

# Different Perceptive Qualities for the Psychomotricity

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**Abstract** The sensorial development is the beginning of the cognitive-motor development of the child. In the perspective development of the child the studies show two positions: Piaget [9] and Gibson [5]. According to Piaget, the perception brings the child to the action and where as Gibson it's the action brings the child to the perception. The aim of the study is to analyze the behaviours that are produced in the psychomotor sessions from the sensations and perceptions which generate a material of different perceptual properties. We select 48 children between 20 and 36 months old from kindergarden in Barcelona province. We make balloons of different sizes, weights and textures. All the balloons are in the box and located in the psychomotricity space with the habitual material of the sessions. Children are free to play with materials. The duration of the session is one hour and is realized in groups of 12 children. Later, the children classify the balloons according to the category. The results show that the size category is the best classified then the weight and finally the texture category. There are significant differences ( $p=.000$ ) in the weight category between the two groups: the younger group did not distinguish between differing weights while the older group did. There aren't significant differences ( $p=.312$ ) in the size category because both classified correctly and in the texture category ( $p=.134$ ) because neither classified correctly. We considerer that the child learn through movement. Therefore, the action brings the child to the perception so that knowledge of the environment is acquired. The perception exists basically as a guide for the action. The movement which is triggered in motor activity is a form of perception, a way of knowing the world and a way to act on it.

**Keywords:** *perceptive development, psychomotricity, early childhood education*

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## 1. Introduction

The sensorial development is the beginning of the cognitive-motor development of the child. Through of the senses, the infant has the first knowledge of the world and he has the first sensations and perceptions. The sensation is the information to contribute the senses and the perception is the interpretation of the information with the experience acquired of others sensations.

The perception is beginning of the experiences of the world's interpretation, because it is a fundamental requirement for an action. The child discovers the word of the colours, sounds, shapes, tastes and smells that make the superior process the intelligence and the language.

For Gibson [4] the senses are not only feeling channels but perceptual systems witch goal is to detect the environment information. The haptic system is an important perceptive system, because Gibson [3] assigns the active touch as the capacity to look for information.

In the development of the child's perception the studies show two positions: Piaget [9] and Gibson [5]. Both consider that the information processed is active; by Piaget the perception is subordinated to the sensor-motor period of the action's system: the perception is integrated in the action; while Gibson thinks that the perceptive

activity is responsible of differentiate and fo knowing the information of the environment.

According to Piaget, the perception brings the child to the action and where as Gibson is the action brings the child to the perception.

The sentence "*we must perceive in order to move, but we must also move in order to perceive*" ([5], pp. 123) show the essence of the study. Through perceptive's information the infants can guide their movements to adapt to the environment. Besides, the perceptive concept is indissoluble the environment concept and the action concept, because the perception is active and exploratory.

One of the more important contributions of Gibson [5] is *affordance* or environment properties. Is fundamental the abilities of children to discovery new affordance. The senses are active systems used to collect the information of environment.

Most of the perceptual system provide proprioceptive and exteroceptive information and allows that the children learn to differentiate the specific perceptual informations themselves from the environment [6]; Therefore, the perceived leads the subject to act on the properties of the object or of the environment. Intact, the children are able to learn to differentiate perceptual information and this allows them to act in a certain way depending on the properties of the objects or the environment.

Since the Psychomotricity the infants have the opportunity to play with objects and in this context, the action's aims are the base for the perception of the functional properties of the objects. The concept "psychomotricity" contains the "psycho" term, which refers to the psychological activity at the cognitive and affective levels, and the "motricity" term, which refers to movement. Thus, psychomotor activity can be defined as the faculty that allows, facilitates, and enhances the physical, psychological and social development in children through movement [7]. The concept includes an evolutionary notion by which there is an interaction between neuromotor (motor development) and psychological functions (cognitive and affective development) that take place during a unique and unidirectional process where the children's body is the main element in touch with the environment.

Angulo-Barroso & Tiernan [1] indicate that motor activity is interrelated with perception, cognition and emotion where perceptual informations to adjust or adapt effectively movements and motor activity influences the perception skills.

The study of Mounoud et al. [8] show that the perception provides a perceptive structure of the objects very detailed regarding your properties of size, shape, relative position in the space... and is built by the significant since transformations that produce in the environment through action.

Following the work of Aucouturier [2] we understand psychomotor education from a global perspective, the child discovers by his own experience, what actions you can perform with your body independently recognizes different ways to scroll and will therefore achieves targets or objects and discovers the balance of your body. All this takes body awareness with the space where you are and discover all the senses through the features and qualities of objects, experiences proprioceptive, interoceptive and exteroceptives sensations.

From this perspective, we look at education psychomotor raised from an active pedagogy, critical and flexible weighted moving to improve the development of intellectual, emotional and social skills aspects of the child.

The aim of the study is to analyze the behaviours that are produced in the psychomotor sessions from the sensations and perceptions which generate a material of different perceptual properties.

## 2. Methodology

### 2.1. Subjects

We have selected 48 children between 18 and 36 months old from kindergarten in Barcelona province. There were 25 boys and 23 girls. We made two groups: younger group in which were infants between 18 and 26 months old ( $X=18,69$ ) and an older group in which were infants between 27 and 36 months old ( $X=30,42$ ).

All families gave consent for children to participate in the study and to be recorded/filmed. The names of the children have been replaced by numbers.

### 2.2. Material

We made balloons of different sizes, weights and textures. Specific:

- Size category: 4 big balloons and 4 small balloons.
- Weight category: 4 heavy balloons and 4 light balloons

- Texture category: 4 hard balloons and 4 soft balloons.

All balloons have been lined with the same clothes in order that your psychical appearance doesn't show your perceptive category. All categories have 2 small balloons and 2 big balloons because the size category is the unique visual category. The weight and texture category are manipulative categories.

### 2.3. Procedure

All the balloons are in the box and located in the psychomotricity space with the habitual material of the sessions (mats, clothes, cushions, wooden boxes and ramps). Children are free to play with materials. The duration of the each session is one hour and it's realized 8 sessions altogether. The sessions are realized in groups of 12 children. Then, the children classify the balloons according to their category (size, weight and texture). The classification is showing and verbalizing each features and then the adult put one balloon in each box and the child classifies the rest. We evaluate that the child classifies all balloon in the corresponding box.

## 3. Results

The results have been submitted a one-way ANOVA to determine whether the infants know the different perceptive qualities.

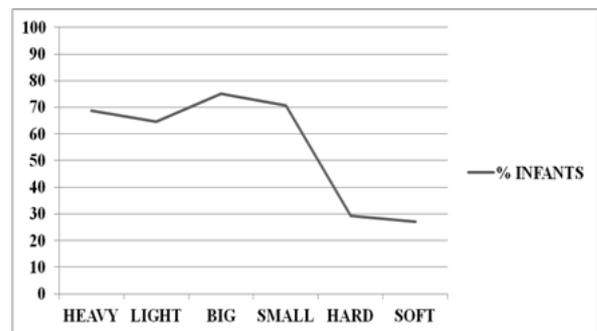


Figure 1. Percentage the infants that classify correctly the different perceptive qualities

The results show some differences in the knowledge of different perceptive qualities. The size category is the best classify by children ( $X=72,9\%$ ), then the weight category ( $X=66,65\%$ ) and finally the texture category ( $X=28,15\%$ ) that is more difficult for infants.

There aren't significant differences between boys and girls in the different perceptive qualities.

But the results show some differences between two groups of study in the different categories.

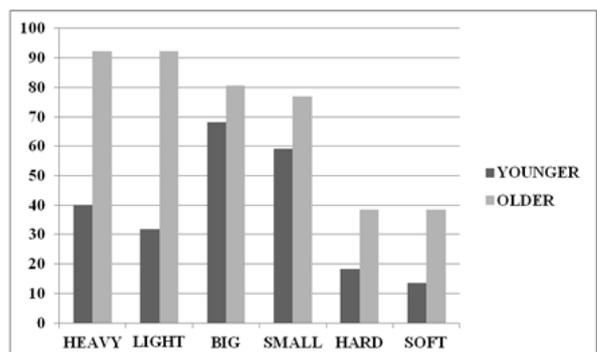


Figure 2. Percentage the infants that classified correctly the different perceptive qualities separated for groups

There are significant differences ( $p=.000$ ) in the weight category between the two groups. The few infants (around 30-40%) younger group's did not distinguish between differing weights while the older group did (a 92%). The older group had accumulated knowledge and had learned to recognize the difference in weights: heavy and light. The children explore this quality with the touch and eyesight because the light balloons were pushed up and they were transported from one place to another by the air; while the heavy balloons were pushed down and they were dragged onto the ground. All the infants jumped with the light balloons in their hands, only taking the light balloon to do this action and all infants, did slide off onto the ramp only heavy balloons. They performed, younger and older children, their action's body with their action's balloons.

There aren't significant differences ( $p=.312$ ) in the size category between the two groups of study. Both, younger and older separated correctly the balloons according to their sizes; small in a box, big in another box, because size is a visual quality which is generalized in different situations of life. The older children verbalized if the balloon was small or big. This quality allows that the children discovered, during the play, others qualities too, because they verbalized that the "*balloon is small but heavy, or, the balloon is big but light*".

There aren't significant differences ( $p=.134$ ) in texture category between the two groups of study because neither sorted correctly. We think that the perceptive category had not developed because the infant had mistaken the sense. They didn't use the shape to discover the hard and soft quality; but they use the "sound" to sort the textures. The balloons filled with rocks were thrown onto the floor with a hand; whereas the balloons filled with flour landed softly causing little sound.

#### 4. Discussion

The results show that introducing the material with different perceptive categories in the psychomotricity sessions promotes knowledge of different categories through play. While the children play free with the different materials they get to know the different properties of the objects through senses. The younger children used the visual and touch senses to discover the properties of the objects because they explored the objects with the hands and mouth; but the older children used the visual and sound senses to discover the properties because they took up the balloon, carried around them and throw onto the floor to know that make noise. Gibson [3] situates the haptic system as one important perceptive system, because with the hands, children manipulate the different objects with the different ways and he assigns the active touch the capacity to look for information. In our study shows that children's sensitivity and adaptation to the properties of the object through the haptic and visual interaction.

In the same way as Gibson [5], we consider that the child learns through movement, because the active touch is realized while child is moved for the environment. Therefore, the action brings the child to the perception so that knowledge of the environment is acquired. The perception exists basically as a guide for the action. The

children interacting with the world through the exploration and this allows to know the information about persons, objects, situations and sides and they offer them for action. Adaptive and functional actions involve movements that are selected and modified according to new situations.

According to Gibson & Schumuckler [6] the children are able to learn to differentiate perceptual informations and this allows them to act in a certain way depending on the properties of the objects or the environment. From the study it was found that the different perceptions accumulated and progressed occurs in their knowledge (hence the older group ranks better than younger) because they acquire a higher perceptual sensitivity.

We think that the psychomotricity offers an ideal context to movement and a manipulative exploration the different properties of the objects and allows to communicate the different perceptive qualities through the verbal and no verbal behaviours between infants; furthermore, it offers the spontaneous context to learn. The older children verbally share some characteristics of objects and make comments like: "*as this balloon weight! or sounds strong this balloon!*".

As indicate Aucouturier [2] the psychomotricity part of the experience of the own person, in relation to their bodies, their environment, the people it relates to the capacity to act. All that we live, that is, we feel, perceive, we do translate into a mental organization that will allow our neurological maturation and motor development, affective - emotional and mental.

Our study show that the movement which is triggered in motor activity is a form of perception, a way of knowing the world and a way to act on it. Furthermore, according to Angulo-Barroso & Tiernan [1] the motor activity influences the perception skills and is interrelated with cognition and emotion where perceptual information adapt effectively movements.

The earliest education offers a rich context of materials to allow the infant to experience different perceptions and increase his knowledge. The school establishes the context and the children free play (action) and the different experiences (perceptions) that generate the play is his learning.

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