

## **Resilience and Psychomotricity: inclusion strategies in Preschool Education**

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### **Abstract**

With this article we would like to deepen the resilience and psychomotricity as inclusion strategies in preschool education. We analyse too the importance of resilience and psychomotricity and their impact in the learning of disadvantaged children at a preschool age that are exposed to adverse social and personal factors and to assess the efficiency of an intervention program based in psychomotricity and resilience together.

We developed a project in a region of Brazil (Botucatu), where a Psychological Development Activation Model was used with psychomotricity exercises and also the Programme Strong Start Pre K, in the area of resilience. The assessment instruments used were the WeBeST test for resilience and the Operational Portage Inventory test for Psychomotricity.

The study is longitudinal, quasi-experimental, with an experimental group (subject to Strong Start Pre K Programme for assessing resilience) and a control group (not subject to the Programme), with pre and post tests given to both groups. These groups were assessed before (pre-test) and after (post-test) the manipulation of the independent variable.

The results indicate that there was an evolution in resilience among children in the group that participate in this program. They improved the resilience capacity, dealing with problems and controlling the emotions.

To finalise, we recommend that the training of professionals who work in education and health should include the promotion of resilience in their curriculum, as well as the implementation of psychomotricity and the study of emotions and feelings in order to better deal with the adversities in life.

**Keywords:** resilience, psychomotricity, educational intervention, programmes, strategies, preschool education.

## **Introduction**

According to Motta & Aguiar (2007) being competent is having the capacity to apply skills, knowledge and behaviour. The ability to use knowledge to achieve a purpose, the capacity of using knowledge and skills acquired in one's profession and the capacity to mobilise knowledge such as know-how, know how to be and know how to act, and lastly, the capacity to solve problems. A personal skill is an integrated and structured knowledge that an individual will have to resort to and uses in order to effectively undertake various tasks encountered throughout life, while being aware of their potential and resources as well as psychological constraints in order to be able to pursue projects in various dimensions of their existence.

It is known that the education that use the movement, in its organic, motor and psychological aspects promote that the formation of the child character occurs as well as the development of the ability to carry out daily tasks which allow children to live harmoniously with their bodies and the others and also with the surrounding environment. The education based on movement stimulates self-trust; it attenuates the hurdles that interfere with development and learning at school; it favours the perfecting of willpower, decision-making and perseverance; it stimulates creativity, tolerance and the acceptance of challenges with responsibility.

For the World Health Organisation (WHO), health is not merely the absence of illness but a resource of our daily lives and the state of physical, psychological and social well-being of the human being. Barbosa *et al.* (2002) reports that psychomotricity is directly related to education, health and well-being, which help to achieve a complete balance of the human being, and has the objective of promoting integral development.

## **Resilience: Different Approaches**

With regard to resilience, the term is not a fixed attitude that changes according to the stage of life and circumstances, type of

trauma and how a person experiences it as well as the historical-cultural factors (Hensius, 2010). It is a dynamic process, a symbiosis between the individual's inside and outside, in a social context, resulting from the interaction of various micro-systems (family, school, friends) and macro-systems (community, beliefs, ideologies, values and customs, means of communication, economic situation and educational system). Resilience leads to a metamorphosis of the individual, who learns through experiences lived and draws life lessons for life. Resilience is the opposite of vulnerability. Resilience refers to a set of factors that the child has (or its environment) that offer some protection against the effects of vulnerabilities, which means that a highly vulnerable child integrated in a poor or unfavorable environment can produce more adverse effects. However, an integrated resilient child in a poor environment can have good performance, since it is given the possibility to discover and enjoy many stimulating opportunities. In the case of a vulnerable child, surrounded by a good environment, can also have good performance, especially when child is helped to deal with their vulnerabilities.

Still with respect to resilience, Regalla, Guilherme & Serra-Pinheiro (2007) adds that resilience should not be seen as a fixed attribute of the individual, so that if the circumstances relating to that person can change, the resilience changes too. Resilience happen precisely from protection processes that encompass four main functions, namely: reduce the impact of hazards; reduce the negative chain reactions, which follow the individual's exposure to risk; establish and maintain self-esteem and self-efficacy, through secure attachment relations and compliance of tasks successfully and ultimately create opportunities to reverse the effects of stress. According to Barbosa (2006) resilience results from the interaction between seven factors: management of emotions, impulse control, empathy, optimism, causal analysis, self-efficacy and reach of people. The author in analysis argues that such factors when grouped provide overcoming adversity, related to the meaning of life, the very individual and his next, and it is this assemblage that allows the development of emotional maturity. The first fact approached

by Barbosa (2006) includes the ability of the subject to remain calm before a stressful situation by redirecting its behavior. The impulse control relates directly to emotion regulation, the subject experiences the situation in an enhanced and/or inhibiting manner. The third factor relates to the empathy, to the author, this is the ability that the human being has to understand the psychological state of the others by decoding non-verbal information. The author in question reveals that optimism, is a belief of the individual who determines that things can change for the better, and there is the belief that you can control the future, even when the power of decision is not yours. Through the causal analysis, the fifth factor described by Barbosa (2006), the individual recognize with precision the causes of problems and adversity in the environment, putting themselves in a safe situation and not at risk. In the self-efficacy, the individual solves problems with means that he, himself, finds in the environment. To finalize the approach to the interaction between the seven factors of which resilience results, the author refers that the last factor, the reach of people, reflects the ability of the subject has to be linked to others, without fear of failure and with the purpose of forming support networks.

Oliveira (2008) and Lindström (2001) highlight a concept of resilience that consists of four components that make up a set of features that protect the individual: individual factors, environmental context, lifelong events and protective factors. In the background, the resilience capacity refers to the interaction between personal attributes, the family environment and the support from the community. In this line of thought Andreucci (2008) and Garmezy (1993) show resilience as the ability to recover the operating pattern after experiencing adverse situation without letting yourself be hit by it. It is a universal capacity that encourages the individual to face the risk.

To finalize the approach to resilience and its meaning, according to Cardoso & Sade (2012), Machado (2010) and Tavares (2001) resilience is the capacity that people have, individually or in group, to withstand adverse situations without losing their initial balance. This can be strengthened with the development of self-concept and

self-esteem so that the individual becomes stronger, more efficient and collaborate towards a less violent society. They describe that the resilience allows individuals, groups or communities to prevent, minimize or overcome the damaging effects of adversity. Resilience is a universal capacity. Agreeing to Pereira (2001), resilience, knowing how to cope with difficult situations, is developed and acquired throughout the different stages of life and derives from the relationship that the child establishes with their environment.

In all of these definitions the concepts of adversity, trauma, stress, illness and unfavourable situations or vulnerability are mentioned. This is the starting point for studying factors of protecting the individual, the family and the environment where the subject has resilient strength to face critical situations and emerge from them a stronger person with a new meaning to their own life.

### **Psychomotor education: psychomotricity's contribution to the success of teaching and learning**

UNESCO proposes an Education model based on learning to know, learning to do, learning to socialise and learning to be, so that the individual formulates their own judgements, may decide for themselves how to act in different circumstances and adversities of life in order to have healthy relationships and undergo a personal transformation in favour of citizenship.

It is through the education using movement (psychomotor education), in its organic, motor and psychological aspects, that the formation of character occurs as well as the development of the ability to carry out daily tasks which allow children to live harmoniously with their bodies and others and with the surrounding environment. It stimulates self-trust; it attenuates the hurdles that interfere with learning at school; it favours the perfecting of willpower, decision-making and perseverance; it stimulates creativity, tolerance and the acceptance of challenges with responsibility. For Heinsius (2010, 2008), psychomotricity stimulates the connection that the child establishes with other people and objects through their actions.

In conclusion, it should be noted that the development of psychomotor activity contributes significantly to the development of gross motor coordination, fine motor skills, balance, the notion of body scheme, laterality, spatial structure of the temporal structure, rhythm and perceptions. Like this, appropriate psychomotor activities will allow that the child lives with spontaneity their own bodily experiences. A good psychomotor structure is the fundamental basis for the cognitive development and for the process of learning. The development takes place from the general to the specific and during the process of learning the basics of motor skills should be used frequently.

Education programmes that promote Resilience and Psychomotricity, indicators of a health life in various phases of life from childhood to adulthood, are already appearing. This study highlights a programme involving resilience and psychomotricity in children that are socially, culturally and economically disadvantaged in the city of Botucatu, in Brazil, in preschool where the Programme Strong Start Pre K (Strong Kids Website, ORP, 2008) was used together with the Activation of Psychological Development Model - ADP (Cró, 2006), based on psychomotricity, as promoters of the acquisition of personal, social and emotional skills.

### **The development activation model: introduction in Brazil**

The Development Activation Model has its roots in the Active School movement which opposes the Traditional School. What is essential to this process is that the teacher discovers the potential of each student at the different stages of their development. With the Development Activation Model, the difference is that both the teacher and the student will form their own personalities while interacting in a common project. In this way, the learning and development process is a result of the interaction that continues between the teacher, the student and their environment (Cró, Andreucci & Pereira, 2008). These dynamic interactions occur in a specific culture that is at the origin of the objects to be learned. The interactions

may spontaneously establish themselves resulting in the following: the subject occasionally learning despite not being aware that they are doing so, or intentionally learning as a result of a conscious decision by the learner to do so. These dynamic interactions may still, and this is the case with schooling (from pre-school to higher education), be systematically desired (by the teacher and by the student) and systematically created, as a result of relying on defined means originating from defined objectives and more importantly, relying on the potentials that the student has.

The Development Activation Model combines the antinomy of reference to the subject and acknowledges the power of action (Tavares *et al.*, 2011). Another important part in the model is the carrying out of tasks. Tasks are synonymous with activity. As we know, these may be more or less complex, more or less specific, but it is necessary that the level of difficulty or complexity of the tasks to be carried out is adequate to the level of skill that the subject has (Cró, 2006). The task or activity has to present some level of difficulty in relation to the development of the subject, or else they will lose interest because it is too easy or it does not motivate them because it is too complex

Based on this Activation Model, in 2000 in the city of Botucatu, in the Nucleus Joanna De Angelis, a project was elaborated to “educate and include”. The aim of the project was to reduce the consequences of the difficulties that disadvantaged children had, strengthen the families and increase the chances of evolution in these children so that they may be integrated in the life of a society. For this to occur, support was given by the University of Aveiro through Professor Maria de Lurdes Cró in order to facilitate the promotion of global and harmonious development in the personality of these children who were considered as having special educational needs by the State Department of Education (of the State S. Paulo), in addition to providing educational activities that could influence their cognitive and psychological development in order to: decrease school failure in the future, promote the development of self-esteem and promote well-being and health so that they have personal and social achievement (Andreucci, Macedo & Montelli, 2005).



A research plan was established that integrated areas of psychomotricity and resilience in the perspective of the Activation of Psychological development Model in order to verify if this activation intervention promotes global development, widening the field of knowledge that the subject can try at a certain moment in their development as they overcome stages.

In order to answer the needs of this reality some deep studies were designed to improve the quality of children's life and to promote resilient personalities.

The aim of the present investigation intends to focus the development of social, personal and emotional skills in Brazilian disadvantaged children at a preschool age as well as the different approaches of resilience and psychomotricity to put in perspective an interventional methodology that is based in the Development Activation Model and it have been introduced in Brazil, in the city of Botucatu.

## **Methods**

Based on the previous study carried out in Brazil (Andreucci, 2007), the present study aims to promote resilience and psychomotricity in children through the application of the Strong Start Programme (2008) and the Activation of Psychological Development Model, through psychomotricity as well as assess the effectiveness of these programmes.

The study is longitudinal, quasi-experimental, with an experimental group (subject to Strong Start Pre K Programme for assessing resilience) and a control group (not subject to the Programme), with pre and post tests given to both groups. These groups were assessed before (pre-test) and after (post-test) the manipulation of the independent variable.

As for psychomotricity, the children from the experimental group had psychomotor activities in a preset programme and the control group did not. Both groups were assessed by the Operational Portage Inventory, with pre-test and post-test measurements for both groups. It is important to highlight that psychomotricity is

not mandatory in Brazilian schools (it was implemented in Curitiba and São Paulo). The experimental group in the city of Botucatu, assessed in this research, has been following a psychomotricity programme since 2000, reported by Andreucci (2007).

The study was performed in 2008 and included 151 Brazilian children from disadvantaged families who were exposed to adverse social and personal factors such as malnutrition; family stress; impoverished stimulation and domestic environments; with specific learning disabilities, both in terms of visual-motor perception and language and body structure. They were submitted to the same training, communication and activation techniques used in preschool but appropriate to their age and development.

At the sample, the most represented age was 5 years old with 45.7 % and the least represented age was the 3 year old group with 19.2%. The majority of boys and girls were 5 years old with 42.5% and 50%, respectively.

The minimum age of the sample constituents is 3 years old and the maximum is five years old, accounting for an average of 4.26 years old (SD = 0.763). For males, the average age is 4.44 years old (SD = 0.735) and for females the average age is 4.11 years old (SD = 0.758).

In the experimental group, the most representative are the 4 and 5 years old children, with 39% each, with the 3 years old group being less representative (22.1%). In the control group the most representative age is five years old (45.7%), with 3 years old being the least representative (19.2%).

In the experimental group, the average is 4.17 years old (SD = 0.768), there are 42 girls (54.55%) and 35 boys (45.45%). In the control group, the average age is 4.36 years old (SD = 0.751) and there are 39 girls (52.7%) and 35 boys (47.3%).

## **Instruments**

### **A - Resilience: Strong Start Pre K Programme**

The Strong Start Pre K programme (2008), which includes children from 3 to 5 years of age and is aimed at early interven-

tion and is preventive in nature with several areas of action. It was developed at the University of Oregon (United States), by the Department of Special Education and Clinical Sciences, headed by Kenneth Merrell (Strong Kids Website, ORP, 2008) and continues in the STRONG KIDS Programmes (for children between the ages 5 and 14) and STRONG TEENS (14 to 18 years old).

With inner strengthening as an assumption, this programme allows the child to establish healthy emotional bonds early on, acquire personal and social skills appropriate to the age, and to be exposed to approaches that favour results of well-being and effectively deal with stress.

The aim of the programme is to develop social and emotional skills, promoting resilience, strengthening what they already possess and increase coping strategies in children. The Strong Start Pre K programme can be used in various situations and with different children, such as at risk children or students with behavioural and emotional disorders.

The fundamental points of this programme are the teaching and learning about the essential elements of emotional education, cognitive restructuring, solving interpersonal problems, personal and social skills, empathy, problem solving, reducing stress and relaxation. These are necessary in order to create important changes in affection, cognition and behaviour. The programme's curriculum structure consists of 10 sessions of approximately 25 to 40 minutes each, and is headed by a teacher or mental health professional. Students find the sessions engaging and fun as popular children literature is used to help emphasise key concepts, with affective and behavioural benefits. The ten sessions in the STRONG START PRE K manual have the following objectives: working, understanding, and identifying ours and others feelings and emotions; solving people's problems with others.

In order to obtain the support and collaboration of parents in the programme, each session has a newsletter with information on the content that is learnt and the activities carried out that day so that they may be further strengthened and encouraged at home.

In addition to the basic 10 sessions, the STRONG START programme includes two extra sessions in order to help reinforce the

curriculum concepts and teachings weeks after the completion of the last session. The STRONG START manuals are complex and detailed and include all of the necessary material for the sessions.

The following Assessment Instruments complement the Programme: WeBeST (Well Being Screening Tool) that measures “negative” affection; SEARS-P which is directed towards parents and SEARS-T which is directed towards teachers. This study only presents the tests given to the children.

### **Test WeBeST (Well- Being Screening Toll) - Assessment Test**

In order to measure the capacity of resilience in a child of preschool age, the WeBeST– Well-Being Screening Tool test was applied. This test was also developed at the University of Oregon in the United States by the Department of Special Education and Clinical Sciences and subsequently translated and then a request to the author was submitted requesting that it be adapted by Andreucci (2008) for Brazilian children.

The WeBeST measures negative affection symptoms, emotional and social problems and resilience in kindergarten children and children in year one and two at school. This study was applied only to students in preschool, individually and directly by the researchers, before and after the implementation of the programme Strong Start Pre-K, to the children in the experimental and control groups.

The test consists of 22 closed questions, scored using the Likert method. Each answer is given a score of 0 to 2, obtaining a maximum score of 44 and a minimum score of 0. This is a negative placement test, therefore the higher the score when summing the answers, the less the capacity of resilience and vice-versa.

### **B - Psychomotor activation programme used in Brazil**

The main objective of the programme was to activate the cognitive, socio-emotional, symbolic, psycholinguistic and motor development which is essential to the maturation and learning process. The programme intended on achieving this through integrated and organised recreational activities which lasted for 30 minutes,

in two periods, where the children were stimulated to observe and describe their movements. It included standardised and easily reproducible exercises, based on various authors, namely Lambert (1972), Oliveira (2008), Almeida (2008) that aim at stimulating the concept of body image, laterality, spatial and temporal orientation as well as language.

### **Operational Portage Inventory (OPI) - Assessment Test**

OPI is a guide describing the behaviour of children between the ages 0 to 6. It was designed and introduced experimentally by Bluma *et al.* (1972), as part of a comprehensive training system for parents and preschool education and was revised soon after (1976).

This Inventory, composed of 580 items of behaviour assessment, researches six areas of development: cognition (108 items), motor development (140 items); language (99 items), socialisation (83 items) and self-care (105 items), distributed by age groups of 0 to 6 years old, and the sixth area of development is infant stimulation (45 items) – specifically for babies. In this study we have only considered children from the ages of 3 who played with games, balls and plastic toys.

The inventory was adapted by two Brazilian psychologists, Williams & Aiello (2009), who translated the instrument into Portuguese and operationalized each of the items, creating definitions, criteria, specific assessment conditions and describing the material being used.

With the purpose of standardising the registering of the child's performance in each test, a Record Sheet was made in order to record how many items were correct and the respective percentage of success.

### **Procedures**

Concerning to the implementation of Programmes and Instruments formal process was carry on. Following the authorisation be-

ing given by the governing agencies upon our request, permission forms were given to parents and/or guardians so that the students could participate in this study.

The programmes were implemented during the second semester in 2008. For the experimental group, a newsletter with information on the content that they had learnt and the activities they participated in that day was sent after each session so that the programme would be reinforced and stimulated at home and to have the support and collaboration of the parents.

Data was gathered through the use of the previously described instruments, through a pre-test (before applying the Strong Start Pre K programme) and a post-test (after the application of the Programme), in the field of resilience and of the Operational Portage Inventory (administered to the experimental group before the psychomotor stimulation programme), to all children in the sample individually.

The statistical programme SPSS, version 16.0, was used in order to carry out the statistic analysis of the data gathered.

## **Results and discussion**

Accordin to the table 1 in the experimental group, with regards to the Pre-test, the average being 10.12 (DP= 4.896) and in the group's Post-test, the average was 5.79 (DP= 3.446). In the control group's Pre-test, the average being 10.97 (DP=5.584) and in the group's Post-test, with an average of 13.92 (DP=6,339).

In assessing the resilience between the group's Pre-test and Post-test the Wilcoxon test was used.

In the experimental group, the Post-test scores are higher than the Pre-test scores. Given the statistical significance of the probability value which indicates that the intervention had an influence on the children ( $p = 0,00$ ).

**Table 1** - Resilience in the experimental and control groups

Groups	Tests	N	Min	Max	X	DP
Experimental group	Pre-test	77	1	24	10,12	4,896
	Post-test	77	0	16	5,79	3,446
Control group	Pre-test	74	1	25	10,97	5,584
	Post-test	74	4	36	13,92	6,339
	Total Pre-test	151	1	25	10,54	5,244
	Total Post-test	151	0	36	9,77	6,495

The results indicated that those children who participated in the psycho-educational programme of promoting resilience demonstrated differences in relation to those children who did not. This difference indicates an improvement in skills when dealing with difficult situations and adversities as well as dealing with emotions. This pilot study suggest that this program can include increase levels of cognitive development and improve the students well-being as was referred by other studies conducted by Chari, Cohen, Abdul-Adil & Aoun (2009).

These results are very similar to the exploratory studies conducted by the Strong Start Pre K project researchers Kenneth Merrell (2009) of ORP (2008), University of Oregon, in the United States.

Except for the studies in progress in the America, there are no points of comparison which serve as a reference or help facilitate a more detailed discussion.

In the area of resilience analysed in the said study, no significant differences between scores in the control groups were found. In the experimental groups, the post-test scores are higher than the pre-test scores in both groups. The probability value is statistically significant which indicates that the intervention programme had a positive effect on Brazilian children ( $p = 0.00$ ).

These results indicate that there was an evolution in resilience among the children in the group that participated in the Strong Start Pre K programme, as the values are indicators that the children improved their resilience capacity, especially in terms of controlling emotions and dealing with problems, their emotions and the emotions of others in addition to empathy.

The results in the area of Psychomotricity, show that the children who participated in the Psychomotor Activation Programme presented positive results and developed their personal and social skills, while significantly improving their quality of life and well-being in addition to making academic progress.

This research, exploratory in nature, had limitations inherent to this type of study. It involved an intervention programme briefly and synthetically described here in the areas of resilience and psychomotricity.



The overall results of this direct intervention with children stress the importance of the principles, objectives and the appropriateness of the methods used as well as suggesting the continuation of these intervention programmes in schools with children in preschool and school.

### **Conclusion and future research directions**

It is one of the aims of this study to provide the results of implementing the Activation of Psychological Development Programme in the area of psychomotricity and of the Strong Start Pre K Programme to promote the resilience development.

As studies in this area are limited, this pioneer study intends on serving as an incentive for Education and Health professionals in making them sensitive to the promotion of the development of resilience and psychomotricity in young children.

Despite the satisfying results, these data should be analysed with some caution. Further studies are necessary in order to reinforce this argument.

Although having gratifying results in both countries which we consider to be an incentive for future studies and further investigations in countries of Portuguese origin (PALOP). However, a larger sample of the population should be used and a program especially developed for Portuguese-speaking communities, since a gap at the level of tools and assessment programs involving resilience in children of preschool and school age was detected in the investigations carried out by Cró, Andreucci, Pinho, & Pereira (2013).

To finalise, we recommend that the initial and continual training of professionals who work in education and health should include the promotion of resilience in their curriculum, as well as the implementation of psychomotricity and the study of emotions and feelings in order to better deal with the adversities in life. We think that is important too develop their emotional, social and professional skills so as to become more responsible, active and participative citizens.

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