

An experience of application of the Thinking Maps at a Public Elementary School in Salvador - Bahia - Brazil

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ABSTRACT

The high rate of illiterate pupils or even so-called "functional illiterates", is a theme that has been the target of many researchers in Brazil. Studies in Bahia reflect this same framework. The majority of the various theoretical perspectives point to the methodological issue and the gap between the demands of modern society and what schools offer for the development of its citizens. The new visual language of teaching and learning - Thinking Maps, has been presented as an alternative resource and being a successful pedagogical practice in English-speaking countries. In order to investigate its effectiveness in a non-English speaking country, we developed a pioneer case study, in Salvador, held at an elementary public school with 64 students from two classes of the third year. During 2010, they experienced mediated classes using the eight "Thinking Maps". As part of the process, the two teachers involved in the experiment received initial and continuing training on Thinking Maps. According to the author and main supervisor of the research, Prof. David Hyerle, Thinking Maps allow the collective construction of knowledge. As a result of this experience, the new visual language used in the teaching-learning process was effective and efficient, contributing to: raising self-esteem of students and teachers - especially those students who were considered illiterate, who began to contribute in the collective construction of knowledge; improvement in terms of respect for others; improvement on behavior in classroom. Academic success can be seen when the number of students with alphabetical level (comprehend the logic behind the writing and reading system even though still making spelling mistakes) increased from thirty-one to thirty-four and, as the Orthographical level (have a more complete and mature writing and reading system, able to read familiar words more quickly and fluently, through direct visual recognition), increased from six to fifteen students.

Keywords: Thinking Maps, Teaching Visual Tools, Visual Language, cognitive processes, Mediation, Mediated Learning Experience, Cognitive educability.

1 INTRODUCTION

This article aims to describe the actions of implementation and results of pioneering research in Brazil on the application of a new visual language for teaching and learning, originally called Thinking Maps, created by Prof. David Hyerle in 1987.

During 2010, Susanna Wesley Municipal Methodist School, located in Boca do Rio, a neighborhood of Salvador-Bahia, welcomed the team of independent researchers in Cognitive Education with support from the Thinking Foundation – USA. The research team was composed of the three authors of this article . The main objective of the research was to investigate the efficacy **and efficiency of the use of the Thinking Maps in the teaching-learning process, regardless culture and spoken language. Currently, this research group is part of the Board of Education of Roerich Institute in Brazil.**

The first contact with that teaching language took place in London in November 2007, when Carla Carvalho became a trainer on Thinking Maps held by Kestrel Education. Upon returning to Bahia, Carla meets Josenilda and Silvia, her first mentors in the Cognitive Education field.

From discussions about the difficulties encountered in pedagogical practice, we sought to establish an inter-relationship between this new language for teaching and learning and the optimization of the students cognitive processes. As Josenilda and Silvia were already doing a volunteer work at the Susanna Wesley Municipal Methodist School with children who had learning difficulties, came the motivation to develop a survey on the use of the Thinking Maps in this school. Despite being considered one of the best of the Municipal Public Schools in Salvador, it faces the same difficulties of any Brazilian public schools: a variety of learning difficulties and to different degrees by many of the students; lack of accurate diagnosis that allows appropriate intervention; lack of trained professionals to meet this demand; most of the students comes from a poor background, lacking the basic needs for the comprehensive development of any child; continuing education for teachers almost nonexistent; lack of a formative and effective assessment of the teaching-learning process; and, in 2010, the public elementary schools had to expand their challenge by having to serve children from six years old due to the validation of the Law No. 11114 of May 16, 2005.

To achieve the main objective of the research, there were developed the following specific objectives: to observe the changes in the pedagogical practice of teachers, checking the move from a pedagogical action focused on content to an approach more focused on the cognitive processes; to analyze how the behavioral changes

and the development of students' basic cognitive skills, addressed by Thinking Maps, assist in the academic progress, increasing the literacy of the children involved in the research.

2 THINKING MAPS - THEORETICAL BASES

We live in a time of continuous transformation in the world. As Castells argues, "a new world is taking shape at this end of the millennium" (1999, p.411 – authors' translation). We are living in the Information Age, with profound changes in the economy, society and culture. And the main element of this process is the revolution of the technology of information, creating possibilities for new economic and social structure through its role as networks developer, putting knowledge as today's most important production asset. Also, according to the author in reference, technology of information has been following the new dynamic world, allowing the emergence of a global economy, "establishing a multicultural base of economic interdependence" (Castells, 1999).

We can see that the world, currently in training for a large network, is, in some way, putting human beings closer, regardless their culture or society. The need to connect the world has led to the development of a new culture - virtual, and a new language - predominantly visual. But on the other hand, the lack of social justice rule out the possibility of access the technology of information and its progress to all human beings, as it seems to be the case in Brazil.

According to Margarita Victoria Gomez (2004), *the success of economy depends on intellectual capital to provide efficient solutions for learning. Our current culture, a culture that goes beyond borders, is concerned with the encoding /decoding of images and knowledge, promoting the reinvention of professional practices.* Understanding education as a crucial source of knowledge construction and transmission of culture, and educators as its main exponent, it is necessary to consider how to optimize the learning process of today students.

The Thinking Maps is a new visual language of teaching and learning, developed by Dr. David Hyerle U.S. in 1987. He is also the author of three important books on visual tools for constructing knowledge, not yet translated into Portuguese (*Visual Tools for Transforming Information into Knowledge, Visual Tools for Constructing Knowledge* and *Students Successes With Thinking Maps: a Language for Leadership*). Accordingly, the Thinking Maps can be understood as graphic organizers from the perspective of standardized visual technology. However, they further the goal of a simple graphical organization of data to be developed with students in a dynamic and interactive way, according to the eight basic thinking processes during learning - Definition, Description, Comparison, Cause-effect; Classification; Part-whole; Analogy; Sequencing. Act as a visual language, common and consistent,

flexible and easy to transfer study and teaching content. Thinking Maps are non-linguistic representations of high quality and prepared in a practical, effective, dynamic, collaborative and learner-centered (Hyerle, 2009).

For Marzano, Hyerle not only did a review of theoretical support for the use of visual tools for teaching and learning, but also increased the research process. In the book *Classroom Instruction That Works* (Marzano, Pickering & Pollock, 2001), Marzano reports a survey of what he calls non-linguistic representations, which includes instructional strategies such as graphic organizers and Mind Maps. He revealed that the use of non-linguistic representations is a powerful educational resource. At the last review of researches on general and instructional strategies in the book *The Art and Science of Teaching* (Marzano, 2007) Marzano has found even stronger evidences of the effectiveness of using non-linguistic representations in the teaching-learning process (HYERLE, 2009).

Just as cartography increased the speed and efficiency with which new lands and new people could be identified and connected, so too do visual tools escalate the speed and efficiency with which an individual can identify new knowledge and connect it to what is already known. (MARZANO, apud HYERLE 2009, p.viii)

David Hyerle created the Thinking Maps as a language for learning and leadership. They have as central premise to allow students, at any level, to transform static information into active knowledge. This visual language of instruction allows the learner to: directly access thinking from low to high complexity; rescue contents of information and transform them into conceptual understandings; and to reflect, elaborate and transmit their ideas and knowledge in a more coherent and well-founded. -----Thus, this citizen who is built all the time, more secure and know themselves less vulnerable to the challenges of life, has a chance to act in the world more critically and successful.

The extensive research already carried out have demonstrated the successful use of Thinking Maps in teaching practice in different schools, resulting in greater use by students about the content and information provided by teachers. The most important advantages in the use of thinking maps is related to the following facts:

- Support neuroscience - the optimization of learning occurs most effectively when absorbed **by the brain that identify patterns** and establish meaningful connections. In the case of thinking maps, the visual images **that become patterns** are built with students, being directly connected with the mental process during the defendant's education, regardless of content.

- **As a visual language of thought processes, Thinking Maps, for its practicality and flexibility, can be accessed at any time in order to build networks and communicate concepts of mental models of linear and nonlinear.**
- **Students will demonstrate safety and motivation for learning with the use of thinking maps due to three basic reasons. First, the abstract is discussed through something concrete, visual. Second, because, when interacting with personal information, they establish emotional connections. And third, how thinking maps are a visual language simplified, the success of the monitoring information is secured and, therefore, mediated not intimidated and are free to deepen the processes demanded.**

It is a fact that all information is brought to the brain through the sense organs. These organs act as sponges because they soak up all data and send to the brain. According to David Hyerle (2009), several studies have shown that the brain can absorb approximately 36,000 visual images per hour, and 70% to 90% of the information received by the brain start from visual channels. According to Pat Wolfe, a respected scholar and translator of discoveries about the brain functioning for educators and the like, "Neuroscientists tell us that the brain maps and provides information networks" (cited HYERLE, 2009, Pg.2)

The Neurosciences contribute greatly bringing this evidence, and have gone beyond demonstrating how information is processed in the brain. Among the key findings reveals three main stages in information processing: attention, build connections, strengthen and extend these connections. The Thinking Maps provide visual patterns associated with cognitive processes that are congruent with those stages.

Since the brain choose to pay attention to information that has meaning and emotion, the unconscious process of stocking takes place. This stage is usually referred to as short-term memory. The brain has a limited amount of space to store at this stage. The way to increase the ability to record information is to see how these data relate. The Thinking Maps (a) contribute to the development of a structure that enables students to understand the relationship between the parties of information, and (b) encourage students to seek relevant information from the data (HYERLE, 2000).

Thinking Maps are also based on a view that social interaction, in turn, supports the theory that socio-cultural (WILLIAM AND BURDEN, 1977). This perspective suggests that all learning occurs as a result of dynamic interaction between mediators trained, apprentices, learning activities and the context in which the entire process happens. In the sphere of education system that translates, in general, in: teachers / facilitators, students / learners, aspects of

the curriculum, classrooms and throughout the school environment. In the school context, regardless of its social determination, cultural or economic, in which educators are protagonists of educational action, the practice in the classroom is based on communication, which has both visual and verbal languages as fundamental. According to Margarita Victoria Gomez (2004, p.88), "contemporary education, in this perspective, it is held on the basic principle of communication between the teacher and learner in which there is a mutual listening and also listening to themselves" . Therefore, it is also to educate and communicate the quality of education is closely linked to the quality of communication. Since the maps require thoughtful and practical pedagogical use of dialogue in communication in the classroom, the research center was inspired by the prospect of Paulo Freire and Vygotsky on the centrality of dialogue in pedagogical action. For them, language is the main element in the educational process. For Vygotsky, the thought is born through words, and the process of knowledge construction occurs in the **individual`s** interaction with the environment where it is (1985 apud and MARQUES MARQUES, CNPq, Elementary Education / n.13). In light of these renowned thinkers can then consider human as a historical cultural and social being , **and so** interaction is a fundamental tool for learning.

The human learning can not be explained only by the biological integrity of genes and chromosomes, not merely a pure direct exposure to objects, events, attitudes, situations, but emerges from a relationship between individual and environment which is mediated by another individual more expert, whose cultural practices and beliefs are transmitted to future generations, promoting the broader areas of cognitive development **leading them to be more** creative and critical. (Feuerstein, 1980)

In addition to already mentioned, the core **of this** research was based on theoretical and methodological, the Mediated Learning Experience - MLE, prepared by Prof. Reuven Feuerstein.

All human interaction is feasible for communication. Thus, the MLE is not properly focus on the content of information, but the methodological strategy **??? (uses)** dialogical intentional - sender and receiver - constantly interacting, giving importance to the exchange of views, feelings about the world and exchange ways of understanding reality. The interaction process of **AMI ???** communication mobilizes the cognitive and the affective, toward a dialogical and interactive. (Varela, 2007, pg. 111)

Within this perspective was **given focus on three universal criterias of mediation**, according to MLE: intentionality / reciprocity, meaning making and transcendence. According to this theory, the student is thought as co-responsible for their **own** learning process, and the mediator is the facilitator, seeking provocateur within the resources and strategies necessary to enable the learner to develop their potential.

The **criteria** of intentionality and reciprocity is crucial to reach a mediated learning. According to Assis (2007), implies that the mediator is aware of the specific intent to interfere with the thought process of mediated and share these intentions and the reasons that motivate the student to be committed to its intention and available to share **their** thoughts, ideas and strategies.

According to Assis (2007), **when mediator decides to use** the criterion of meaning **this** enables the development of knowledge created from elements of affective-emotional **feelings**, trying to make sense **to the** learning. With regard to mediation by the criterion of transcendence **it** occurs when the mediator seeks to provoke in **the mediate/learner** the need to recognize and create associations that go beyond the immediate context of the classroom, generalizing experiences and thus extending the ability to learn.

According to Feuerstein (1980), the mediator interacts with the learner making use of objects and events to create a social conscience and an adaptive response, action or inhibition. Thus, the ultimate goal of mediation is to contribute to the **development of competent beings** ???autonomous, critical and creative. To achieve these objectives, the mediator is based on a belief system that preaches an optimistic view of human beings (Feurstein, 1980) - each and every human being is able to learn and modify **oneself**, and genetics do not have the last word . He believes in mental flexibility (plasticity) and the innate ability that all human beings have to become an active and independent learners. He also believes that everyone has the ability to think about their own thinking - metacognition.

The MLE includes in its structured interaction mediational intellectual aspects (cognitive functions) and non-intellectual development (habits, motivation, personality, life history, learning style). It can also be characterized **as the art of asking to identify when it is needed and how to intervene (specific techniques)**.

By understanding the cognitive processes and the dynamic construction of knowledge are supported in both the use of Thinking Maps as in MLE, as a method of application of these resources, we can say that the MLE enables trigger the cognitive processes of Thinking Maps, optimizing learning and enabling knowledge are an integral part of the repertoire of the **individual**.

4 METHODOLOGY

The methodology was applied Research-Action Research in a social interaction approach, based on study-planning-action-feedback, classroom observations, written records, photos and footage.

The research presented here was pioneered in Brazil and is characterized by being Research-Action Research for the sake of monitoring almost daily with the team of teachers involved in the process - the review and planning meetings, surrounded by comments, feedback and reflections, observations in the classroom, and supervision. The intention was to prevent initial errors were also found at the end of work. The maturation process of the group was enriched by the theoretical knowledge of the core research and practical experience of teachers. It was characterized as a process interpersonal comparison **of all involved** ?, as was in the initial period and at the end of the case study.

The methods of investigation / intervention search **personified** in two steps. The first stage involved a series of meetings with principals and teachers, when we decided to start the search with the 3rd year classes. Being two experimental groups - one of the Morning - The 3rd Year of Professor M. M. S. W., and another in the Evening shift - 3rd Year C, by Professor L. S. F. of S. 3 and more classes of control.

The choice of study development with the third classes was due to two reasons: a) students would already be literate b) students participating in the research remain in school for at least two years providing opportunities for the monitoring of its development. Initially, we made a sensitization workshop with teachers from the school on February 1, 2010 to bring to the attention of all staff and management, the research`s proposal, objectives and **reason** for the choice **of classes from 3 yars class** . On the same day, 8hrs in the **first day** , and **continuing the next day, was begun training in thinking maps**. This basic training was 12 hours and included only the experimental groups of teachers, pedagogical coordinators and School Director. The formation, however, was continuous and monitored during the application process.

After training , the school **decided to have** Diagnostic Week, when it was applied an enquiry " Form Conceptual Writing" . According to this statement, one can identify the level of literacy which students are. The levels identified by the teachers could be considered as pre-syllabic in writing (the child does not understand the alphabetic system when the spelling represents the sounds of spoken language), syllabic (phase in which the child begins the process of phonetic system, tries to sound value the letters); syllabic-alphabetic (displays the words sometimes with complete syllables

sometimes incomplete) alphabetical (the child establishes the relationship between graphemes and phonemes) and spelling (when the student exhibited fluency and mastery of writing and reading).

Having met the preliminary stages, meetings were planned for study and planning. The original schedule provided in the first half, eight weeks of uninterrupted study / planning and implementation of the eight Thinking Maps, **one per** week. In the second half, working time would be devoted to supervision. At this stage the teachers choose the maps, contents and would make the planning and the researchers would observe lessons and give the "feedback". The aim would be to allow a higher quality **practice in the field of language maps of thinking**.?? It is believed that such action would raise the levels of effectiveness and efficiency of educational praxis. However, the schedule was modified in order to adapt to the demands of school and not lose focus of the work, due to unexpected events and facts such as teachers' strike, cancellation of classes by the Municipality of Salvador because heavy rains, the election of directors, funerals, etc..

The second step, as the prerequisites of a Research-Action Research, involved:

- Activities systematic research / intervention / training and continuing education with teams of different rooms and other educational actors (students / the, teachers of the experimental and control groups, ancillary educational activities, educational coordinators and direction);
- Conducting interviews and analysis;
- Analysis of Sheet Level Writing School conducted by the Unit;
- Instruments Registration / evaluation developed by the researchers;
- Presentation of mini-reports on planning meetings and seminars;
- Activities related to the organization and implementation of the various classes, as well as implementation of Intermediate and Final Reports.

The maps used were planned at the meetings of AC (**Complementary Activities**) according to the following sequence:

In order to make possible such planning **it** was decided, in agreement with the teachers involved in the process, the weekly meetings have the following agenda:

- Feedback on the classes held last week, stating general reports about the group, specific observations and development of the self-analysis;
- Study of Thinking Map to be worked / applied in the following week;

- Planning of identifying classes when the application would be appropriate Thinking Map, dialoguing with the content defined earlier in the Supplementary Activity (AC) of the school as well, as would the use of universal criteria for mediation.
- Reports on observations of classroom contemplating the criteria defined by the research team.

In order to optimize the time of study and planning, the researchers studied the academic content of school before classes expected to meet with the teachers, it also seeking to contribute more significantly to the improved performance of all involved in the process of the research.

The observations in the classroom often directed the staff to the moments of studies and planning. From these observations were collected facts related to the context of pedagogical praxis. These facts were classified as points: "strong" or "fragile".

These points served as thermometers to that the objectives were achieved **or not**. In order to minimize weaknesses and maximize strengths, interventions were made throughout the research process, as the Thinking Map Classification and sequencing below. It is clear, however, that some points remained fragile because they were out of reach of any intervention of the researchers.

POINTS OBSERVED DURING THE PROGRESS OF RESEARCH

The Official Annual Calendar of the Municipality of Salvador provides **800h/year** per class, for study and planning of content **to be** taught. The total time of the survey was **82 hours; being** 40 hours for planning and 42h/class for mediated lessons were used to apply the eight Thinking Maps, in the period from **March 5th to August 9th 2010**.

Note that **only** approximately 10% of the classes provided in the official calendar was devoted to research.

5 RESULTS

Below is a map detailing rating summarizes the overall results and more relevant to this case study on thinking maps.

RESULTS OF THE CASE STUDY

Some transcribed excerpts of the statements below confirm that Thinking Maps, coupled with MLE were effective teaching tools that collaborated with the paradigm shift in the teaching-learning and qualitative results were startling.

Explanations (or Declaration)? of Teachers: (Teachers interview)???

"From the work with the maps, I realized that something has changed in my eyes as a teacher. I started to observe, evaluate and analyze more **placements** of my students, especially children with difficulty in writing and verbally putting it stood out. "

"... maps are tools that provide not only students but also the teachers with a new look. We become more observant, insightful and automatically started to use the tool and its resources more appropriately in the course of our day to day. "

Statements by the Director:

When asked to opine on the impact of Thinking Maps in their own training, **the Director stated:**

"What impressed me most was that could shake up the cognitive part of the children, because what is most important for **us are the kids happiness** in the first place, **you feel good at school** or they **????** and are successful in the academic side."

The impact of focus on the cognitive and on students:

"I see an impact on all children, not only in children readers, but also in literate but not readers, they are developing on the job satisfactorily. At first it left me speechless because we think that **only children is that readers may be involved ... but hit at all ... "**

The impact of the use of thinking maps in affective-emotional aspect of the students:

"The class was harmonized, they develop smoothly even with the participation of those who are not reading, but they understand." Referring to the issue of coexistence between literate and non literate students the Director said in the interview he wanted to form the experimental groups with students only readers, but the research team recommended leaving the environment as natural as possible, so that one could make an observation the real context:

"... surprisingly, the development did not bring harmony???? to the group, however, worked smoothly and quiet. "

Referring to the teachers with regard to practice teaching in the classroom:

"I felt I found a new way, every teacher needs to know that students are coparticipantes of his class."

Explanations of the experimental groups of students:

During the interviews with students, a poster was presented with the eight Thinking Maps. So, when was asked if they recognized the Thinking Maps and if they could remember the name or the content associated to the map. In many cases still recalled some of the contents worked.

"The maps helped more than I ever knew." - E. B. S.

"I learned to give my opinion and everyone to give their opinion." - E. B. S.

"It helped to understand better. Before it had a lot of noise, then as all were interested in the maps the noise diminished and we could understand better "- P. F.

"The class was getting better because we learned many things." - L. S. A.

The information came from the teachers due to experience with the construction of maps and that included their feelings and impressions on the students' reactions were added to the observations noted by the researchers in the classroom or even in the planning and discussions were in subjects and re-planning. Thus, we are identifying evidence that revealed changes in the behavior of teachers and pupils, particularly in the teaching learning.

6 DISCUSSION

This research aimed to investigate the efficacy of the use of thinking maps in the teaching-learning process, regardless of culture and language spoken. In addition, we sought to also observe the changes in pedagogical practice of teachers; verify the pedagogical action would not only be content directed but see a

way for a more focused approach in the cognitive process; to analyze how the behavioral changes and development of basic cognitive skills addressed by Thinking Maps helped in academic progress.

Every step was to identify whether or not the facts that pointed to the achievement of proposed objectives and, when confronted with the theory, brought to light new knowledge. Like the observation made by teachers about illiterate students, who despite not identify symbols of writing, participated in discussions bringing significant contributions. This can be considered evidence of successful application of Thinking Maps that, according to David Hyerle, promote the organization of thoughts, creating visual patterns simple and practical, allowing the subjects to **be** seen, delineate, what they are talking and thinking: and thereby become familiar with writing significantly, developing a new look at reading and writing.

The fact that we have unified and extended the time for study and planning, led to improvement: a) understanding and therefore the belief in using this new language teaching, b) the quality of teaching and hence learning of their students; c) increasing the involvement of the teachers committed to research.

Regarding the criterion of "literate" was found, after Week of Diagnosis (first week of school), that not all students had the mastery of reading and writing, and even among the "learned" there were different degrees of literacy.

The levels of writing were considered by the school: pre-syllabic writing (the child does not understand the alphabetic system when the spelling represents the sounds of spoken language), syllabic (phase in which the child begins the process of phonetic system, tries to make sound value letters), syllabic-alphabetic (displays the words sometimes with complete syllables sometimes incomplete) alphabetical (the child establishes the relationship between graphemes and phonemes) and spelling (when the student exhibited fluency and mastery of writing and reading).

Students considered illiterate - in the pre-syllabic or syllabic, were not part of any other **pedagogical** or **psychological** intervention program. The only intervention in this direction was the implementation of Thinking Maps in the classroom. Given this fact, we can conclude that the success reported by the teachers is due to the specific use **of the new** language teaching and learning.

The criterion "stay for more years in School" we have to consider changing the number of students in school enrollment arising out of season, abandonment and transfer requests. It is noteworthy that changes occurred between the 3rd year classes during the school

year - students were transferred from the class and / or turn. And even then, advances have been detected in those who remained **different from** those who came **from outside schools**.

One of the challenges faced by researchers with the teachers was having to adjust the contents, which are quite diverse, to the structures of the Maps. This challenge, coupled with little time for planning, required the whole team a considerable effort to identify content that was best suited to this or that map.

The constant dialogue between the teacher's knowledge with respect to content and knowledge of researchers in relation to the processes of thinking outside of paramount importance to minimize this and all other challenges.

7 CONCLUSION

The Thinking Map Sequencing mirrors dynamically and general synthetic process and the results of this case study.

Throughout the research process were **done** interventions **aiming to** achieve the proposed objectives. From the qualitative and quantitative analysis it was observed that:

a) With respect to teachers:

- } an improvement in the quality of planning due to expansion and unification of time for study and planning;
- } an improvement in quality of mediation;
- } there was progress in the performance of the use of visual teaching tools - Maps thinking;
- } commitment to the gradual and progressive development of research, seeking mastery;
- } Improvement in compliance with the mediated class planning;
- } The "mediation" is now being utilized by teachers with greater mastery and fluidity enabling a closer relationship with the student body;
- } The acquisition of more efficient strategies enabled a better class rule;
- } Increase awareness regarding the participation of all students in the process of knowledge construction, also allowing the recording of contributions;
- } Initiative of the teachers in the use of thinking maps content without consultation with the research team, demonstrating autonomy acquired through the process.

Taking into account the items mentioned above, it is observed that

there is an alignment of factors that have led to a faculty search for mastery, not only in the use of Thinking Maps, but also in their professional practice. The class rule, for example, had a positive impact on student behavior resulting in emotional involvement of students in building their own knowledge.

b) With respect to students:

-) They began to realize the existence of a new standard of teaching and learning when initially recognized the structure of the construction of maps, asking "that again?";**
-) Development of intrinsic motivation when they started to copy the maps spontaneously in notebooks;**
-) Active participation of students during the application of maps, regardless of the individual read-write diagnosed. It is noteworthy that the improvement in the quality of mediation has allowed the participation of some students classified as illiterate or timid.**
-) The teachers observed the demonstration, although still fragile to be emerging from developments in the structuring of logical reasoning for analysis and construction of texts.**
-) There were some isolated cases of progress of students, for which two possibilities arise: the quality of mediation dramatically influence self-esteem of students, and the fact the teacher make use of a visual frame for abstract thought has facilitated and Intrinsically motivated learning of most students, even those diagnosed with various difficulties. Some examples: during the application of map description of fruit, the student R. initially identified as illiterate, is the only one in the room except to point to the example of seedless fruit - the "pineapple". That same student, at another time during the application of map of comparison on two characters in a text with illustrations, there was a similarity that was not observed by any other student - the two characters had "black hair".**
-) Students rated as illiterates were not part of any other intervention psychological program. The only intervention in this direction was the implementation of Thinking Maps in the classroom. Given this fact, we can conclude that the success reported by the teachers due to the use of language teaching and learning.**
-) Comparing the calculated level of writing I and IV units found that a greater number of students in the experimental groups migrated from the syllabic-alphabetic level for Alphabetical and to the Alphabetical Spelling.**
-) Raising the quality of self-image of students as learners.**
-) Development of awareness about the speech of another, especially the illiterate.**
-) There is evidence of reflective thinking refinement because **some****

students have used implicit and abstract criteria in comparison during the analysis and interpretation of texts. Ok?

Changes in pedagogical practice, as reported above and considering all the obstacles of the process, allowed for a broader action that includes a cognitive perspective of educability. As a direct consequence of this practice note that behavioral changes occurred in fact within student`s body enabling the development of basic cognitive skills as those addressed in Thinking Maps, confirming the hypothesis of an effective contribution to academic progress.

It is concluded that the objectives were achieved and the results were significant, although it has been used only 82 hours dedicated to research, which represents approximately 10% of the time of the Academic Calendar (Official one that provides 800 hours / year per School). We can assume that, from the data and arguments raised in this article, that the application of **Thinking Maps can increase the academic success and personal development, reason why this action can be amplified.**

It is noteworthy that this was a pioneering research in Brazil, the first intervention at this level in South America was also the first time that this Research Center has acted independently and was also the first time that the teachers were active participants in a research - hence the need for constant monitoring of the experiment.

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Josenilda Noronha de Oliveira has served the past 10 years in training and continuing education of teachers in the public schools of the State of Bahia, enabling the Teacher Training Mediators in PEI - Instrumental Enrichment Program . This program is considered an instrumental pedagogical intervention, focusing on cognitive-affective-emotional approach. Her training as trainee was in Israel with professional`s from ICELP / Jerusalem. He served as Executive Leader at Luis Eduardo Foundation and was responsible for about 10 professionals who played the role of Supervisors . Over the past three years has served, voluntarily, as co-responsible for implementing the IE Programm for

children with learning difficulties in Susanna Wesley Methodist School District. Since 2010, after training in Thinking Maps (by mediated trainer Carla Carvalho) acts as an independent consultant and researcher of the Roerich Peace and Culture Institute of the Brazil, in the deployment and implementation of innovative language of teaching and learning, Visual Language Thinking Maps.

Silvia Simões Alves Cordeiro - has served as professor of mathematics at the public school system, 2nd degree. Worked as a trainer and continuing education of teachers in public schools of the State of Bahia, enabling the Teacher Training Mediators in EI - Instrumental Enrichment Program which is considered an instrumental pedagogical intervention, focusing on cognitive-affective-emotional. She is a trainee at EI, and was trained in Israel with professional's of ICELP / Jerusalém. At last 10 years he served as supervisor, responsible for further training of teachers. Over the past three years has served, voluntarily as co-responsible for implementing the IE Program for children with learning difficulties in Susanna Wesley Methodist School District. Since 2010, after training in Thinking Maps (by trainer Carla Carvalhno) acts as an independent consultant and researcher of the Roerich Peace and Culture Institute of the Brazil, in the deployment and implementation of innovative language of teaching and learning, Visual Language Thinking Maps.