Resilience and Psychomotricity in Preschool Education: A study with children that are socially, culturally and economically disadvantaged

ABSTRACT
The aim of this study is to study the importance of resilience and psychomotricity and their impact in the learning of disadvantaged children at a preschool age and exposed to adverse social and personal factors.

A project developed in a region of Brazil (Botucatu) is presented, where a Psychological Development Activation Model was used (Crô, 2008), through standardised and easily reproduced psychomotricity exercises, based on Lambert (1972) and the Programme Strong Start (Merrell, 2009), in the area of resilience. The assessment instruments used were the WeBeST test for resilience, discussed in this paper, and the operational Portage Inventory test for Psychomotricity.

The aim of this study is to assess the efficiency of the intervention programmes and promote resilient personalities. Some implications of this study will be analysed, suggesting changes in the teaching/learning process as well as in testing and interventions in order to achieve success in school.

1.0. INTRODUCTION
This study 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.

We will refer the assessments that were been used to promote the development of resilience and psychomotricity and recommendations will be given to allow changes in learning and teaching to achieve the scholar success.

1.1. PERSONAL, SOCIAL AND EMOTIONAL SKILLS
Anxiety, fear, insecurity, aggressiveness, emotional barriers, bullying, rage, joy, surprise and sadness are a part of our daily life from childhood to adulthood. From the tenderest age we can learn how to deal with our own emotions and those of others, see the world from different points of view, which may help improve our quality of life, health, personal and professional success, which is one of the challenges of the 21st Century. It is a fact that the development of social-emotional skills combined with cognitive development is key to success in school and throughout life.

Motta and Aguiar (2007) indicate that 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.
According to Ribeiro (2008), a personal skill is an integrated and structured knowledge that an individual will have to resort to and use 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 common knowledge that emotions affect how and what we learn, that affectionate relationships are the basis for lasting education and that important skills can be taught simultaneously with the academic content. Research shows that the positive effects achieved through the development of these social skills in academic performance benefit the health of the body, improve self-image, self-concept and self-esteem, and provide physical and mental well-being and responsible citizenship. In order to achieve success throughout life, it is essential to reduce the risk of poor adjustment, failed relationships, interpersonal violence, substance abuse and unhappiness (Elias et al. 1977; Zins, Weissberg et al., 2004).

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 (Hensius, 2010).

Barbosa (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.

1.2. RESILIENCE: DIFFERENT APPROACHES

According to Hensius (2010), Bowlby was the first author to use the term resilience from Physics in the psychological sense. He also defined it as not being 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. 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), from the perspective of the bioecological Human Development Model by Bronfenbrenner (1987). Resilience leads to a metamorphosis of the individual who learns through experiences lived and draws life lessons for life.

Manciaux (2003) focuses the definition of Fondation pour l’Enfance (Paris), which sees resilience as a person or group’s capacity to develop and to project themselves into the future, despite destabilising events resulting from difficult life conditions and traumas that sometimes are severe.

Tavares (2001) states that 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.

According 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.

1.3. PRESCHOOL EDUCATION AND PSYCOMOTRICITY
UNESCO proposes an Education model based on learning to know, learning to do, learn 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.

School has a greater role than simply transmitting knowledge. It is not just a space where teaching and learning occurs but above all, in this period of globalisation and information, a place for the human training of people. It is the role of teachers to aid children in understanding their role in society, through new behaviour and strategies, in order to face contemporary reality.

Barros (2008) states that Psychomotricity is an integrated educative action founded in the child’s education, language and natural and spontaneous movements, in a conscious and intentional way. It helps to find the path to communicating with themselves and others in addition to transforming the world around them.

It is through movement that interceptive, proprioceptive and exteroceptive actions occur. 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 favours the development of gestures, of movements and the capacity of perception; it develops balance; 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. The objective of this subject is to study the body and their manifestations. What is important in Psychomotricity is the construction of the body in the integration of motor-instrumental dimensions (body schema), emotional-affective dimensions (needs, bonding conflicts, prohibitions, symbols and unconscious marks) and praxis-cognitive dimensions (knowledge of their own body and its limits in space and time), where the body and psyche form a whole, and the individual is created on the foundation of connections and relationships with other subjects within a social context in a certain historical context.

Pinto (2008) reports that when interacting, the child gives meaning to experiences lived from sensory-motor to preoperational phases.

The right to play in childhood was established by Article 31 of the UN Convention on the Rights of the Child, in 1989, which guarantees the child the possibility of resting, having free time, participating in games and recreation that is age appropriate and freely enjoying in cultural and artistic life (Cohen, Faria & Magnan, 2010).

Through play, the child develops their psychomotricity and relates to their surrounding environment, through the action of their own body, locating themselves in time and space and improving their quality of life and well-being, in addition to elaborating and solving day-to-day conflicts. By interacting with an adult in previously planned and duly registered activities, the child learns to speak and internalise values, concepts and social roles, owning the cultural repertoire that they are part of and as an individual, strengthening and affirming their existence as a social being.

According to Vergara (2011), a child’s well-being depends on the quality of the education in childhood. Quality education should be centred on the child. The lastest book by the Organisation for Economic Cooperation and Development (OECD) (2006) on this topic mentions that the quality of educational programmes is guaranteed if there is a foundation of legal-political support, good infra-structures, highly competent human resources, an adequate adult-child proportion, positive adult-child interactions, a programmed curriculum in agreement with the child’s interests and needs, stimulation of child-child interaction in addition to frequent
planning of activities in a big group or individual work and their respective observation/assessment of the child’s participation and that of the family and community to which the child belongs.

It is common knowledge that children are all different, each one is a unique being and their development is the result of multiple influences: the species, the culture, the historical moment, the social group and the individual characteristics of each person (Hensius, 2008).

According to Alves (2008), the first years of life are of extreme importance for the child as the development of intelligence, affecitivity and social relationships rapidly manifest and at the same time they are determinant for the future. Any disturbances that go undetected and inappropriately treated may considerably diminish their future capacities.

The integral development of the individual implies not only developing on a cognitive, physical, affective and social level but also on knowing how to deal with adversities. Changes are part of everyday life and require constant effort of adaptation.

Education programmes that promote resilience and Psychomotricity, indicators of a healthy 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 (Strong Kids Website, ORP, 2008) was used as well as the Activation of Psychological Development Model (ADP) (Cró, 2008), based on psychomotricity, as promoters of the acquisition of personal, social and emotional skills.

Child-centred education, which is one of the assumptions of the Activation of Psychological Development Model, suggests that the child can and should develop their potential through an intervention and methodology that considers their environmental and individual specificities.

1.4. THE DEVELOPMENT ACTIVATION MODEL AND THE DEVELOPMENT OF SKILLS IN PRESCHOLAR AGE AND ITS INTRODUCTION IN BRAZIL

1.4.1 Activation and development

In the past, evolution was considered to be pre-determined. Nowadays, the idea of accelerating development has gained acceptance. As the environment benefits and accelerates development so do educational intervention and spontaneous experiences, then the legitimacy of such an objective will have to be debated.

It is likely that there will be reactions to the idea of accelerating and activating development, in other words, to the possibility of activating development by stimulating a subject in development. These reactions are understood if we limit the idea of activation to simply adjusting the rhythm of each subject. However, to this idea of activation we must deepen, enrich, and broaden possible experiences. This does not mean violating or altering the nature of the child, but it means helping them to develop at their own pace (Cró, 2008).

Therefore, the question to be asked is: how to proceed with educational intervention so that it is beneficial to each individual and to each group.

The concept of development has accompanied the evolution of Developmental Psychology.

Speaking of development is synonymous with speaking of qualitative change, a change in behaviour and attitude. Change that is meant to be contextualized and systematic, so that it creates a reference point for the harmonious and integral development of the individual. This is a perspective of development that is more interactionist, constructivist in the way that each individual has the opportunity to completely develop their skills, potential and abilities in order to reach personal and social fulfilment.
Therefore, just as there has been an evolution in the notion of development there has been notable progress in the notion of education.

Therefore, due to the intensity and quality of the educational experiences that it organises systematically, the school can and should contribute to development in all of its dimensions.

Thus, although parents have an important role, other agents (sometimes unfortunately) have taken on a very important role in the development of the subjects (for example the media, as well as the community itself).

Essentially, all forms of education aim to continually and progressively develop a person in order to help them become autonomous in each aspect of their personality; in other words, to help a single unit be able to express themselves through their personal projects.

No matter what the theory, development implies learning. The learning process is too diverse and complex to be based on just one theory and the same is true with development.

The Development Activation Model has its roots in the Active School movement which opposes the Traditional School. In the traditional model, the teacher is the key who ignored the child’s potentials so that the learning process was automatically based on their intervention, whereas, with the Active School the complete opposite is true: with this movement, the learning process is centred on the student. Thanks to their potential, subjects gather the solicitations of the teacher and respond accordingly, that is, in function of their own personality. 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.

1.4.2. Development, learning and activation

If the learning process is understood as being the true accumulation of knowledge, these dynamics will be very rich and consistent with the objectives to be obtained according to Tavares (2011).

Then what is learning? According to Almeida (2009), is the personal construction resulting of an experiential process, interior to the person, and is transformed by the modification of relatively stable behaviour.

The learning process and the desire to learn are not just the result of the relationship between the subject and the object, but of the relationship between cognoscente subjects in view of the object to be known.

The dynamics of the socio-interactive nature generated by the intra-individual and inter-individual double conflict resulting from the relationship with the object of knowledge (action) reveal themselves as being inducers of new cognitive organisations. The role of the other cognoscente subject proved to be fundamental in the process of self-awareness and self-regulation of actions. The resulting cognitive constructions are considered, as such, to be composed of social nature as much as it is composed of an individual nature (César, 2000).

The results of an investigation that we concluded (Cró, 2001) proved how beneficial a co-resolution between equals and between children of different ages is. The study revealed that the cognitive and the socio-cognitive conflict can generate new attempts at solutions.

Therefore, education centred on the student would have the goal of allowing the subjects to progressively build up their autonomy in each of the following aspects of development: affective, psychomotor, cognitive or intellectual, in relation to languages, putting emphasis on verbal language.
In this perspective, development may be considered by some as being particularly spontaneous. Therefore, one could wait for development to occur in the ulterior stage and be content with widening the behavioural field of the level expected. However, others may also consider evolution to be a result of exterior interventions that are faced with obstacles; in other words, it is faced with the limitations of the individual’s existing possibilities, or the possibilities that may come to exist. For others, evolution is the result of the dynamic interactions that occur between the level that is hoped to be reached and the object to be known. It is to these interactions that a defined relationship is established; however, this relationship may not exist for all at the highest level (notion of successive stages or levels).

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.

According to this previous thought, it could be said that development is learning translated by a new level in the life’s longitudinal course with the goal of developing one’s personality.

On the other hand, it cannot be said that the whole learning process develops the person: it may just broaden the behavioural field or create an opening for what is possible depending on skills acquired.

In our opinion, developing oneself means reaching a behavioural level superior to that which the subject is presently in; it is learning how to get through this passage, maximising the full potential of the subject and the potential that realistically the subject can come to have. Therefore, it is an option which, on the one hand, combines the antinomy of reference to the subject and, on the other hand, acknowledges the power of action; it is an option that combines educational, attentive and activist attitudes. This is what we understand Activation and Development to be.

This model preconizes: an interdisciplinary knowledge of the student, rigorous observation and the respective registration of their development by using instruments of observation /evaluation; planning activities centred on the students and on their potentials in order to maximise and individualise their development, evaluation of their developments and the ability of the teacher to reorient the action, making it more efficient and maximised.

Another important part in the activation of psychological development 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.

In order to ensure this, it is fundamental to observe the different sides to the person’s personality and, case in point, of their cognitive development in order to intervene appropriately.

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 (Cró, 2004).

1.4.3. Theories that support the process of activation. The intellectual process, and the mechanisms of cognitive development according to Piaget, Bruner and Vygotsky

What is understood by cognitive development? According to Tavares (2011), Knowledge is a transversal reality to all human behaviour. Therefore, when we wish to activate, inspire and
develop basic skills... [that are] more or less specific in relation to different areas of knowledge, we end up promoting, creating and developing processes that connect to the phenomenon of knowledge.

Knowledge is an activity in which the subject interiorizes, assimilates, accommodates and balances the human world and the world of objects according to Piaget and as referred to by Tavares and Alarcão: *Knowledge is only possible when there is interaction of the subject and the world of other subjects and objects, as well as their multiple relationships* (Tavares; Alarcão, 1992).

The phases of this relationship are found in Piaget, Bruner and Vygotsky. Piaget started the “cognitive revolution” but was more focused on the subject. Bruner emphasises the importance of language and culture in development, while with Vygotsky learning precedes development and guarantees it, representing the possibility of new learning processes.

The psychological theories from these authors contribute in an expressive way in the area of learning and development, as well the bases of the ADP.

The theories that we have described about the intellectual development seems to be complementary:

- The inner experience would be the beginning of the intellectual development. The accommodation and assimilation processes take to equilibration, what is the determinant of a logical of progression through the formal level. The cognitive conflict that arises at meeting of a object by the subject would unleash the equilibration into a higher level from what this subject already is (Piaget, 1977; Moro, 2000; Pacheco, 2003).

- The importance of culture has to be recognized because it is at the origin of *outil* (signals and instruments). Language is one of these signals; the present –punctual development has to be distinguished from the potential development. The zone of potential development is the difference between what the child could do with assistance of another person and without any help (Vygotsky, 1983; Miranda, 2005).

- Language is a learning and development tool in a verbal, iconic or active way (Bruner, 1983; Lefrançois, 2008).

- Development presumes a progressive practice of these three ways of representation: this doesn’t mean that they would have a sequence, but the intervene in all stages in a integrated form.

- The multiple representations allow the importance of culture for the modeling of the products of thoughts. Strategies are activities where the subject produces in function of the decisions he takes according to a determinate learning (his development). “Scaffolding” are the manners that adults turn into possible the realization of behaviors that are farther than your individual capacities considered in an isolated way. The importance of perception, language, culture, scholarship must be considered. The scholar curriculum must be conceived “in a spiral” way: what defines the dynamism of learning that are supported by anterior knowledge. The cumulative aspect must be excluded. (Bruner, 1983; Lefrançois, 2008).

- The maturation by itself wouldn’t be able to produce the psychological functions that imply the use of the signals and the symbols that are in the origin of the interaction instruments and its appropriation asks the cooperation and the presence of the others. (Vygotsky, 1983; Fino, 2001).

- Learning precedes development and guarantees it and the development itself is an opening to new learning, in function of the development.

1.4.4. Key concepts in the activation of psychological development: cognitive and socio-cognitive conflict.
For Piaget, cognitive conflict is based on the contradiction between affirmation and negation which gives origin to progress as it leads to a rebalancing and eventually to the correspondence between affirmation and negation and to the operatory reversibility. Therefore, for Piaget learning cognitive structures, preconized in the promotion of development, consists of intra-individual lack of balance.

This thesis is complementary to the socio-cognitive conflict that is a model of complementary analysis (Almeida, 2009). In this model, social variables that explain the development of skills and cognitive development intervene.

There are two distinct points of view when it comes to the socio-cognitive conflict: on the one hand, there is difference of opinion that opposes two subjects – inter-individual dimension; and on the other hand, it could be considered in its intra-individual dimension, in other words, while a phenomenon felt by the subject itself.

The process of learning is the result of the relationship of the subject that knows with the object to know. The dynamics of socio-interactive nature generated by the double intra-individual conflict and inter-individual conflicts resulting from the relationship with “the situation”, revealed themselves to be inducers of new cognitive organisations. The role of the “other” is fundamental to the process of becoming aware of and the auto-regulation of the action.

The importance of the other is intimately connected to the problem of “social interaction” as a factor that makes cognitive development and intelligence more dynamic. In this conceptual framework, social interaction, as well as the entire group of psycho-social factors that it covers, may be associated to the differentiation of the present cognitive behaviour of the subject (Sousa, 2006). It is in this context that the conception of intelligence as a “construction” of the subject arises while being eminently social.

The beneficial effects of the dynamics of the intra and inter-individual processes highlight the value of the reciprocal exchange of the elements of the group (pair, teacher-student), throughout the development, amplifying decentration (because it favours knowledge of the viewpoints of others) giving rise to confrontation (because it stimulates objectivity), intensifying conflict (because doing so provides alternatives).

Although we may think that cognitive conflict is a theoretical concept, it is a fact that situations used to provoke it could be considered as concept operationalizations in each notion or aspect of the development studied. The organization of these situations not only requires learning theory but, more importantly, it requires the ability and creativity in the search for stimulating confrontations that do not have a high level of differences in relation to the cognitive level of the subjects.

Furthermore, the meaning of “conflict” is not just an obstacle that a student has run into or initiated by the teacher. This obstacle assumes an affective resonance of the subject has the necessity to solve a problem. The result of this solution will clash with new obstacles from which new conflicts will arise and their respective necessities.

It appears that this thesis – according to which developmental perspective made progress possible in relation to previous theories on the concept of intelligence and gives rise to the possibility of cognitive development activation of the subject.

The counter-argument is another key notion of the development activation model. It was a method used often by Piaget in his interviews with children in order to study the mental process subjacent to the student’s thoughts.

It seems to be possible to conclude that the pedagogical practice (intervention) that allows the (socio) cognitive conflict as from the contra-argumentation is the most favourable to the formation of students’ personalities.

As we verified, according to the theoreticians of development Piaget, Bruner and Vygotsky and all of their followers, give due importance to the environmental contexts in which the student develops and as highlighted by them, this environment can inhibit or activate development. It is
the theories of Vigotzky and Bruner place the greatest importance on the active role of the teachers and educators in the constructive process of knowledge in the child.

In today’s world, art is not enough to educate and promote the development of a student. The teacher/educator must acquire skills that are founded on scientific knowledge and associated with art and this will make them more effective in generating a successful learning experience (Cró, 1998). Competency requires a range of knowledge and skills from the student in each stage when it comes to their interests, necessities and potentials and the way that they structure their thoughts. Knowledge implies that the educator is eager to know more, that they are open to innovation and to change. Investing in their training would certainly be a better way of transforming school in a place where learning is definitely a pleasure and success is in reach for all, but above all it should be a place for the personal development of the student and the teacher/educator.

Transforming the school and changing educational practices assumes that appropriate techniques of observation for data gathering from each student that makes up the group was used. First, it is important to observe and systematically register behavioural signs that are a reflection of their level of development. It is important to know about the subject’s family and social life, the experience that each student takes with them, their potentials and abilities in order to plan activities and diversify strategies that will answer the actual necessities of each child in the group in order to maximise their global and, in particularly, their cognitive development.

Observation should lead to action; an action that results in the real participation of the student in the different tasks and activities that are proposed to them. The more diverse the tasks, the more possibilities the student has of developing their potential.

It is for this reason that we conclude that the Psychological Development Activation Model may be a possible solution to help students think and solve problems as well as be successful in their learning experience. By proposing this model, we believe that it is one of the possible answers to the problems that have arisen in today’s educational system.

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, 2004).

According to Jiménez (1997), the expression Special Education has been used in order to name a type of education that is different from and which is developed in parallel to regular education. It is considered that children need special intervention when they seem to have some difficulty and thus require educational measures different from the mainstream education; when they represent greater difficulty in learning than most children their age; or when suffering from a disability that impedes them to move normally within the physical educational space.

Normally, the concept of educational needs is related with pedagogic support or educational services that some children may have at their disposal throughout their academic path, in order to more easily develop their personal and social growth.

As reported by Diaz and Resa (1997), it is a fact that the majority of cognitive, affective and emotional difficulties are detected in children from disadvantaged social classes. Frequently, children belonging to these social classes do not benefit from the same opportunities that allow
for their personal, school and occupational development which results in failure at school. According to these authors, there is more than one kind of school failure: when the child is unable to succeed at school, when the child is not prepared for this challenge; due to the failure centred in the family and in the society, as well as the failure centred in the child when they are unable to attain the goals proposed.

Therefore school failure is caused by socio-cultural deprivation factors that could affect success in school, namely: biological factors (prenatal and neonatal), family factors (language code, their parent’s level of culture, their parent’s professional or occupational level, the family’s socio-economic level) and socio-cultural factors (the social class and educational context).

Thus, considering our study in the city of Botucatu, we came across some biological pre-natal factors, among the children enrolled at the school, namely: foetal alcohol syndrome; disorders caused by the mother’s heroin use during pregnancy; malnutrition; neonatal problems derived from complications that arose during birth and problems related to the parents’ illiteracy or low level of education, which resulted in a low level of employment which frequently leads to the devaluing of the work developed at school.

The problem described in relation with the socio-cultural disadvantage is extremely complex as, in the majority of situations, its source is not solely in school, but also extends to both family and society.

In order to make a permanent change in this respect, training and communication techniques were used that were consistent with the targeted community to divulge crucial information. Thus, a daily routing of planned activities by the teacher and child was structured and included in the school curriculum and then assessed at the end of each day in big or small groups.

According to De Rose (1994) and Sidman (1986) all people are capable of learning some skill as long as they are provided with a favourable instructional environment. Thus, a positive instructional environment is one that provides adequate means for developing each of the skills involved in the tasks.

The course contents were discussed in a warm, safe, empathetic, respectful, responsible, ethical, motivational and cooperative environment. Many skills were developed that were reinforced at school, at home and in extra-curricular activities promoted by people of the community. Access to these activities had been facilitated to all children including those who were considered at risk, in other words, those who showed deviant behaviour.

A research plan was established that integrated areas of psychomotoricity and resilience in the perspective of the Activation of Psychological development Model, while having in mind Pereira and Hensius’ work, 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.

One hundred and fifty one Brazilian children were studied. They were divided into an experimental and a control group, both composed of both genders between the ages of 3 and 5 years old.

**2.0. METODOLOGY**

Based on the previous study carried out in Brazil (Andreucci, 2007), the present study aims to promote resilience and psychomotoricity in children through the application of the Strong Start Programme (2008) and the Activation of Psychological Development Model, through psychomotoricity 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- 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) in her research for her Master’s degree.

Sample characterisation

The study took place between July and August 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.

According to Table 1 of the sample total, 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.

Table 1 – Sample distribution according to age and gender

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<td>100</td>
<td>81</td>
</tr>
</tbody>
</table>

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).

Experimental and Control Groups

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

Table 2 – Distribution of experimental and control group according to age

<table>
<thead>
<tr>
<th>Gender</th>
<th>Experimental</th>
<th>Control</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>3</td>
<td>17</td>
<td>22.1</td>
<td>12</td>
</tr>
<tr>
<td>4</td>
<td>30</td>
<td>39</td>
<td>23</td>
</tr>
<tr>
<td>5</td>
<td>30</td>
<td>39</td>
<td>39</td>
</tr>
<tr>
<td>Total</td>
<td>77</td>
<td>100</td>
<td>74</td>
</tr>
</tbody>
</table>
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, is the widest ranging project starting programme (includes children and adolescents up to 18 years of age) and is aimed at early intervention 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 Merell (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 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. Through active, student-centred learning these changes in the student’s participation are possible.

It is concise and presents a set of practical contents applied to the social-emotional learning curriculum for children at a preschool age (Merrell, 2009). The Strong Start programme does not require that the students read the lessons for themselves, or complete an extra lesson, and there is no great cognitive complexity. The activities are established through children stories chosen by the programme teacher. A reading list of suggested books that may be used is presented at the end of the lesson.

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 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 manual have the following topics and objectives:

- **Session No. 1**: “The feelings/emotions exercise group”, where the objective is to introduce the STRONG START PRE – K curriculum to students;
- **Session No. 2**: “Understanding your feelings/emotions 1”, with the objective of teaching students to identify basic feelings/emotions;
- **Session No. 3**: “Understanding your feelings/emotions 2”, with the objective of reviewing the six basic feelings/emotions (happiness, sadness, rage, fear, surprise and disgust) and teaching students appropriate ways of expressing their feelings and emotions.
- **Session No. 4**: “When you are angry or enraged”, teaching how to manage rage and ways that help to deal with rage and anger;
Session No. 5: “When you are happy”, teaching students how to feel happy and how to self-comfort when sad;

Session No. 6: “When you are worried (nervous)”, teaching students to manage anxiety, worry and fear;

Session No. 7: “Understanding the feelings/emotions of others”, training students to identify the feelings/emotions of others;

Session No. 8: “Being a good friend”, teaching students basic communication and ability to make friends;

Session No. 9: “Solving people’s problems”, aims to teach students to solve problems with others;

Session No. 10: “Conclusion”, students review the main concepts and skills of the STRONG START PRE-K Curriculum.

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 tool) - 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 with 3 options each (No; More or less and Yes), 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. The techniques used to stimulate language consisted of rhythms and ample movements (24 exercises), to simulate fine and prewriting movements (56 exercises), to develop auditory discrimination (37 exercises), to develop visual perception (48 exercises) and to develop expressive language (64 exercises).

**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 and Aiello (), who translated the instrument into Portuguese and operationalised 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**

*Implementation of Programmes and Instruments*

Following the authorisation being 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.

The Wilcoxon test was used to assess the resilience between the Pre-test and the Post-test in the group.

**3. RESULTS AND DISCUSSION**

*Resilience in the experimental and control groups*
In the experimental group (submitted to the resilience programme), with regards to the Pre-test, the minimum score observed was 1 and the maximum score was 24, the average being 10.12 (DP= 4.896). In the group’s Post-test, the minimum score observed was 0 and the maximum score was 16, with an average of 5.79 (DP= 3.446).

In the control group’s Pre-test, the minimum score observed was 1 and the maximum score was 25, the average being 10.97 (DP=5.584). In the group’s Post-test, the minimum score observed was 4 and the maximum score was 36, with an average of 13.92 (DP=6.339).

Table 3 – Descriptive statistics regarding resilience (experimental and control group)

<table>
<thead>
<tr>
<th>Group</th>
<th>Resilience</th>
<th>N</th>
<th>Min</th>
<th>Max</th>
<th>X</th>
<th>D.P.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>Pre-test</td>
<td>77</td>
<td>1</td>
<td>24</td>
<td>10.12</td>
<td>4.896</td>
</tr>
<tr>
<td></td>
<td>Post-test</td>
<td>77</td>
<td>0</td>
<td>16</td>
<td>5.79</td>
<td>3.446</td>
</tr>
<tr>
<td>Control</td>
<td>Pre-test</td>
<td>74</td>
<td>1</td>
<td>25</td>
<td>10.97</td>
<td>5.584</td>
</tr>
<tr>
<td></td>
<td>Post-test</td>
<td>74</td>
<td>4</td>
<td>36</td>
<td>13.92</td>
<td>6.339</td>
</tr>
<tr>
<td>Total</td>
<td>Pre-test</td>
<td>151</td>
<td>1</td>
<td>25</td>
<td>10.536</td>
<td>5.244</td>
</tr>
<tr>
<td></td>
<td>Post-test</td>
<td>151</td>
<td>0</td>
<td>36</td>
<td>9.77</td>
<td>6.495</td>
</tr>
</tbody>
</table>

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).

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.

**SUMMARY OF RESILIENCE IN EXPERIMENTAL AND CONTROL GROUPS**

With regards to the Pre-test, the minimum score observed was 1 and the maximum score was 25, with an average of 10.536 (DP= 5.244). In the Post-test, the minimum score observed was 0 and the maximum score was 36, with an average of 9.77 (DP= 6.495).

As for the experimental group, the minimum score observed in the Pre-test was 1 and the maximum score was 24, with an average of 10.12 (DP= 4.896); in the Post-test the minimum score observed was 0 and the maximum score was 16, with an average of 5.79 (DP= 3.446).

With regards to the control group, the minimum score observed for the Pre-test was 1 and the maximum score was 25, with an average of 10.97 (DP= 5.584); the minimum scores observed in the Post-test was 4 and the maximum score was 36, with an average of 13.92 (DP= 6.339).

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, which are not described in this paper, 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 resilience.

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.

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

Finally, we recommend that the initial and continual training of professionals who work in education and health includes 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 and thus develop their emotional, social and professional skills so as to become more responsible, active and participative citizens.

**REFERENCES**


Strong Kids Website, ORP, University of Oregon, consultado em 10 de Setembro de 2008 http://strongkids.uoregon.edu/


ADDITIONAL READING SECTION


**Key Terms**

Resilience, educational intervention, learning, strategies, development, preschool, disadvantaged kids.