not end a cycle, but rather it is in constant construction. The results are considered promising to open spaces that invite to reflect on the role that training skills should play in the new educational agenda (Hershkovitz, Merceron & Shamaly, 2019). In the process of training classroom teachers, they were able to recognize their needs within their pedagogical practice regarding the lack of information they had in the area of fine psychomotor skills. The findings obtained challenge us to review the curricular designs that guide teacher training to identify contributions that foster the development of their skills and promote the evolution of educational communities (Muñoz & Valenzuela, 2019) and that definitively contribute to the development of a teaching profile with the capacity to transform itself from its practice, to reach a closer approach to the object of learning, thus achieving to propitiate significant and current learning to face the daily life of infants throughout their life.

In the course of teacher training, a participatory constructivist design was used carrying out various practical activities considering empathy with children's didactics. Through the activities, the teachers experienced an emotional and altering experience, through the doing and being of the child, fundamental elements to activate the reflection process of the teachers themselves, being able to incorporate changes in their practice from a more empathetic and respectful vision regarding the rhythms in the experimentation and the response time manifested through the analysis of the children's sensations.

Investigations such as those developed by Hu et al. (2018), Ornaighi et al. (2019), and Schachter (2015) suggest the need to include in the education and continuing professional development of teachers more attention to teachers awareness of their ideas and the representation of the inner world of children, to promote an educational approach based on an emotional training style.

Another key finding in this research was the design of activities related to fine psychomotricity where the

systematization of factors and their identification concerning the evolutionary stage and the needs of the classroom are vital in achieving comprehensive development in infants, being a consistent process with educational inspection procedures, in tune with the curriculum and classroom projects (Lerikkanen et al., 2012; Mortensen & Barnett, 2015;; Wen et al., 2011).

The main strengths of the present study were:

-Educational center involvement and openness of teachers with the training, reflection, and implementation of changes based on their needs and those of their students;

-The vision of the institution, being a center that stands out for its educational innovation and its commitment to updating its teaching staff;

-As a result of this involvement, the development and design of fine motor activities that respond to a reality of the center's child population, with planning models that expressly express the cognitive, motor, and sensory relationships involved in each activity.

Related to limitations, when this research and training process started back in 2013, it also did it the exodus of professionals in Venezuela, resulting in the replacement of members of the research by personnel, which required training to understand the genesis and development of the psychomotricity program within the school.

Conclusions

After training and updating processes, the teachers designed significant fine psychomotricity activities, enriched with innovative elements that support adequate sensory stimulation for children. Also, they managed their rationing and times through experimentation, with the various elements becoming observers of cognitive and social results through the resolution of conflicts present in each of the activities.

Didactics became a dynamic and transcendental process in activities related to classroom projects and the early childhood curriculum. It also turned psychomotricity into a motor skill activity in favor of the comprehensive development of children in line with the established syllabus, in addition to the incorporation of innovative strategies that were assimilated by the teachers during the previous training process.

Fine motor skills is a process that leads to increased maturation in children. Through meaning and experimentation, the intellect and the corresponding cognitive processes are developed, closely related to

the pleasure of the sensations stimulated with the execution of the activities proposed in this investigation.

The didactic activities were considered creative and adapted to the classroom project, being these mostly designed by the teachers or making creative adaptations through their workbooks, finding a balance between creativity and the need to respond to levels and aspects necessary to stimulate the students. The experts rated the activities with an average of 4.56.

In this investigation, certain limitations such as the change of personnel in the institution, the continuity of some advisors, and evaluation programs would allow corroborating the motor and cognitive development of the children after the application of the program in psychomotricity.

Regarding the video projections, further researchers are invited to use the activities developed in fine psychomotricity and to verify the changes in children, as well as to carry out cooperative analyses among specialists in the field of psychology, pediatrics, and neuroscience where the importance of the neuropsychological approach is established between the benefit of sensory input, cognitive processing, and response through motor expression with cognitive abilities.

In the present research we found certain limitations, such as the change of personnel in the institution and the continuity with some consultants and evaluation programs that would have allowed us to corroborate the scope with the motor and cognitive development of children after the application of the program in psychomotor skills.

As for projections, we invite future research to use the planning models in fine psychomotor skills and to be applied in the evaluation to verify the changes in children and in the planning process of teachers in other educational institutions, as well as to perform cooperative analysis between specialists in the field of psychology, pediatrics, and neuroscience where the importance of the neuropsychological approach between the benefit of sensory inputs, cognitive processing and response through motor expression with cognitive skills is established.

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