Neurolinguistic programming in health: an analysis of the literature

Programmazione neurolinguistica nella sanità: analisi della letteratura

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La Programmazione Neuro Linguistica (NLP) nasce negli anni 70 in California, studia in particolare le tre componenti della produzione mentale e comportamentale dell'esperienza umana, la neurologia, il linguaggio e la programmazione. **Obiettivo**: abbiamo rilevato la letteratura internazionale, esclusivamente in campo sanitario, relativa alla NLP. **Metodo**: abbiamo cercato queste parole chiave: NLP, PNL (acronimo italiano for NLP), LEM (Lateral Eye Movements), Eye Movement, Eye Neuro Linguistic and VAKO che in NLP, significa Visual, Auditory, Kinesthetic, Olfactory-Gustatory) sui motori di ricerca e su: PubMed, Web of Knowledge and Scopus **Risultati**: per la parola "Neuro Linguistic Programming" abbiamo identificato 112 articoli in PubMed, ma di questi, solo 61 riguardavano effettivamente la NLP. In base alle altre parole chiave abbiamo identificato 7 ambiti della letteratura NLP. These are: Communication (20 articles), Training (4 articles), Personal Well-Being (4 articles), Food and nutrition (1 article), Eye movements (8 articles), Psychotherapy (21 articles), reviews and studies on its efficacy (3 articles). **Conclusioni**: la letteratura scientifica internazionale è divisa sulla NLP. Da una parte troviamo articoli a sfavore, in alcuni dei quali sono stati commessi errori metodologici o semplicemente dovuti alla non-conoscenza della disciplina NLP, altri sono a favore ma hanno campioni troppo bassi o sono studi qualitativi. Rimane quindi un campo affascinante da studiare e da verificare.

Parole chiave: Representational systems and predicates, lateral eye movements (LEM), mirroring, sleight of mouth, truisms, metamodel, linguistic precision

Neuro Linguistic Programming (NLP) was created in the 70s in California. It studies in particular three components of mental and behavioral production of human experience: neurology, language and programming. Objective of the article is a review of international literature, exclusively in the field of health related to NLP. **Method**: *we search the following keywords: NLP, PNL (Italian acronym for NLP), LEM (Lateral Eye Movements), Eye Movement, Eye Neuro Linguistic and VAKO (which, in NLP, stands for Visual, Auditory, Kinesthetic, Olfactory-Gustatory) on various search engines and in PubMed, Web of Knowledge and Scopus.* **Results**: *for the word "Neuro Linguistic Programming" we identified 112 articles in PubMed, but of these, only 61 actually related to the NLP. According to the keywords, we identified 7 fields of NLP literature. These are: Communication (20 articles), Training (4 articles), Personal Well-Being (4 articles), Food and nutrition (1 article), Eye movements (8 articles), Psychotherapy (21 articles), reviews and studies on its efficacy (3 articles).* **Conclusions**: *International scientific literature is divided on NLP. We find articles against NLP, some contain methodological errors in some cases simply due to the little knowledge of NLP discipline; others are in favor of NLP but samples are too small or they are qualitative studies. It therefore remains a fascinating field to study and monitor.*

Key words: Representational systems and predicates, lateral eye movements (LEM), mirroring, sleight of mouth, truisms, metamodel, linguistic precision

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Introduction

NLP stands for Neuro-Linguistic Programming, a name that encompasses the three most influential components involved in producing human experience: neurology, language and programming. The neurological system regulates how human bodies function, language determines how we interface and communicate with other people and our programming determines the kinds of models of the world we create. Neuro-Linguistic Programming describes the fundamental dynamics between mind (neuro) and language (linguistic) and how their interplay affects our body and behavior (programming). NLP is also defined as the study of the structure of subjective experience and what can be calculated from that and is predicated upon the belief that all behavior has structure. NLP is not a diagnostic tool.

NLP was born during the Seventies, in the Santa Cruz University of California. Its founders were Richard Bandler and John Grinder. Later on, they were supported by Judith Delozier, Lesly Cameron and Robert Dilts, in these years NLP has achieved considerable popularity as an approach to communication, learning and personal development (Tosey and Mathison, 2010).

Bandler was interested in information technology and studied psychology (with Fritz Perls), while Grinder studied Linguistics and wrote several books on Chomsky's works; Delozier studied Anthropology and Cameron was a psychotherapist.

The original models from which NLP originates are based on the works of: Milton Erickson (father of modern hypnotherapy, a degree in Medicine and Psychology at Wisconsin University and professor of Psychiatry at Wayne State University. He was president and founder of The American Society of Clinical Psychology and member of the American Psychiatric Association, of the American Psychology Association and of the American Psychopathology Association), Virginia Satir (mother of the Systemic Family Therapy) and Fritz Perls (representative of the Gestalt Therapy).

Other authors that had a relevant influence on NLP are: Gregory Bateson and Noam Chomsky. Even books by Carlos Castaneda have inspired some recent neuro-linguistic programmers.

In particular, the first book on NLP, *The Structure of Magic* (Bandler and Grinder, 1975a) considers the concepts of surface structure and deep structure developed by Chomsky in his "Transformational grammar".

During its first years, NLP was mainly used to comprehend the strategies used by many successful communicators, and Erikson's modelling had, throughout this development, a crucial role.

Grinder and Bandler, through the Eighties, while being inspired by what both linguistics and mathematicians had found, decided to create models of intervention that could be used in psychotherapy (Miller et al. 1986) and personal growth (Bandler and Grinder, 1976).

This challenge was particularly daring since, from a typical pragmatic and American point of view, it was strongly recommended to create effective models, rather than elaborate an additional theory (Pensieri, 2009).

Bandler and Grinder had found the basis of the NLP modelling in the "T.O.T.E. Model" developed by psychologists Galanter, Miller and Pribram (Galanter et al. 1960).

TOTE is the acronym for test, operate, test and exit. It is a behavioral model in cognitive psychology developed on stimulus-response model, a representative pattern for behaviorism. This model stands for a pattern tracing or designing the basic path for individuals while they try to control their actions or to set the goals for actions. TOTE model has been developed due to feedback reactions, which reshape the initial plan of action. TOTE model is characterized by logical and methodological approaches and connects the specific goals to outcomes through iterative actions, which resets the entire process in order to achieve the main purpose. Any simple activity that we might think is performed automatically, in fact follows TOTE pattern.

1. Test (T): The very first action sets the strategy and implicitly the goal. The test has two answers (yes or no). A positive answer means that the process no longer continues while "no" initializes the second stage-Operate. In the NLP model the first Test is a cue or trigger that begins the strategy. It establishes the criteria "fed forward" and used as a standard for the second test.

2. Operate (O): The second step, operation makes use of information, interprets and resets the path towards the initial purpose. All necessary changes and adjustments are included in operation stage. The Operation accesses data by remembering, creating, or gathering the information required by the strategy from the internal or external world.

3. Test (T): The second test verifies if improvements have been made as the strategy was reshaped. Similarly, to the initial test, the second checks whether the outcome matched the initial goal. 'Yes' leads to the next pasha in TOTE model - Exit. A 'no' generally means that new trials are required in order to attain what has been projected. The second Test is a comparison of some aspect of the accessed data with the criteria established by the first test. The two things compared must be represented in the same representation system.

4. Exit (E): Exit coincides with the desired outcome and as the name suggests, puts an end to TOTE model. In the NLP TOTE Model The Exit, or Decision Point, or Choice Point is a representation of the results of the test. If there is a match, the strategy exits. If there is a mismatch, the strategy recycles. The strategy may recycle by: changing the outcome or redirecting the strategy; adjusting the criteria, chunking laterally or reorienting; refining or further specifying the outcome; accessing more data.

The TOTE model gives a flowchart, which consists of

"Operating" on the stimulus of the internal map and altering it, "Testing" for congruence or incongruence, and "Exiting" if desirable result is attained. This flowchart usually executes below the threshold of consciousness.

NLP authors took cues from their expertise fields: psychology, linguistics, cybernetics. NLP does not, therefore, base its efficacy on a variety of hypothesis or scientific researches that validate its theories, but on the pragmatic and empiric experience of its operators.

The basis of NLP is a method referred to modelling, which Bandler and Grinder used to uncover how Erickson, Perls and Satir used to behave, while working with their patients.

NLP and Communication

One of the axioms of NLP is that "The meaning of your communication is the response you get and it is not in your intention".

This axiom is especially true when we communicate with patients and we are sure that we have been totally clear with them. But later, during the follow up we found that the other person had understood something else from what we have intended to say him.

One way to deal with that is to blame: "it's their fault. They didn't get it".

Another way is to take responsibility: "That's interesting, I wonder how else I can say it so they'll get it instead".

By adopting the belief that the meaning of your communication is the response you get instead of the communication you delivered regardless of their response, we become more real-world by being responsive to feedback and flexible by adapting to change.

Anytime we blame someone else for not getting what we wanted to say and don't take responsibility for it though, and think our communication was perfect and they were "not so intelligent" for not getting it, it's as good as saying the meaning of our communication is the response we wished we got.

Some schools of communication say that both parties in a communication have 50% responsibility each for the communication. In NLP we take 100%.

This is what sets great communicators, teachers, mentors, coaches, counsellors and speakers. Instead of labelling their audience as 'slow', 'stupid', 'resistant', 'sleepy', and so on, they take responsibility and go, "how can I communicate to them in a way that they'd get what I want to say?". NLP has lots of techniques for a good communication, we lists some of them:
- **Mirroring:** is the behaviour in which one person copies another person usually while in social interaction with them. It may include miming gestures, movements, body language, muscle tensions, expressions, tones, eye movements, breathing, choice of words and it is often observed among couples or close friends.

- **Representational systems and predicates:** our senses are the doorways of our perception. All we know of the world we know through our senses. We have five main sensory modalities, or representation systems: Visual (V), Auditory (A), Kinaesthetic (K), Olfactory (O), Gustatory (G). Our inner subjective experience is structured in terms of these senses. When we think, or process information internally, we "re-present" the information in terms of the sensory systems that are our only contact with the "outside world". Part of the language we use comes from one of these main systems. These sensory based words are called *predicates*. Use of rich sensory based language enables you to ensure that you are including all your listeners, regardless of their primary sensory system, in full communication. It enables you to create a sensory rich description to which everyone can relate more effectively. If you are to gain commitment to an idea, then the more richly it is described the more effectively it will be communicated. A person's choice of language indicates which sensory system they are using at any one time. Adapting your own choice of language so that it matches that of the other person will increase rapport and assist them in understanding what you wish to communicate. The information slides comfortably into their brain processes instead of having to be changed around or translated in order to be understood.

- **Lateral Eye Movements (LEM):** they are related to internal representations. Automatic, unconscious eye movements, or "eye accessing cues", often accompany particular thought processes, and indicate the access and use of particular representational systems. In early 1976, Richard Bandler, John Grinder and their students began to explore the relationship between eye movements and the different senses as well as the different cognitive processes associated with the brain hemispheres. In 1977 Robert Dilts conducted a study, at the Langley Porter Neuropsychiatric Institute in San Francisco, attempting to correlate eye movements to particular cognitive and neurophysiological processes. Dilts used electrodes to track both the eye movements and brain wave characteristics of subjects who were asked questions related to using the various senses of sight, hearing and feeling for tasks involving both memory ("right brain" processing) and mental construction ("left brain" processing). As a result of these studies, and many hours of observations of people from different cultures and racial backgrounds from all over the world, the following eye movement patterns were identified (Dilts, 1980; Grinder, et al. 1977; Kinsbourne, 1972; Kocel, 1972; Galin and Ornstein, 1974; Buckner and Reese, 1987): *Eyes Up and Left:* Non-dominant hemisphere visualization - i.e., remembered imagery (Vr). *Eyes Up and Right:* Dominant hemisphere visualization - i.e., constructed imagery and visual fantasy (Vc). *Eyes Lateral Left:* Non-dominant hemisphere auditory processing - i.e., remembered sounds, words, and "tape loops" (Ar) and tonal discrimination. *Eyes La-*

teral Right: Dominant hemisphere auditory processing - i.e., constructed sounds and words (Ac). *Eyes Down and Left:* Internal dialogue, or inner self-talk (Ad). *Eyes Down and Right:* Feelings, both tactile and visceral (K).

- **Sleight of mouth:** this is a persuasion skill, a vehicle for the reframing of beliefs. It is a system of 14 different patterns of response to a stated belief. A system that, once mastered, can allow us to always have a response that will effectively elucidate our position and help us to persuade rather than be persuaded. It will help us win an argument, be verbally powerful and powerfully verbal. There are 14 different patterns: Reality strategy, Model of the world, Counter example, Intent, Redefine, Chunking up, Chunking down, Metaphor or analogy, Another outcome, Consequence, Higherachy of Criteria, Apply to self, Changing frame size and Meta frame.

- **Truisms:** A Truism is a statement of the obvious. In the Milton Model (conversational hypnosis) truisms are used in sets to produce a spurious cause and effect. The client listens to the first truism statement, and agrees with it. The client listens to the next truism, and agrees with that too. The next suggestion is then made while the agreement with the truism is still in mind, so it too will be accepted as true, even if it has nothing to do with the first statements (i.e. "Most people can remember being completely and absolutely relaxed").

- **Metamodel (linguistic precision):** it is the NLP's first formal model, was published in 1975 by Bandler and Grinder in The Structure of Magic, Vol. 1. It extended features of general semantics (Korzybski) and transformational grammar (Chomsky), and developed via modeling the successful therapeutic language interventions of psychiatrists Fritz Perls and Milton Erickson, and family therapist Virginia Satir. The Meta Model formalized these developments into a richly defined set of linguistic patterns that can either facilitate change or create obstacles in a person's mental maps of himself and the world. It is important to know how patients use language in order to Delete, Distort and Generalize informations and their communication.

NLP and healthcare

In the specific field of healthcare, NLP can be put into practice through several and interesting applications.

The first one regards "interpersonal communication", in which NLP is rather prolific and implies a series of contents such as synchronization (Bidot and Morat, 1994; Pensieri and Pennacchini, 2011), *Mirroring* and Matching (Bandler and Grinder 1989), the use of meta-programs (Bandler, 1988), linguistic precision (Schreiber, 2005), sleight of mouth (Dilts, 2004), Representational systems (Bandler and Grinder, 1981), eye movements (Pensieri, 2009), meta-model (Bandler and Grinder, 1975a), truisms and light hypnotic

inductions (Bandler and Grinder, 1975b; Erickson, 1991), as well as a variety of tools useful to manage a doctor's emotional relationship with patients, such as: anchors (Pensieri, 2012), calibrations (Bonocore, 1994), submodalities (Bandler and McDonald, 1989), management or "roles" or "uniforms" with spatial anchoring etc.

To these purely communicative instruments, NLP has then combined a series of techniques necessary to Public Speaking (James and Shephard, 2001), since many specialists are valuable researchers and scientists, who therefore attend conferences and seminars, but are also awful communicators.

Moreover, some techniques are now being introduced, such as the "extrapolation of Vision and Mission" (Dilts, 1990) from terminal and chronic patients, alignment of neurological levels (Bonocore, 2000), well formed objectives, to determine an efficient therapeutic plan and to ensure sanitary alliance.

Some techniques, on the contrary, have not been introduced, such as selling and negotiating (Granchi and Pirovano, 2008), nor leadership strategies or leadership and management (Pennacchini et al., 2012) techniques, like "Fifth Discipline" (Senge, 2006).

At present, there are no studies on as to "why" NLP works, but several exist on qualitative analysis and its effectiveness (Pensieri, 2005); in fact, Bandler and Grinder have mainly focused on NLP pragmatic aspects, rather then on an explicative theory (Norris, 1997).

Results

In 8-9 November 2012, a query on important search engines, such as PubMed, Web of Knowledge and Scopus, offered several results, listed in the table below.

The terms searched were: "Neuro Linguistic Programming", NLP, PNL (Italian acronym for NLP), LEM (Lateral Eye Movements), Eye Movement, Eye Neuro Linguistic and VAKO (which, in NLP, stands for Visual, Auditory, Kinesthetic, Olfactory-Gustatory).

Table I. *Keywords Results.*

	PubMed	Web of Knowledge	Scopus
Neuro Linguistic Programming	112	72	95
NLP	652	3,206	4,446
PNL	1,405	819	7,602
LEM	649	1,709	1,963
Eye Movement	51,785	75,807	66,654
VAKO	0	1	8
Eye neuro linguistic	8	7	10

It is interesting to notice how 112 articles, in PubMed, were found on "Neuro Linguistic Programming", but of these, while reading the abstract and the title, only 61 actually examined NLP. Based on the articles researched, we can identify 7 fields of NLP literature. These are: Communication (20 articles), Training (4 articles), Personal Well-Being (4 articles), Food and nutrition (1 article), Eye movements (8 articles), Psycotherapy (21 articles), reviews and studies on its efficacy (3 articles).

Table II. *NLP & Communication.*

Communication
1. Walter J, Bayat A. *Neurolinguistic programming: temperament and character types.* BMJ 2003 Apr 19;326(7394):S133. No abstract available. PMID:12702636
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17. Knowles RD, Brockopp DY. *Building rapport; through neurolinguistic programming.* Kango Gijutsu 1984 Oct;30(13):1829-34. Japanese. No abstract available. PMID:6567712
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Table III. *NLP & Training.*

Training
1. Schaefer J, Schajor S. *Learning with all one's senses. Neurolinguistic programming in the teaching of pediatric nursing.* Kinderkrankenschwester 1999 Jul;18(7):289-91. German. No abstract available. PMID:10514683
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Table IV. *NLP & Personal Well Being.*

Personal well-being
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Table V. *NLP & Nutrition.*

Food and Nutrition
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Table VI. *NLP & Eye Movement.*

Eye Movement
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Table VII. *NLP & Psycotherapy.*

Psycotherapy
1. Reinhard J, Peiffer S, Sänger N, et al. *The Effects of Clinical Hypnosis versus Neurolinguistic Programming (NLP) before External Cephalic Version (ECV): A Prospective Off-Centre Randomised, Double-Blind, Controlled Trial.* Evid Based Complement Alternat Med 2012:626740. Epub 2012 Jun 21
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Table VIII. *NLP & Review*
Review and verify studies
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In an article published in 1985 (Einspruch and Forman, 1985) Einspruch stated that, until then, several methodological errors were made in reviewing NLP researches. The categories in which these errors were found included:

- Unfamiliarity with NLP as a therapeutic approach;
- Inadequate definition of relationships;
- Insufficient control of context;
- Logical errors.

Several supporters of Neuro-Linguistic Programming (Einspruch and Forman 1985; Robbins, 1995; Dilts, 1983) state that the procedures and the interventions generated by NLP have to be used within the premises contained inside the model. Previous researches had tried to evaluate the efficacy of the therapeutic techniques used in NLP by isolating a piece or a portion of the model, while examining it as an independent model.

Dilts suggests: "The various techniques which are part of NLP's body have been isolated and explicated, as separated parts, so be easily learnt. For the purpose of making them useful, anyhow, they have to be applied contemporaneously, in their totality" (Dilts, 1983).

Concurring with Robbins, our belief is that there are four main problems regarding the attempt of gaining experimental proof of Neuro-Linguistic Programming:

1. Rarely the experimenters are sufficiently trained in NLP and rarely they have the adequate technical competences. Often even the objectivity of the research is uncertain;
2. There is no quality control in NLP. No international authority which can speak in favour of the object of NLP, that can be acknowledged by all training institutes; therefore its reliability as a scientific praxis has been fouled from the incompetence of some trainers;
3. NLP can not be tested when some specific techniques are isolated from the whole methodology. Several researches on NLP attempt to "prove" diagnostics, such as eye accessing cues or the use of sensory predicates, while NLP never states (formally) that there is an intrinsic relationship (objective) underlying these suggestions and the kind of cognitive processing;
4. Some previous researches tried using DSM-III (American Psychiatric Association, 1980) diagnostics with NLP techniques, without considering the Meta-Model and the theoretic-implicit passage within nominalizations and thought process.

It is rather interesting to notice how the articles found on Pubmed are 20 regarding "Communcation", 4 "Training", 4 "Personal well-being", 1 "Nutrition", 8 the field of "Eye movements"; 21 "Psychotherapy" and 3 "Review and verify studies". We have also found for those key words: "Family Physician NLP" = 1 Article (Jagannathan et al., 2009) that was about Natural Language Processing and not Neuro Linguistic Programming, "Family Physician Neuro Linguistic Programming" = 1 article (Clabby and O'Connor, 2004), "Family Medicine NLP" = 7 article, but only 2 (Holt and Ladwa, 2009; Steinbach, 1984) were about NLP, and "Family Medicine Neuro Linguistic Programming" = 2 article (the same articles of "Family Medicine NLP").

Conclusions

Far from considering NLP a panacea to cure all the illnesses of body and spirit, it is here emphasized how, in its main application fields related to medical environment (non-psychiatric), such as interpersonal communication and therapy, a lack of scientific literature has been observed. This is perfectly coherent with the ideas of the founders of NLP, who base their work on the practical aspects of these techniques.

More interesting is the fact that those doctors who are informed on the communication techniques used in NLP often are not interested in accomplishing further studies or researches on these topics, since in their clinical practice the communicative NLP becomes a mere "instrument" of therapeutic alliance.

Otherwise, though, the personal experience and observational studies conducted by the author of this work prove that, even by having trained in NLP (project SETAP and ATIP of the Italian Province "Potenza") over 150 doctors of general medicine in the Italian Region of Basilicata, the main difference found is the predisposition of the doctor to execute the techniques at the right moment. In fact, the efficacy of these techniques in the field of "Family Medicine", to communicate efficaciously, to understand the interlocutor or to restructure traumatic experiences or emotional shocks, has resulted to be deeply connected with the capability of the single doctor to apply the technique and to predispose him or herself to listening.

Thus, NLP is a difficult theme to be scientifically studied. It can not be applied to the same evaluation method used for bio-medical equipment, neither to psychological techniques. In the NLP field it is the "operator" who makes the differen-

ce. The scientist who wishes to study NLP has to be him or herself at least a Master Trainer in NLP. This because the beauty of this discipline is due to its pragmatic aspects and its efficacy, and it can not be approached if not by people who have a complete vision of the various techniques used and their therapeutic objectives.

In conclusion, we remind that in NLP an "objective" relationship among "technique" and its "absolute effect" is not foreseen, since each patient is an independent individual; some techniques are useful for someone, while others are for another.

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