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# Stimulation of Fine Psychomotor Skills in Children. Methodological Introduction According to the BAPNE Method

**A. Carretero-Martínez; F.J. Romero-Naranjo.**

***Abstract* –The aim of this investigation is to confirm that the BAPNE Method is a valid tool to effectively stimulate fine psychomotor skills amongst pupils aged between 3 and 6. As well as being highly useful for students in early years, we outline a new, high-quality resource to work on fine psychomotor skills in the classroom with pupils. By using this method, we stimulate the frontal and prefrontal lobes of children in early years. In these activities, specific movements are carried out alongside lyrics or psychomotor melodies, using the prosodic stress. In this way, we will mainly stimulate not only the aforementioned brain lobes, but also awareness of one's own body, hand-eye coordination, writing skills, laterality and the development of executive functions. The type of tasks which are carried out are sequenced so as to achieve early stimulation focussed on four main areas: development of hand-eye coordination, phonetics, gestural motor skills, and facial motor skills. For this reason, we stress the importance of this development and stimulation of fine psychomotor skills in early years pupils thanks to the BAPNE Method.**

***Keywords* – Fine Psychomotor Skills, Early Years Education, BAPNE Method, Rhythm, Music.**

## I. INTRODUCTION

### *I.I Problem*

During the gestation period of an embryo, right until birth, a baby moves within the mother's womb. From birth onwards, it starts to develop its motor skills which are determined by its environment, genetics, and stimulation. As it grows, the child learns to dissociate its limbs, to perceive and understand his or her own body, gestural motor skills and facial motor skills, etc. All of this is conditioned by the stage of development the child is in (Piaget, 1961). Jean Piaget's classification and structuring of child development determines that the most influential period in the psychomotor development of any child is around 0 to 2 years of age. He states that this occurs due to the fact that this is the moment when the infant combines his or her motor skills with sensory skills, and so begins to understand the world around him or her, and to develop initial concepts and knowledge, putting cognitive functions into practice.

However, what measures can families take to stimulate the psychomotor development of their children at this age? And what can professionals, such as primary school teachers, educators, and paediatricians, do?

Generally, until the child reaches primary school, he or she receives no support to help him or her to tackle difficulties with movement. It is for this reason that in the early years stage, it is so important to prioritise movement to develop better understanding of surroundings, by including psychomotor skills in the early years education curriculum. The reality is that, as it is so important for pupils, psychomotor skills should continue to be considered a basic pillar of the early years stage. It forms one of the content areas which use play and movement of the body, though this content focusses more on gross psychomotor skills than fine psychomotor skills.

From our own experience, we can state that sessions focussing on infant psychomotor skills centre primarily on gross psychomotor skills, leaving fine motor skills in the background. When an early years teacher, who is not specifically trained in movement, develops their programme of study, they include both fine and gross psychomotor skills. However, the percentage of activities differs: from 90% focussed on the body schema, to 10% (or less) on precise movement of the hands.

As education professionals, we are concerned that the handling of psychomotor skills of infants is not being widely addressed, despite being useful and valid for the all-round development of pupils.

### *I.II Literature Review*

Psychomotor skill is a relatively new concept, tracing its origins back to the start of the 20th century. Before this time, philosophical approaches and theories of dualism of the body and mind suggested the existence of a relationship between the movement of the body and the action of the mind. "I am simply a thinking, non-extended thing; and on the other hand I have a distinct idea of body, in so far as this is simply an extended, non-thinking thing. And accordingly, it is certain that I am really distinct from my body, and can exist without it." (Descartes, 1990). Thanks to advances in science and medicine, the concept of psychomotor skills was born, allowing the relationship between the psychological and the way in which the body manifests itself.

We are not currently concerned with the link which is established between the body and the mind. Although it is true that we make involuntary movements that our nervous system carries out, it is obvious that our brain plays a key role in the act of moving, as it tells our body to carry out movements, from the basic and primitive, to the specific and precise.

Whilst the concept of psychomotor skills initially emerged as a resource for re-training or for therapy, authors such as Fonseca (2000), Martín (2004), Bolívar & Arias (2013) define psychomotor skills as a basic tool with which a child constructs his or her thoughts and knowledge through movement. This is because it is by means of bodily movement, handling objects and interacting with the environment, the full development of a person can be achieved.

If we now look at an approach more focussed on schools, we find Mendiara (2008), who considers psychomotor skills an educational trend. He states that we are dealing with a way of understanding education which is based on active pedagogy and evolutionary psychology and which aims to fully develop pupils and to facilitate their relationships with the world around them.

Within the field of education, various bibliographical reviews have been carried out, and research looking at the analysis of changes in development or at the influence of methodology. (Terry, 2014; Chueca, 2013; Martín, 2004; Martín & Soto, 2000).

However, not all authors have a positive view on psychomotor education within schools. Quirós (2000) calls into question the work of early years teachers. He states that they are poorly trained and thus have a mistaken idea of what psychomotor skills entail.

Rather than doubting the work of teachers and their degree of specialisation, we are seeking a new approach to infant psychomotor skills and to offer practical resources which are useful for the teachers.

We find the BAPNE method ideal for this, as this method is based on five disciplines: biomechanics, which helps us to understand how our body moves in space thanks to its planes and axes; anatomy, which explains the exact movements for the exercising of specific bone and muscle structures; psychology, which leads us to think of movement from a therapeutic perspective, as in the case of Parkinson's, Alzheimer's or dyslexia and other disorders; neuroscience, which justifies precisely what is going on in our brains during each movement and allows us to develop an understanding the levels of activation in each brain lobe; and ethnomusicology, which allows us to understand how the body is moved in different cultures (Romero, 2013). Therefore, BAPNE is a method of cognitive, socioemotional, psychomotor and neuro-rehabilitative stimulation. To achieve this stimulation, the method makes use of the teaching of body percussion and motor coordination.

From a neuropsychological perspective on movement, Luria (1974) states that movement is influenced by communication and relationships between people, and thus is not exclusively dependent on neurological processes. She also determines that if the psychomotor profile of a child manages to functionally organise the brain, the chance of development and learning increases. This can be done by carrying out numerous psychomotor activities, developed in the light of these theories.

For a teacher preparing a session focussing on psychomotor skills, the most attractive option is to find activities and exercises which are useful and beneficial for the all-round development of their pupils. For gross psychomotor skills, we find stories with movement, treasure hunts, mat work, work with tools (rings, balls, stilts, ropes, etc.), games with symbols, and so on. However, there is a dearth of resources for fine psychomotor skills, as we cannot find methods with a theoretical basis which can determine whether the motor work suggested is appropriate and valid. It is for this reason that as researchers and recognised experts in the BAPNE method, we have decided to look at the area of fine psychomotor skills, which is an area of education that is yet to be studied.

### *I.III Aim*

As the early years stage is one in which children are in constant development, both in terms of motor and cognitive ability, we think it is essential to guide them towards psychomotor stimulation, especially of fine psychomotor skills. This is so they avoid difficulty in handling objects, in recognising their environment, and in common actions.

We state that this stimulation is achieved thanks to activities which include music, rhythm, body percussion and movement.

## II. DEVELOPMENT

### *II.I Aims*

The aim of this investigation is to confirm that the BAPNE Method is a valid tool to effectively stimulate fine psychomotor skills amongst pupils aged between 3 and 6.

As well as being highly useful for students in early years, we outline a new, high-quality resource to work on fine psychomotor skills in the classroom with pupils.

We have also carried out a classification of fine psychomotor skills, categorised by Dr Romero-Naranjo in order to organise the different movements that we can perform with our hands and fingers. We also include models of exercises which stimulate fine psychomotor skills.

### *II.II Method and investigative process*

In order to systematically organise fine psychomotor skills, and to offer a clear and precise classification, we use the following types, according to Dr Romero-Naranjo:

i) Crossing
ii) Rotation
iii) Manual dissociation
iv) Alternating
v) Pressure
vi) Precision
vii) Symbolic

Below, we explain each one of the types and show the activities offered by professionals trained in the BAPNE Method. Just as we have classified fine psychomotor skills, each exercise corresponds to one specific type. Each one of the tasks carried out is structured in a sequenced way in order to achieve early stimulation, and is focussed on four areas: development of hand-eye coordination, phonetics, gestural motor skills, and facial motor skills. In the activities, specific movements are carried out alongside lyrics or psychomotor melodies, using the prosodic stress.

#### *i) Crossing*

The starting position of the hands is with them held together, palm on palm. The movement consists of interlinking together the fingers of both hands, two by two, starting by the index fingers, see Fig. 1. Once I have performed various repetitions of this crossing of the index fingers, I return them to the starting position, keep them still and carry out the same movement with the next pair of

fingers, as shown in Fig.2. We will carry out this crossing with all of the fingers. Whilst we are carrying out this movement, we will sing the song "Le coq est mort" in order to achieve the greatest possible stimulation of the brain lobes. The song used can be changed according to the level of development of the pupils we are working with.

Fig. 1. Starting position

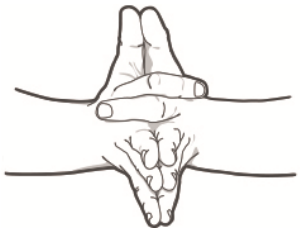

Fig. 2. Crossing position

*ii) Rotation*

The starting position is the same as in the previous exercise. We then go on to separate the palms of the hands from one another, but leaving the hands connected at the fingertips. Following the same method as in the crossing activity, we start to move the index fingers of our hands, making circular rotating movements between them and keeping the other fingers connected at the fingertips, see Fig.3.

In the Fig. 4, a fragment of one of the songs that we use to carry out this type of rotation activity can be seen. These activities are very useful to develop hand-eye coordination skills.

*iii) Manual dissociation*

In this type of psychomotor skill, the right hand has a different starting position from the left hand; for instance, the right hand shows three fingers, whilst the left shows two, as shown in Fig.5.

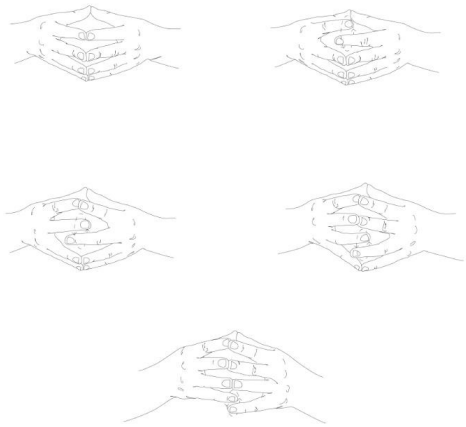

Fig.3. Types of rotation

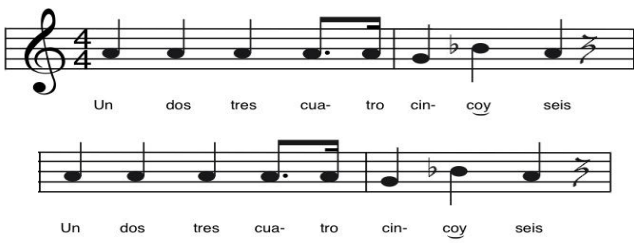


Fig.4. Score of "1, 2, 3, 4, 5, 6".

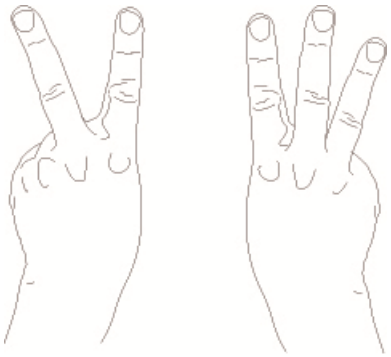

Fig.5. Manual dissociation

The movement consists of dissociating the position of one hand from the other, and changing the position. Thus, the right hand, which before showed three fingers, now shows two; the left hand, which before had two fingers, now has three. The change is carried out with both hands at once.

One of the songs that we can use with this activity is "Lunedì, Martedì", which also teaches us the days of the week in Italian. We will carry out the changes according to the beat of the song. Children work here on the concepts of left and right, how to dissociate the two, and thus are working on laterality.

*iv) Alternating*

The starting position of this movement is a diamond shape, made by bringing together the tips of the thumb and index fingers of both hands. The thumb of the right hand touches the index finger of the left hand. The thumb of the left hand touches the index finger of the right hand, making a shape as shown in Fig. 6

Once we have made the shape, we must alternate our fingers and change where the fingers are linked.

Another way of carrying out this alternating movement in a more simple way is using only the index and middle finger on a surface (e.g. the body, a table). The movement of these fingers is forward, first one, and then the other, in a walking motion.

The song that we use in this exercise is "The Little Spider" in which the index and middle fingers move up our arms and thighs.

*v) Pressure*

This activity consists of applying pressure on the fingertips of one hand. The activity can be carried out in pairs or individually, as shown in Fig.7 and Fig.8. If it is carried out with a partner, one of them is the active subject, carrying out the pressure movement; the other is the passive subject, receiving the pressure.

Fig.6. Alternating.

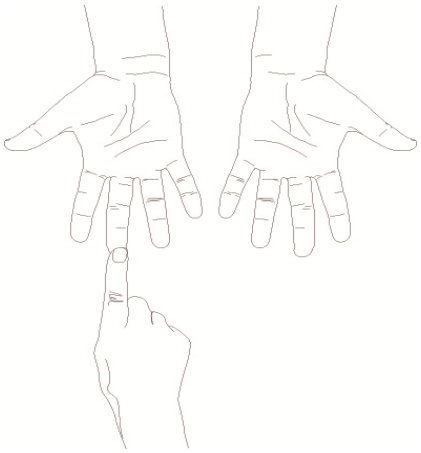

Fig.7. In pairs

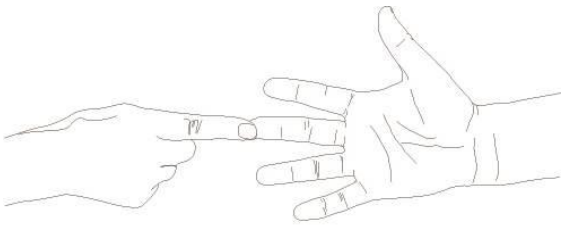

Fig.8. Individually

The song chosen for this type of movement is "The Centipede". By doing this, pupils reinforce their concepts of pressure and force.

*vi) Precision.*

This activity consists of clearly signalling the part of the body indicated by the teacher, using the movement of our hands and fingers. The signalling is done with our eyes closed, and always following the teacher's instructions. These instructions are given by using a story with movement.

For example: "My index finger is a mosquito which flies and flies until it lands on the highest part of my body…".

In this way, as well as working on fine psychomotor skills, we work on recognition of the body schema and balance.

*vii) Symbolic*

This movement is carried out in context, i.e. whilst we sing a song on a particular subject, imitating movements are performed to symbolically represent reality.

For example, in the song "The Yellow Duck", the movement of the hands opening and closing is imitating the duck, see Fig. 9.

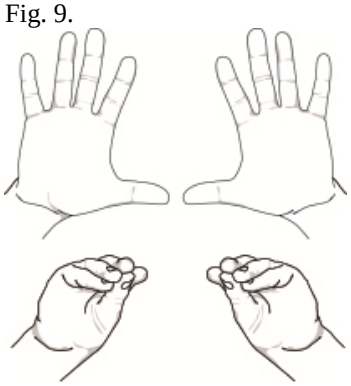

Fig.9. Imitation of the movement of a duck's bill.

Another children's song in which we use symbolic movement is "The Elephant's Little Trunk" in which our hand becomes the trunk of this elephant. In this way, we bring the pupils into contact with symbolic play, which is crucial at this stage.

## III. Conclusion

As Jean Piaget points out, movement is essential in order to achieve child cognitive development.

Ideally, we would work on both types of psychomotor skill equally, as this is a stage in which education is defined by the motor and body development of pupils. It is in this phase that skills are acquired including how to use different objects to eat, to write, to play, etc. It is a stage in which handling objects is essential for the development of children, who on numerous occasions have difficulty carrying out everyday tasks such as writing, or fastening their shoes, because of a lack of psychomotor stimulation.

In this article, we have offered resources to early years teachers with activities from the BAPNE method. In these activities, the movement of hands and fingers is stimulated at an early age, according to a classification system designed by Dr Romero-Naranjo. Furthermore, each type of psychomotor skill and each of the activities are thought out and designed to stimulate hand-eye coordination, awareness of one's own body, writing skills, laterality and the development of executive functions, as well as the stimulation of the frontal and prefrontal lobes and the development of the executive functions. This is in addition to fostering movement and symbolic play.

As Fonseca (2000) states, "psychomotor skills are a basic, fundamental and irreplaceable tool, by means of which the whole person is constructed. A poorly organised set of motor skills will hold the subject back throughout their life and stop them making the most of all the world has to offer. Only by exploring their own body, objects, space, and the people around them will a child discover the world and understand the relationships between things."

It is proposed in future research to study fine psychomotor skills as a therapeutic resource for pupils with special needs.

We end by stressing the importance of achieving the development and stimulation of fine psychomotor skills in pupils in early years, and we encourage professionals to use these activities from the BAPNE Method.

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## AUTHOR'S PROFILE

### Andrea Carretero-Martínez
Researcher in the BAPNE postgraduate.
Music Teacher in Primary School from the University of Almeria.
Master of Research Education from the University of Alicante.

### Francisco Javier Romero-Naranjo
BAPNE Creator Method.
Professor in the BAPNE Postgraduate.
Professor in the Department of Innovation and Didactic Training of the University of Alicante.
Doctor in Musicology from the Alexander von Humboldt University Berlin.
Degree in classical guitar and orchestral conducting.
Degree in Geography and History.
Master of Arts in Ethnomusicology from the University of Maryland (EEUU).