



La programación neurolingüística, una alternativa metodológica para desarrollar estilos de aprendizaje *Neurolinguistic programming, a methodological alternative for developing learning styles*

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Resumen

El artículo aborda la programación neurolingüística como herramienta que ayuda al crecimiento personal y elevar la calidad de vida; con el objetivo de proponer una alternativa metodológica basada en la programación neurolingüística para desarrollar estilos de aprendizaje mediante la enseñanza de la Matemática en estudiantes de la carrera Ingeniería Forestal. Se emplearon métodos teóricos (histórico lógico, análisis y síntesis, inducción y deducción), y empíricos (observación, encuesta y la entrevista). Su aplicación ha sido comprobada en la práctica y demostrada su efectividad en el campo educativo, lo que ha permitido hacer recomendaciones para el fortalecimiento del aprendizaje en los estudiantes.

Palabras clave: Programación; Neurolingüística; Proceso de enseñanza-aprendizaje; Alternativa metodológica; Estilos de aprendizaje.

Abstract

The article deals with neurolinguistic programming as a tool to help personal growth and improve the quality of life; with the objective of proposing a methodological alternative based on neurolinguistic programming to develop learning styles through the teaching of Mathematics in students of Forestry Engineering. Theoretical methods (historical logic, analysis and synthesis, induction and deduction) and empirical methods (observation, survey and interview) were used. Its application has been tested in practice and its effectiveness in the educational field has been demonstrated, which has allowed recommendations to be made to strengthen student learning.

Keywords: Programming; Neurolinguistics; Teaching-learning process; Methodological alternative; Learning styles.

Intoduction

The circumstances of today's world, characterized by signs of economic and lifestyle globalization, accelerated change and the increasingly aggressive challenge to everything established, require individuals and organizations to thoroughly review their behavioral patterns, attitudes, values, knowledge and the way they are applied. The demand that is presented in all areas is more pressing in education, a privileged space for human development.

In today's Cuba, it is indispensable that students of university education graduate with a system of skills that allow them to develop the capacity to deploy their potential, individually and collectively, for present and future life.

The use, in the teaching-learning process, of learning styles through neurolinguistic programming (NLP), facilitates the development through strategies, which should be integrated to the learning activities, making them applicable to any pedagogical approach to achieve an innovation that allows giving students an integral education.

This research is oriented to the development of learning styles through neurolinguistic programming in the teaching of mathematics.

Students state that it is complicated and difficult to deduce and understand, that it is complex, mysterious and boring, thus generating frustration and anguish, instead of satisfaction for the achievements obtained.

In this sense, NLP appears as an alternative for many aspects of the individual's life, and the case of mathematics teaching has an opportunity to design classes where learning styles play an essential role in the learning of students, increasing motivation and attitude change and thus reach a more significant level of learning.

Several authors have referred to the study of neurolinguistic programming, among them Armendáriz (2004), Oropesa (2005), Camacho (2007), Gómez (2007), all agree that NLP represents a way of approaching human learning, They also recognize that learning styles are cognitive, affective and physiological traits that serve as relatively stable indicators of how students perceive, interact and respond to their learning environments.

Hence, the objective of this article is to propose an alternative methodology based on neurolinguistic programming to develop learning styles through the teaching of mathematics in first year students of the Forestry Engineering course of the encounter course.

Development

Neurolinguistic programming. Background and applications

According to Gómez (2007), "neurolinguistic programming is a set of techniques designed to produce short-term personal changes" (p. 25). In this, the brain is directed and the states and behaviors of oneself and others are managed. It translates into selecting a plan of action among several alternatives, in order to find the one that best suits our objectives.

Neurolinguistic programming is a formal and dynamic model of how the mind and human perfection works, how it processes information and experiences and the various implications this has for personal success.

Armendáriz (2005), for his part, considers that it is convenient to detect how each person internally processes information, both those who do it well and those who do not, in order to implement new ways that are more functional.

For Oropesa (2005), NLP is the study of mental patterns. It allows knowing the mental processes used to encode information, and therefore, the way of thinking and acting. It explores how information about the world is transmitted through language. According to this, life experiences are captured by the five senses and processed as information by the nervous system, which helps to internally represent these experiences in order to give meaning to each of them; this is done at the linguistic level, through words, sounds, senses, sensations and smells. The neurolinguistic process is based on the foundations of the constructivist theory, which defines reality as an invention, not as a discovery.

Fonseca (2009) admits that it is a psychic construct of Grinder and Bandler (1976), based on the fact that the human being does not operate directly on the real world in which he lives, but does so through maps, representations and models, from which he generates and guides his behavior.

There are six (6) principles that can be modified through NLP and these structure a kind of mental filter, according to Fonseca (2009), they are:

1. Control: it is currently known that the conscious mind directs mental processes, so no one can make you feel less without your consent, as Bandler would say, quoted by Gomez (2007), creator of NLP, if you do not manage your mind someone else will do it for you. In any case, the control of life begins in the control of thoughts.
2. Pleasure: the objective of decisions and actions is personal benefit.
3. Cause and effect: the causes are the thoughts and the behaviors are the effects, this obeys

a universal law.

4. Correspondence: if you believe you can do something, or it is believed that you cannot in any case, you are right. According to Fonseca (2009) there are three types of beliefs:

(a) Of capacity

b) Of esteem

c) Of hope or expectation

5. From the moment you are born, a mental map of ourselves and others is formed. The external world corresponds to your internal world of thoughts and emotions.

6. The virtual structure of the mind facilitates the creation, together with the consequence in an interactive space, of new realities that one can design for one's well-being.

Characteristics and utilities of NLP

For Camacho (2007), NLP has the ability to help the human being to grow, presents a practical approach, allows achieving personal changes and is conceived as a powerful tool for communication, influence and persuasion. The utilities of the process are:

- Improve awareness of what they do.
- It enhances communication or the way of saying things.
- Increases the potential of people.
- Guarantees the use of resources.
- Improves personal health.
- Develops personal habits.
- Increases brain utilization.
- Enhances interpersonal relationships.
- Develops creativity and self-esteem.
- Cures phobias and fears.
- Shows vision and personal mission.

The human being absorbs and stores in the unconscious all information to which he has had access. This information is filtered through his thoughts, passing through his neuronal system and forming programming, which form beliefs that will lead him and keep him all his life. The human being is a product of his thoughts, about what he has lived and experienced, which is the responsibility of parents and teachers: what kind of world is presented to children, adolescents and young people, what example is being given to them, how are they respected as thinking and valuable persons,

how are they respected as thinking and valuable persons? It is essential to remember that what is recorded are experiences and not theory. Teachers must be aware of the enormous responsibility they have been given; their job is not to inform, but to form human beings.

Perception channels

In Carbonell's opinion, (2007), the objective of all education is the formation of individuals with a high level of knowledge and skills that will allow them to develop integrally in society. These aspirations can be truncated if the teaching-learning process is not properly carried out in the classroom, and therefore, they are placed in the work context, in their academic training.

Communication between teachers and students must flow naturally so that the data presented can be fully assimilated. This process can be affected if different channels of perception are used, which prevent the information from being received in the proper way and registered in the directed context.

It is necessary to investigate whether the same perceptual channel is used among students and teachers to ensure that low achievement is not due to conflicts of interpretation that can be avoided by being aware of this difference.

The mind perceives the external world using a preferred communication system. For Galván (2006), these channels can be divided in the following ways:

- External Visual: sense that is activated so that the external world.

Internal: images stored in memory or that are a product of the imagination.

- External Auditory: sense that is activated to hear the outside world.

Internal: words, conversations and sounds stored in memory or that are the product of the imagination.

- Kinesthetic External: sense activated to perceive tactile sensations.

Internal: memory of tactile sensations and all emotions, both real and imagined, in the present or in the past.

NLP in education

For Carbonell (2006), NLP broadens the skills to know the importance of verbal and nonverbal language. With it, effective communication is appropriated, since the processes through which information is allowed, stored and received can be enhanced. Communication, the objective between what teachers want their students to know and what they want to learn, occurs in the adjustment that arises from the negotiation of the two objectives.

The more that can be discovered about how students learn, the better the process can be designed to foster meaningful learning, since teaching and learning are parts of the same process.

It is important to give students the tools to learn how to learn, and this is where NLP can help. This type of programming helps to discover how the subjective world is created, this is achieved by relating words, thoughts and behaviors with the objectives. This process encompasses behaviors, actions, values and beliefs.

Advantages of the use of NLP in education

According to Bandler (1976), NLP represents a way of approaching human learning. Although many psychologists and social workers use NLP to do what they call therapy. However, we consider it more appropriate to describe it as an educational process; that is, the co-creator of NLP, in addition to showing his conception of this model as an educational tool, supports the thesis of education and learning as a communicational process that represents, in essence, a complex, delicate and nurturing fabric of human interactions.

To educate is to communicate, it is to bring about changes in the parts. It is known that the relationship existing in the teacher-learner-environment triad tends to condition the interrelation and, consequently, learning.

The challenge is to make the school an adventure that keeps both students and teachers interested in continuous improvement. It is necessary to learn while enjoying learning, using simultaneously the logical mind, the body and the creative mind, in other words, the brain in an integral way.

The close and efficient teacher is the best of the professionals, since he manages to be with his students, he learns to be with them and through them. Neurolinguistic programming provides all the tools to elaborate a teaching-learning process that any student can learn quickly and easily.

When identifying the attitudinal components of students in mathematics in the first year of the Forestry Engineering course by encounter, it is concluded that the cognitive, affective and behavioral components are present. In the case of the cognitive component, knowledge is affected, students show difficulties in mathematics, they do not understand it, and beliefs are also a fundamental part of this process.

On the other hand, when referring to the affective component, it was observed that the students' feelings are affected when they interrelate with the subject, they reflect fear when they study it; in addition, emotions are placated in the face of achievements, downplaying the importance of obtaining good grades.

Finally, the behavioral component is reflected through behavior, which is oriented towards motivation for the study of mathematics.

The theoretical and practical limitations faced by mathematics teachers in the teaching-learning process to enhance the knowledge and development of the learning styles of university students become a problem to be solved.

In this sense, neurolinguistic programming appears as an alternative for the development of learning styles in the teaching of mathematics, they have in it an opportunity to promote motivation and change of attitude of students, and thus reach a more significant level of learning.

Taking into account all that has been analyzed so far, the author of this article proposes the following methodological alternative.

Methodological alternative for the improvement of school learning.

According to the Dictionary of the Royal Spanish Academy (1984), the word alternative comes from the Latin *alternātus* and is understood as a choice between two or more things. This implies choosing, in correspondence with their interests, needs and possibilities, the option that is more beneficial and/or convenient. From the pedagogical point of view, the rationality of the option, the results it can produce, as well as the objectivity with which it allows to approach the study material, will also be taken into account for the choice.

Matos (2004), when analyzing the concept of didactic alternative, states that "it is an instructional methodological option for educational practice; in order to optimize the direction of the teaching-learning process that truly stimulates the intellectual development of students" (p.54). Similarly, Hernández (2004), when defining what he considers a methodological alternative based on the circular reading approach, states that "it is defined as the option available to the teacher who teaches literature to implement a flexible, creative and dialogic reading, which facilitates the development of literary comprehension in students as a complex cognitive-affective processing" (p.59).

It is necessary to recognize that these authors assume the alternative as an option, and that there are other variants.

Similarly, Mendoza considers the alternative as:

'An option for the didactic direction of the process, conformed by a system of general procedures for the didactic direction of the initial training process of the education

professional, which responds to the current training conditions, where adjuncts and tutor teachers, as training professionals, play an essential role'." (2004, p.69).

Therefore, the alternative is presented as part of a conception, especially as the one that concretizes in the educational practice the ideas and points of view that are supported within a certain pedagogical conception.

The methodological alternative is carried out taking into account the need to guarantee a more personalized teaching-learning process for students using the tools provided by NLP.

The objective of the methodological alternative is aimed at providing a methodological alternative based on neurolinguistic programming to develop learning styles through the teaching of Mathematics in first year students of the Forestry Engineering career of the course by encounter.

The methodological alternative presented consists of three stages

Stage 1. Orientation

In this stage, an orientation is given to teachers and students about the syllabus of the subject Mathematics I for first year students of the Forestry Engineering course belonging to the course by encounter.

Basis of the subject

The subject Mathematics is part of the basic discipline Mathematics and Physics. It provides the future professional with knowledge that are quantitative tools, necessary for the study of the theories of both basic and specific disciplines, as well as those of the exercise of the profession, which can be applied in activities related to the profession and contribute to the sustainable development of forest ecosystems.

Syllabus E presents the improvement of the study of mathematics in the training of the forestry engineer.

The main problem of the subject is to contribute to the formation of students with a scientific conception of the world that allows the solution of problems present in the field of action and the sphere of action of the forestry engineer, making him/her competent for his/her performance (sustainable forest management) both in the national and foreign environment.

Mathematical methods are instruments for the determination of the quantitative aspects of the qualities of things. Therefore, the study of the content and methods of the subject Mathematics are linked to aspects of the professional model, constituting the basis for the analysis of information

and scientific decision making. The knowledge of this subject responds, especially to the design of research in forestry sciences.

It provides the forestry engineer with concepts, techniques and mathematical tools that can be applied in activities related to the professional training.

Its object of study is elements of differential and integral calculus and ordinary differential equations, and its general objective is to apply the tools and methods of mathematics to the solution of problems related to the profession, contributing to the development of skills and logical-professional thinking based on the work procedures applied in the course.

Among the essential skills, the following stand out: solving exercises and problems by applying the concepts studied in Linear Algebra, Analytic Geometry, Differential and Integral Calculus and First Order Ordinary Differential Equations and First and Second Order Linear Differential Equations..

Stage 2. Diagnosis

Diagnosis of the learning styles of both the teacher and the students who will be part of the methodological alternative.

The following characteristics should be taken into account in order to carry out the diagnosis:

According to Carbonell (2006), in 40% of people the visual profile predominates; in another 40% the kinesthetic profile and only in 15% the Auditory profile predominates. In the remaining 5%, all three systems dominate and these people are called achievers.

Individuals of the visual type understand the world as they see it, when remembering something they do it in the form of images, when imagining the future, they visualize it. They are characterized by their organization; they like to control things to make sure they are in the right place.

Characteristics

- Way of capturing reality: through the eyes. Remember on the basis of images.
- Eye movement: upward in some people, slightly out of focus.
- Body movement: rapid movements. When walking they give the impression of looking for something.
- Conversation: use phrases such as "I see what you mean" and "I cactus the image".
- Breathing: slightly shortness of breath, at the level of the upper chest. They have high-

pitched voices.

- Personal appearance: they dress very well, generally fashionable and their clothes are always clean and neat.

Auditory individuals are rather sedentary, cerebral and have a lot of inner life. They generally prefer to talk about something that interests them rather than show it, are great conversationalists and have the ability to organize their ideas in the midst of a logical debate.

Characteristics

- Way of capturing reality: through the ears. They remember on the basis of sounds.
- Eye movement: sideways and always at ear level.
- Body movement: sedentary tendencies.
- Conversation: use phrases such as "that sounds good" and "I hear you clearly".
- Breathing: uniform rhythm at mid-chest level. They have melodious voices.
- Personal appearance: prefer conservative and rather elegant clothes.

Kinesthetic individuals demonstrate their sensitivity and spontaneously express their feelings. Physical comfort is important to them. They generally look down to gauge their feelings.

Characteristics

- Way of grasping reality: through tactile sensations. They remember on the basis of feelings.
- Eye movement: downward.
- Body movement: they walk in a carefree manner.
- Conversation: use such as "I have the feeling that" and "it seems cold".
- Breathing: low in the belly. They have deep voices.
- Personal appearance: they dress loosely.

Identifying the preferred communication channel of the interlocutor increases the likelihood that the transmitted message reaches its destination with the same intention with which it was emitted.

Stage 3. Actions

In this stage, actions are proposed according to the students' preferred channel to develop the different learning styles:

Actions for each channel

1. Visual.

- Use facial expressions and gesticulate concepts with the hands.

- Show drawings, plates, posters and diagrams on the blackboard.
- Visualize materials in interactive videos.
- Make power point presentations.
- Express yourself with key words.
- Always add a visual element to the information.
- Use eye-catching colors.

2. Auditory

- Practice speed of speech.
- Use different tones of voice in oral preparation of information.
- Experiment with tones of reprimand, emotion, decision, suspense and curiosity.
- Use music to focus students' study.
- Ensure that there are no noises that interfere with the information delivered.

3. Kinesthetic

- Perform activities that require movement, especially games.
- Tell exciting stories.
- Ask them to participate in the blackboard.
- Conduct experiments.
- Use lived experiences.
- Relate topics to daily life activities.

Example

In the class, the teacher should take into account the diagnosis of his students not only in the content but also in the learning styles as expressed in the alternative.

Class topic: Limit and continuity of real functions of real variable.

For the application of the actions to be developed in the alternative, the teacher must take into account each of the didactic functions of the class in order to give an output to each of the actions proposed in the alternative.

Assurance of the starting level: Use different tones of voice in the oral preparation of information, use facial expressions and gesticulate concepts with the hands, use lived experiences.

Target orientation: expressing oneself with key words, practicing speed in language.

Treatment of new subject matter: show drawings, pictures, posters, and diagrams on the board, view materials on interactive videos, ask for participation on the board.

Fixation: use lived experiences, experiment with tones of reprimand, excitement, decision, suspense and curiosity.

Control: different activities or questions that satisfy the learning styles of each student will be carried out in order to take into account the characteristics of each one of them.

Recommendations

Learning to use the correct language that reaches each student is part of knowing how to use all representational systems with visual, auditory and sensory terms. Phrases such as "I see it clearly" (visual) "I want to say this loud and clear" (auditory) "I feel what you mean" (sensory).

Good use of language includes always talking about what you intend and what you want to achieve and not using phrases that illustrate what you don't want. For example, "remember to bring your homework tomorrow" instead of saying "don't forget your homework tomorrow."

Teachers must learn to read their students through their body language. It is impossible for a student who comes to class with a psychological problem to perform like the other students in the class without first being attended to. That is why the management of ocular cues, as well as physiology are helpful in the teaching-learning process.

The alternative will be evaluated individually and collectively.

Conclusions

The methodological alternative is of importance, it is a subject that is little treated among teachers, besides its usefulness is not only in mathematics but in the rest of the subjects and in the different teachings. Its application is based on neurolinguistic programming, providing tools to teachers for the development of learning styles, and thus offering students a personalized and efficient teaching. The theoretical references allowed us to assume positions, elaborate the proposal and reach conclusions. **Bibliographic references**

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