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Human Transformation From Continuous Pedagogical Teacher Training to Neuropedagogical

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Abstract: Education requires changes, and that is why in 2012, the researcher and neuroscientist José Temoche, by doing a pedagogical practice, reinvents a new way of teaching and learning with inputs, which he assemble until it became a new paradigm of learning with patents of neuroscience and the discipline of neuropedagogy, which were invented by the aforementioned for this purpose. So much so that the scientific path of the neurodevelopmental paradigm was built and that consists of the theoretical framework to support the new conception of the field of teaching-learning neuropedagogy, with methodological elements in learning. Experimental became formal in the teacher's practice, improving the learning achievements with activities and strategies of the paradigm that was constituted in the neurodevelopmental theory, the neurolearning approach and the neurodidactic methodology. It was elaborated, implemented and evaluated by means of a new teacher training with new concepts in the learning system, and for this, the scientific contribution was constituted in a knowing and doing of improvement in the teaching levels of the teachers and learning in the students.

What is relevant about experience is that by incorporating the neurophysiological learning curriculum, it was possible to reverse the weakness of performance in the academic degree and in the education service. The evidence is that when applying neuropedagogical training through seminars — workshops, which contemplated the neuropedagogical training project for teachers of all levels of regular basic education (EBR) in Peru and Colombia, knowledge entered to a continuous superior level training and was implemented at the National University of Piura and the José Martí University in Cuba, having as results, under the objectives of the innovation project in neuropedagogy, the clear path of innovating and understanding the relevance of continuous training, which culminated with awards in innovative projects that educational entities managed to obtain, through resolutions of favorable results in the field of learning and improvement of the existing educational system.

The most significant and impactful achievement is that the Educational Institutions (teachers and students) left the beginning level of reading comprehension to medium and satisfactory, allowing today in pedagogical practices to make use of the inputs of neuropedagogy training in their management instruments, in the commitments of school management and being teachers with a profile in accordance with the needs of the educational service of innovation and quality. Today, neuropedagogy innovation projects are a trend in improving understanding in learning of the trans disciplinary field where the teacher develops.

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1. Justification

The experience of continuous training from pedagogy to neuropedagogy is justified because it installs elements of neuroscience and neuropedagogy, under a paradigm of neurolearning in pedagogical practice and in teaching performance. For this reason, it is convenient to carry it out because it is significant to activate the field of innovation in relation to neurophysiological and neuro-academic activities, turning out to be novel its application in learning and educational service, and its application in the educational system is also useful.

The application of the experience had as a contribution that teachers can make use of a neurophysiological Curriculum, which includes the biological part of the human being when developing the neurophysiological work of learning and because it activates the system of capacities in functional acts of conscious level, being able to show that neurophysiological (oxygenation and laterality) and neuro-academic strategies were able to consciously develop the learning process for mastering competencies in the development of the lives of teachers and students. These neuropedagogical processes are considered innovative in teaching practice.

The experience is useful because it activates neurophysiological fields that had never been directly attended in the development of the capacities planned in the learning session, for the achievement of performances that the graduate profile seeks according to the CNEB. According to the classification of axes, it responds to continuous teacher training policies, where education professionals receive training based on their pedagogical practice and, to strengthen their teaching performance, under the framework of good performance.

2. Purpose

The experience was guided by a general objective in neuropedagogical innovation projects and three specific objectives.

2.1 Overall Objective

Implement a neurodevelopmental paradigm in favor of the educational system through continuous training (neuropedagogical innovation projects) of national and international teachers.

2.2 Specific Objectives

Apply the foundation of the paradigm and the neurodidactic tools through a seminar — workshop with a neurophysiological Curriculum in teachers of the educational system.

- Evaluate the impact of the neurophysiological paradigm on teaching practice and the achievement of sustainable learning.
- Evaluate the paradigm in its validity as foundations of neurolearning and mastery of the tools used in teaching practice.

3. Description of the Experience

The methodology applied is recreated in a line of educational technological research. Here the researcher recreates his own design of neuroeducational technological research, starting from the sociocritical paradigm approach, being the objective of the research the neuropedagogical educational practice, whose purpose is to

strengthen and improve through the innovation of scientific products of neuropedagogy in education. By adopting critical theory as a social science, empiricism acts and interprets the biological sciences in the field of neurophysiology as a field of explanatory research, as a new field of neurophysiological activity in acts of learning. Being the dialectical unit the one that interprets the theoretical and the practical and where the sociocritical paradigm allows the neuroreflection of a conscious level of the criticism of the neurophysiological processes, promoting neuropedagogical knowledge.

On the other hand, the qualitative approach of educational technology in flexible technologies allows to recreate the products obtained from science in innovation, which will allow mediating objectivist and subjectivist recreation methods, neuropedagogical findings (Temoche, 2019).

4. Educational Resources and Materials

The experience resorted to information collection, process and evaluation instruments, therefore it began with an application protocol that had three parts, the diagnosis of pedagogical practice and the achievement of learning, reconstruction of the practice with neuropedagogy inputs and the evaluation of the effectiveness of the neuropedagogical technology allowed by the products.

The diagnosis of pedagogical practice consists of the deconstruction of pedagogical practice. When applying the reading comprehension pretest in the seminars — continuous training workshops in the different headquarters with inputs from a Neuropedagogical Curriculum, the teachers presented great weaknesses in the domain of attention strategies when understanding, evidencing a low technical level of strategies and techniques when a text operates in understanding. In the same way, it was from the condition in the development of answers to questions, where their answers were from their perspective of understanding and not from the meaning of ideas. The macro results in the different headquarters of the three years that have elapsed were the repetition of the same weaknesses in the management of the understanding of a text that was the operating field to assume the problem of learning of a being (teacher). So much so that teachers from La Unión headquarter (Piura-Peru) when developing the Pretest, 98.83% did not understand the indications and use of techniques to understand a text" (field diary 08/15/2019).

5. Reconstruction of Neuropedagogical Practice

5.1 Means

5.1.1 Background

Temoche (2015) in his research where he guides his objective of applying the foundation of neurolearning through neuroeducational training and his neurophysiological learning proposal, collects the most relevant conclusion that the teacher when receiving the contribution of the author through neurodevelopmental theory, pedagogical practice in action it is different from pedagogical ones. The conscious and evolutionary level of sustainable learning could be evidenced.

Temoche and Sánchez (2016) in their article on neuroeducation by employing a proposed scientific route in continuing training implements neuroeducational training with innovative inputs. Thus, the conclusion obtained is "that it is necessary to have an initial and continuous training with elements of innovation of biological and neurophysiological attention in the stimulation and activation of capacities, through neuroevolutionary theory as the trigger of foundation to the new teaching practice, considering that the brain in this paradigm shows high

cognitive demand what is called the conscious level of learning and what determines neurolearning.

5.2 Conceptual References

5.2.1 The Neuroevolutionary Theory

Temoche (2012) considers that learning recreates a neuro-anatomical architecture, where chemical and electrical elements act in hemispheric plastic dimensions of the brain to activate neurocognitive fields that are represented by instinctual, emotional and higher-degree rational capacities with conscious acts, reflected in performances of the domains of learning. It makes use of three elements, biological, chemical and electrical, and recreates them epistemologically in a transdisciplinary way, being the foundation of the new neurodevelopmental paradigm of neurolearning. It is knowing the source of knowledge from where the new conscious level learning starts.

5.2.2 The Neurodevelopmental Approach

It is allowed to recreate the “how” to make the foundation act in the improvement of learning where knowledge is articulated with the methodological part. It is indicated that it is the path or scaffolding of facts that promote the actions of neuromethodology (Temoche, 2018).

5.2.3 Neuromethodology

Implementing neurophysiological and neuro-academic tools strengthens learning about innovative neurolearning strategies and their application technique in a field of neurolearning technology. It allows us to say which author makes his didactics effective with biological and anatomical elements of the brain in favor of human learning (Temoche, 2019).

5.2.4 Neurophysiological Curriculum

The contributions of neuropedagogical tools under neuropedagogy products, allow the being to learn to plan neurophysiological functions, processes and resources in favor of learning before learning, in the learning process and the domain of the conscious level of achievement capabilities of neurophysiological competences in the executive brain at the conscious level (Temoche, 2019).

5.3 Executed Actions

5.3.1 Implementation Stage

Applying a flexible process through a neurophysiological deconstruction in the human being in continuous training workshops, evidenced the beginning of a diagnosis of the neurophysiological state of learning domain in understanding, learning from a competence (communication - reading comprehension), It was possible to identify that the being (teacher) who performs teaching and learning tasks, does not, for the most part, have the conditions of reader in a range of executive brain conditions of a conscious level, deconstruction is demonstrated by acts of instinctive level in the responses of mastery of mechanical abilities. Faced with this reality of the society of the educational community, the registry of neuropedagogical technological research in different parts of the country context, and abroad, present the same characteristics of lack in the process and technique of understanding a text in the reading process. Given this evidence, the products of the neuroevolutionary paradigm in its implementation were received as an alternative of evolution in the learning process with a neurophysiological tendency, taking into account the direct factor of the learning system such as the brain of the being, which puts into function when he learns, recreating and building elements of his biology unit, which are not promoted and developed due to a lack of neurophysiological knowledge.

Teachers are surprised and recognize that they must use a paradigm that involves the neurophysiological part as the basic principle for the development of the capacities that operate the emotional and cognitive process in the learning process. To achieve this stage, free workshops, agreements and an awareness stage were held for 111 teachers from different national and international contexts, participating in an applied research in 2016; in 2017, 303 teachers in an applied and technological research, participating in continuous teacher training, with neurophysiological resources, and in 2018, 100 teachers participated in a neuropedagogical technological research through neuropedagogical innovation projects implementing neurophysiological resources in the Learning process.

5.3.2 Application Stage

The neurodevelopmental paradigm made it possible to apply the scientific path of neuroeducation through the use of neurolearning technology. When neurophysiological strategies were recreated as a new learning process in the neuromethodology of learning and teaching, it was installed in 100 teachers in 2018, having as beneficiaries 2 640 students who make use of neurophysiological and neuro-academic strategies, where the evidence was the results of the innovation projects that registered improvements in the development of competencies according to the ECE 2018 tests. It was achieved that human beings can stimulate and evolve their neurophysiological level from their instinctive emotional brain to rational, which is the conscious level in the domain of capacities to develop competencies that manipulate the knowledge in favor of the life that they develop. By 2019, eighty-three teachers were applying the replication of neurophysiological and neuro-academic strategies, which can be seen in 2,913 students that they improve and master skills in learning and mastering behaviors. In relation to the communication competence - reading comprehension, the human being manages to install a culture of conscious level in the process of understanding a text when reading. This was measured with the neurophysiological and neuro-academic strategies as products in the methodology of pedagogical practice which carried out the use of the neurophysiological curriculum according to the neuro-learning sessions.

5.3.3 Evaluation Stage

The new paradigm, when passing through the internal and external evaluation sieve, proved that it shows sustainability in its structure of theory, approach and neuromethodology. And that when used, achieves its basic principle of activating neurophysiological functions to obtain an executive brain of a conscious level in the development of capacities, of lasting mastery in the learning process. The achievements are surprising when analyzed through the neurolearning progression rubric and the outstanding achievement of mastery of competencies in communication and other areas of learning. The evaluation according to the summary of the experience, benefited with this new learning paradigm, 144 educational institutions, in 8 national and 2 international contexts and the levels that were attended were in regular basic education of initial primary and secondary and special education, in the state and private modality, where 597 teachers were trained with a benefit of 18,108 students, who today make use of the resource products and strategies of the neurodevelopmental paradigm.

When applying the post-test, it resulted that 90% of teachers, managed to transform their way of learning with the use of a neurodevelopmental paradigm that uses neurophysiological and neuro-academic strategies, where the percentage determined that they dominate reading comprehension with neurophysiological activities to achieve the domain of conscious-level capacities and sustainable performances in the competencies to achieve the graduation profile set out in the CNEB. "The systematization of the Pre-test and post-test applied to the teachers of the different headquarters could determine that the neurophysiological and neuro-academic strategies in the neurodevelopmental paradigm, gave an impact on the sustainability of improvement in learning in 98.83% in understanding a text as part of the performance of life skills (field diary 01/10/2020).

6. Results

6.1 Qualitative Data

Table 1 Pretest and Posttest Reading Comprehension

Years	Teachers	Level	Entry	%	Exit	%
2016	111	Start(00/10)	590	98.83%	0	0.00%
2017	303	Process (11 /13)	4	0.67%	3	0.50%
2018	100	Expected achievement (14 /16)	2	0.34%	4	0.67%
2019	83	Outstanding Achievement (17/20)	1	0.17%	590	98.83%
Total	597	597		100.00%	597	100.00%

6.2 Interpretation

When applying the pre-test to the teachers of reading comprehension, they were located in 98.83% in an initial level; 0.67% in process; 0.34% in expected achievement and 0.17% in satisfactory level.

When applying the post-test to the same teachers of reading comprehension, 98.83% reversed the problems of understanding a text, placing themselves in an outstanding achievement, 0.67% in expected achievement and 0.50% in process. With this, it was evidenced that continuous training with the neurodevelopmental paradigm that produces neurolearning had an impact with its neurophysiological and neuro-academic strategies.

6.3 The Qualitative Results

According to the documentary analysis and the triangulation of the years of application of neurolearning technology to teachers, they were continuously trained under the new “neuroevolutionary” paradigm, which produces neurolearning, being achieved through the use of methodology with neurophysiological strategies that stimulate to the brain and take it to the level of the conscious executive brain and the neuro-academic that is implemented in the learning journey with a new didactic that leads to the development of capacities and sustainable achievement of life skills. This is recorded in the innovative projects of the teachers of different educational institutions at the national level, as well as in the presentations of the representatives of international level registered in their exposed investigations.

6.4 Evidence

Figure 1 Teachers in seminary - Workshop, La Unión headquarters, Piura Region, national level exercising neurophysiological laterality strategies to stimulate the brain before the process of learning and mastering reading comprehension (08/15/2019).

Figure 2 Students From La Libertad - Huamachuco Headquarter Making Use of Neuro-Academic Strategies to Master Reading Comprehension (11/22/2019)

7. Learned Lessons

It concludes:

- The neurodevelopmental paradigm produces an impact and innovates the teacher's methodology in learning, obtaining the development of capacities at a conscious level in learning (domain of reading comprehension - up to critical thinking), strengthening the curriculum with neurophysiological activities in favor of the achievement of performance of human being.
- When evaluating the impact of the neuroevolutionary paradigm on teachers, they show attitudes and conditions of a conscious level in their communication when developing learning comprehension of texts, locating themselves in the meaning of the content of the text, in the different productions of the use of neurophysiological and neuro-academic.
- The continuous application of the paradigm in teachers managed to obtain in the external evaluations (ECE test) a substantial impact on the reading comprehension domain of their students and the achievement of promotions and levels of performance in teachers in their professional careers.
- The evidence of the results of the instruments of consistency in reading comprehension of the pre-test and post-test, show the degree of mastery of the implemented paradigm in continuous training in teachers of the different levels of the EBR, EBE.

8. Recommendations

Relevant aspects of the experience achieved:

- The contributions of technological research should be considered through an experience and be taken as a precedent for future transdisciplinary research and the improvement of pedagogical practice.
- It must be located as a knowledge of a higher order in innovation in the foundation of human learning and improvement of any educational system.
- New knowledge should be implemented in initial and continuous training centers in favor of innovation in training of the human being in the field of learning in the education profession.

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