Tomasz Witkowski*

Thirty-Five Years of Research on Neuro-Linguistic Programming. NLP Research Data Base. State of the Art or Pseudoscientific Decoration?

The huge popularity of Neuro-Linguistic Programming (NLP) therapies and training has not been accompanied by knowledge of the empirical underpinnings of the concept. The article presents the concept of NLP in the light of empirical research in the Neuro-Linguistic Programming Research Data Base. From among 315 articles the author selected 63 studies published in journals from the Master Journal List of ISI. Out of 33 studies, 18.2% show results supporting the tenets of NLP, 54.5% - results non-supportive of the NLP tenets and 27.3% brings uncertain results. The qualitative analysis indicates the greater weight of the non-supportive studies and their greater methodological worth against the ones supporting the tenets. Results contradict the claim of an empirical basis of NLP.

Keywords: *neuro-linguistic programming, NLP, pseudo-science, psychotherapy*

Introduction

For more than twenty-five years therapies, personal development training, courses and other forms of working with people advertised as based within the Neuro-Linguistic Programming (NLP) Framework have enjoyed enormous popularity on the market of psychological services. NLP practitioners are found among university employees, and advertisements of NLP-related institutions appear in popular science magazines. Students of psychology attend courses where they attain successive degrees of initiation for NLP practitioners. NLP trainings have been provided in companies such as Hewlett-Packard, IBM, McDonald's, NASA, the U.S. Army, and U.S. Olympic teams, and in countless public school systems (Singer & Lalich, 1996). It has been suggested that NLP is "being applied widely, if often informally in UK education" (Tosey & Mathison, 2003, p. 371). I investigated official psychology curricula of the 12 best state universities in Poland. Eight offered contents and, in many cases, even separate courses devoted to NLP (Witkowski, 2009).

And still, despite that widespread presence of NLP, none of the psychology textbooks that I have heard of (Polish or English) presents an in-depth discussion of the concept. What's more, scientific authorities refrain from giving their opinions in this respect. What is the scientific worth of the concept? Only a thorough analysis of empirical research can lead to the answer.

Outline of the NLP concept

In the 1970s, Richard W. Bandler and John Grinder came up with a brilliant idea to create a practical therapy model. They argued that outstanding psychotherapists acted on the basis of implicit theories, which ensure their effectiveness and great rapport with patients. Furthermore, they concluded that observation of the most skilful therapists, their contemporaries, at work should result in the discovery of patterns, which could be then generalized, verified on an empirical basis and put into therapeutic practice. For several years they observed such therapists as Fritz Perls, Milton H. Erickson and Virginia Satir at their work. The gathered material enabled them to formulate NLP tenets and hypotheses.

The central philosophy of NLP is summed up in the sentence "The Map is not the Territory" (see, e.g. Lankton, 1980, p. 7). That means that each of us operates on the basis of our internal representation of the world (the "map") and not the world itself (the "territory"). The maps that we create are mostly limited and distorted. The therapist's task is to understand and operate on the basis of the client's map of the territory.

The maps that people make of their world are represented by five senses: visual; kinesthetic, referring to tactical and visceral sensations; auditory, including noises and sounds; olfactory, including smell; and gustatory, including taste. Each experience in the world of senses is composed of information received through the said systems of

* **Klub Sceptyków Polskich [Polish Sceptics Club], ul. Ciepła 15A/31, PL 50-524 Wrocław, Poland. E-mail: witkowski@moderator.wroc.pl**

senses, different in terms of quality, which are termed representational systems by the NLP original proponents (Grinder & Bandler, 1976; Bandler & Grinder, 1979). They suggested that each of us processes the majority of information using one primary representational system (PRS). Following the example of the most outstanding therapists, to work effectively with a patient one should necessarily match the patient's PRS so as to be able to use their "map".

Another discovery of which the NLP originators were particularly proud of was to realize that access to the representational systems is possible through the so-called accessing cues that are precisely specified eye movements. Careful observation of these movements should enable the NLP therapist to unequivocally identify the PRS of the patient, interlocutor etc., and, in consequence, facilitate matching their PRS. All other hypotheses of the NLP system related to the arising of mental disorders, the type of therapy and communication, etc. stem from these basic assertions.

When analyzing how the NLP concept was formulated, it is worth indicating analogies between the manner in which it had been developed and the research methodology applied in social psychology proposed and defined by Cialdini (1980) as a full-cycle approach to social psychology. Bandler and Grinder followed the full-cycle method, but regrettably they omitted the stage of empirical verification of their assertions. They found that part of the process inessential and moved straight to the formulation of the system and putting it into practice. Bandler, known for his openly demonstrated contempt for scientific testing of the NLP hypotheses, claimed that his system represented an art, not science, hence testing its assertions was pointless or even impossible. The NLP founders distorted the full-cycle approach creating a quasi-cycle process, which included only these three stages. Against the contempt expressed by Bandler, the NLP system being used so widely made many researchers test its theoretical underpinnings on an empirical basis.

Method

Selection of Material for Analysis

In order to obtain a coherent empirical image of NLP, independent from beliefs of therapists and subjective opinions of academic psychologists, I conducted an analysis of the majority of scientific articles devoted to NLP ever published. A most extensive register of such studies termed the Neuro-Linguistic Programming Research Data Base (State of the Art) is to be found on the web pages of NLP Community (http://www.nlp.de/cgi-bin/research/nlp-rdb.cgi). At present it supplies abstracts and bibliographic information with reference to 315 articles, by and large empirical, written by 287 authors and published in the years 1974-2009. The base was created at the University of Bielefeld in Germany in 1992, and moved to Berlin in the later years. It was designed to gather and organize empirical available studies concerning NLP from all over the world. The base is referred to by its creators as "state of the art", being updated and recommended on an ongoing basis by numerous institutions worldwide, which draw extensively on NLP in their activities. In Poland this base is recommended by e.g. Polski Instytut NLP (The Polish Institute for NLP) whose founder and chairman – Benedykt Peczko – personally suggested it to me as the most all-embracing global source of scientific studies on NLP. Out of several bases of articles developed by NLP proponents this one offers the highest number of entries. The analysis I am reporting in this article was carried out in December 2009.

There were three major arguments in favor of my choice of this database. Firstly, I came to the conclusion that the 18 years of work on the base performed by people committed to showing empirical underpinnings of the concept must give better results than those I could have achieved if searching through other available bases in a short time, such as PsychLit, PsycINFO or MEDLINE. Secondly, the fact of using the base established by followers of the concept might meet their possible accusations that I was biased and partial in preparing my review. Thirdly, analysis of the base contents, of the manner in which it is updated and of selection of articles might disclose additional information on how the image of NLP as a science with empirical foundations is created.

Quantitative analysis

In order to obtain the very essence of the empirical material available in the base, I performed a number of operations on the base. The first was to select the most reliable studies for further analysis. To this end, I evaluated them based on the criterion of whether the journal in which the given articles were publisher was recorded on on the Master Journal List of the Institute for Scientific Information in Philadelphia. This operation does not require justification in more detail. Although there are many doubts raised to this list, magazines from the Master Journal List are much less likely to have published unreliable articles than others. As a result of the initial selection, of 315 articles I had 63 – accounting for 20% of the entire base - left for further analysis.

Of interest are the findings of quantitative analysis of publications in individual years. By reference to the diagram including all 315 studies, it is clear that scientific activity peaked in the eighties of the 20th century. (see Figure 1). It experienced a minor renaissance at the beginning of the present century. Based on the diagram, one may assume that as a research issue NLP enjoyed
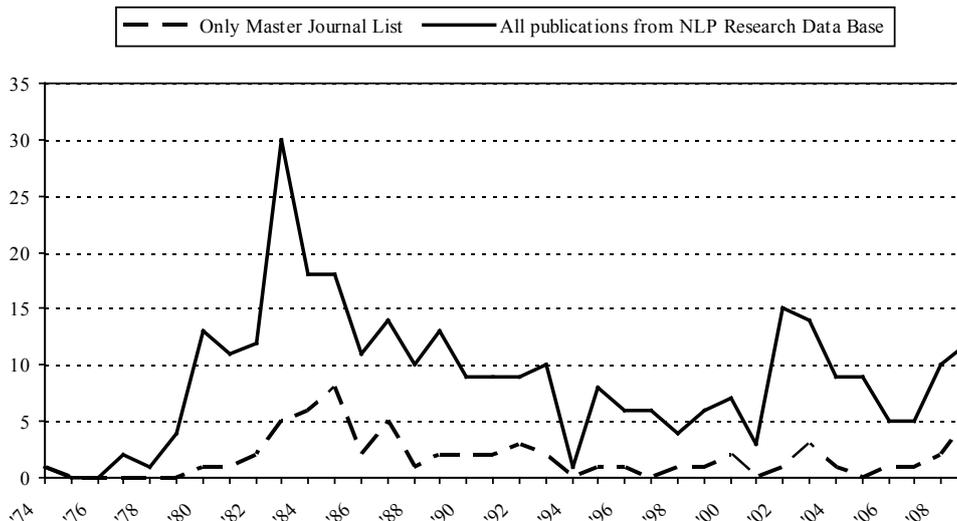
Figure 1. Number of all publications included in NLP Research Data Base in individual years as against the number of studies of Master Journal List.

immense popularity in the period directly following the formulation of its empirical underpinnings in the seventies of the 20th century. In the subsequent years the research interest in NLP was decreasing. The bottom diagram shows the Master Journal List publications exclusively. Activity of researchers having their studies published in renowned magazines was proportional to the entire sample.

The sample of 63 studies selected for further analysis included articles published in 30 different magazines. Below is a breakdown of the number of articles published in individual magazines.

Journal of Counseling Psychology	12
Perceptual and Motor Skills	10
Psychological Reports	6
Professional Psychology: Research and Practice	4
Psychological Bulletin	3
American Journal of Clinical Hypnosis	2
International Journal of Clinical and Experimental Hypnosis	2
Psychological Science	2
American Journal of Family Therapy	1
Anaesthesia	1
Assessment and Evaluation in Higher Education	1
Brain and Cognition	1
British Journal of Clinical Psychology	1
European Psychologist	1
Gerontologist	1
International Journal of Hospitality Management	1
International Journal of Language and Communication Disorders	1
Journal of Abnormal Psychology	1
Journal of College Student Development	1
Journal of Consciousness Studies	1
Journal of Consulting and Clinical Psychology	1
Journal of Marital and Family Therapy	1

Journal of Multicultural Counseling and Development	1
Journal of Nonverbal Behavior	1
Journal of Social Psychology	1
Management Decision	1
Neuropsychologia	1
Psychosomatics	1
SA Pharmaceutical Journal	1
Total Quality Management and Business Excellence	1

This high number of magazines may be treated as indirect verification of the reliability of the gathered empirical evidence. It will be difficult to maintain that one of the magazines or a group of them was biased in favor of NLP or that their activities were aimed at deprecating the concept. It should also be emphasized that the thematic scope of the magazines, which published the studies devoted to NLP was very wide indeed.

I put the selected sample of articles through a qualitative analysis, as a result of which three categories of studies emerged:

1. Thirty-three empirical articles, which tested the tenets of the concept and/or the tenets-derived hypotheses.
2. Fourteen articles comprising polemics, discussions, case analyses, or empirical works in which NLP represented little significant aspect etc. that is studies of no empirical worth from the point of view of my analysis.
3. Sixteen works having nothing in common with the NLP concept, available in the base most likely by chance or due to other reasons that were unknown to me.

The first category is a subject of a more detailed quantitative and qualitative analysis presented in the subsequent part of this article.

The second category comprises such studies as, for instance, a phenomenological account of the first author of horse riding lessons (Mathison & Tosey, 2008), a discussion

Table 1
Number of articles published in individual magazines and their weight.

Magazine	Cat. 1	Cat. 2	Cat. 3	Weight
Journal of Counseling Psychology	-	8	3	15
Perceptual and Motor Skills	1	5	2	10
Psychological Reports	3	-	1	10
American Journal of Clinical Hypnosis	1	-	-	15
International Journal of Clinical and Experimental Hypnosis	-	1	-	24
Psychological Science	-	1	-	24
British Journal of Clinical Psychology	1	-	-	24
Journal of Abnormal Psychology	-	1	-	24
Journal of Consulting and Clinical Psychology	-	1	-	24
Journal of Multicultural Counseling and Development	1	-	-	10
Journal of Social Psychology	-	1	-	15
Neuropsychologia	1	-	-	24
Total Quality Management and Business Excellence	1	-	-	10

Note. Cat. – category. Weight – based on the scoring system of the Polish Ministry of Science and Higher Education allowing for the impact factor of individual magazines.

of the application of lateral concepts in the new millennium (Corballis, 2000), an analysis of a new therapy carried out by Virginia Satir (Woods & Martin, 1984), an analysis of 2 cases of rape victims (Koziey & McLeod, 1987), an analysis of a case of recovering from clinical depression (Hossack & Standidge, 1993) and many other (Davis & Davis, 1983; Beck & Beck, 1984; Yapko, 1984; Einspruch & Forman 1985; Dailey, 1989; Peterson-Cooney, 1991; Adler, 1992; Witt, 2003; Brown, 2004). Accepting the analyzed sample as 100%, the articles on NLP, which proved to be useless for the purpose of empirical analysis, represented 22.2%.

I found the third category puzzling. It encompassed, inter alia, an essay on changes in Soviet psychology on the path of perestroika (Gindis, 1992), social and ethical limitations of psychology (Drenth, 1999), intuition (Lieberman, 2000), mimicry (Lakin, Jefferis, Cheng & Chartrand, 2003; Stel, Dijk & Olivier 2009), status of the pharmacists (White, 2009), application of alternative therapies to children with dyslexia (Bull, 2009) and many others (Norcross & Prochaska, 1983; Malloy, Mitchell & Gordon, 1987; Karniol, 1995; Starker, Pankratz, 1996; Norcross, Hedges & Prochaska, 2002; Cullen & McLaughlin, 2006; Boden & Giaschi, 2007; Abramowitz & Lichtenberg, 2009; Cyna, Andrew & Tan, 2009). Articles not related to the NLP concept account for as much as 25.4%. What is interesting, articles from this category represented an insignificant share in the eighties of the 20th century, which increased gradually towards contemporary times.

Studies published in magazines of the Master Journal List of Institute for Scientific Information in Philadelphia constitute the essence of the empirical material with reference to NLP. There were as many as 33 such papers representing 52.4% of the selected sample. The qualitative analysis allowed me to single out the following subcategories:

1. Nine works supporting the NLP tenets and the tenets-derived hypotheses (27.3%).
2. Eighteen works non-supportive of the NLP tenets and the tenets-derived hypotheses (54.5%).
3. Six works with uncertain outcomes (18.2%).

Sources of individual articles and the number of articles of individual categories published therein are shown in Table 1.

Not to be satisfied with the quantitative indicators of the published articles only, in the last column of Table 1, I present the scoring taken from the list of scientific journals available from the Polish Ministry of Science and Higher Education. The scoring allows for the impact factor of individual journals and constitutes the basis for the assessment of the worth of the scientific output of researchers in Poland. Totaling up points received for individual publications will provide a better illustration of their weight. If it is assumed that all those papers were written by one scientist, in Poland they would have been given 479 points (100%), i.e. 123 points (25.7%) for the NLP supportive articles, 281 points (58.6%) for the studies challenging the tenets of the concept, as well as 75 points (15.7%) for the works showing uncertain outcomes. As it appears, after this conversion the significance of the studies with negative outcomes increased as against the ones with positive results.

The present analysis is my second performed on the database in question. A similar one four years earlier in December 2005 and published the findings in 2006 (Witkowski, 2006). The base has been considerably expanded since then. In 2005 it had 180 studies published in the years 1977-2005. At present the base covers the 1974-2009 period. This does not mean however that more than 100 papers on NLP were written throughout the last four years. The analysis of the base contents indicates that it has been supplemented with an additional one study from 1974, thus increasing the number of works in the years 1977-2005 by 107 entries, and 31 articles published in the

years 2006-2009. Some works have also been removed from the base, i.e. one entry from 1977, two from 1987, one from 1994 and one from 1997.

Qualitative analysis

The numbers indicate unequivocally that the NLP concept has not been developed on solid empirical foundations. Less than one-third of the analyzed works shows supportive evidence, more than a half – non-supportive, and the remaining papers - uncertain results and doubts. But let's move beyond the mere numbers. *Argumenta ponderantur, non numerantur* - the force of the arguments lies in their weight, not numbers. It is often the case that one study weighs as much as a number of others. Some works verify basic assumptions of a theory, others only a less significant aspect of the problem.

The studies reporting outcomes, which I rated as supportive of the concept tested its basic assumptions in a very small number. In this respect, the study by Kinsbourne (1974) is exceptional as it tested the hypotheses concerning eye movements, as well as Yapko's experiment (1981) revealing that the matching primary representational system had a positive influence on the depth of hypnotic relaxation as compared with the control group. Dooley and Farmer's study (1988) may also be possibly classified into this category.

A high number of the remaining papers in this category lacked control groups. Most frequently only the initial and final measurements of the same group of subjects were taken. This was the case with the research of Duncan, Konefal and Spechler (1990), who provided 21-day residential training to a group of subjects, and then compared the pre-training and post-training status based on self-actualization measures of the Personal Orientation Inventory. Two years later Konefal, Duncan and Reese (1992) carried out almost identical research. The 21-day training was also provided, and this time the authors measured changes in trait anxiety and locus of control. In the subsequent research performed under a similar procedure and without a control group either, Konefal and Duncan (1989) measured changes in social anxiety. Studies on the application of NLP by employees of Southern India companies were conducted without any control group (Singh & Abraham, 2008), and so were studies on the application of NLP for treating post-traumatic stress disorder (Muss, 1991). The latter work from this category showed positive effects of neuro-linguistic mirroring in cross-cultural counseling (Sandhu, Reeves & Portes, 1993).

It is most likely that any type of intensive 21-day effort undertaken on self-development, based on any concept, would result in similar changes as those measured in the quoted research. The placebo effect is relatively frequent both in therapy, as well as in other forms of social influence

Similarly, it is difficult to state whether positive effects of mirroring resulted from application of a specific NLP technique or from the necessity to put more focus on observation of the interlocutor, which in turn, was positively evaluated by them.

With respect to the category of non-supportive articles, the majority of studies concerned the basic NLP tenets. Several works were devoted only to tests of the eye movement hypothesis (Thomason, Arbuckle & Cady, 1980; Farmer, Rooney & Cunningham, 1985; Poffel & Cross, 1985; Burke et al., 2003). They all provided unequivocally negative results. The preferred modality was researched into by Gumm, Walker and Day (1982), and also by Coe and Scharcoff (1985). In both cases the results did not support the neuro-linguistic programming theory.

Other studies tested NLP tenets in a more complex manner, investigating several hypotheses in one study. Fromme and Daniell (1984) researched into the imagery and sensory mode, as well as communication. They were unable to find any support for the NLP-derived hypothesis that subjects showing differential ability across sensory modes would choose word phrases reflecting their preferred sensory mode. No support was found for the NLP-derived hypothesis that subjects matched for visualization ability would communicate information more accurately than would mismatched subjects.

Elich, Thompson and Miller (1985) tested claims that eye movement direction and spoken predicates are indicative of sensory modality of imagery. Again, these tests did not find any support for NLP-derived hypotheses.

Graunke and Roberts (1985) tested the impact of imagery tasks on sensory predicate usage. The findings proved to be incongruent with R. Bandler and J. Grinder's conceptualization of representational systems.

Particular attention should be given to two reviews of research (Sharpley, 1984; 1987). In the first, the authorcarried out a thorough analysis of 15 other research studies. What is interesting, as many as 11 of these works are not available in the database in question. A few conclusions from that review are worth quoting:

(...) the identification of this PRS (if it is a PRS and not merely current language style) by either eye movements or self-report is not supported by the research data. (...) The existence or stability of the PRS is irrelevant to predicate matching as a counseling process, and parsimony argues for the process rather than the yet unverified theory. (...) Of most importance, there are no data reported to date to show that NLP can help clients change. (p. 247)

The second review (Sharpley, 1987) is even more conclusive. It was written as a response to a critical paper by Einspruch and Forman (1985), in which the authors analyzed 39 studies devoted to NLP indicating methodological errors and a lack of sufficient knowledge

about the theoretical underpinnings of NLP demonstrated by authors thereof. Sharpley took into account works analyzed by Einspruch and Forman, expanded that sample with seven additional ones and performed an analysis similar to mine, reviewing 44 studies (of which two are not included in the base either). Six papers (13.6%) provides evidence supportive of NLP-derived theses, 27 (61.4%) failed to lend support for the NLP tenets, and 11 (25%) shows only partial support. The author investigated all available works starting from the doctoral dissertations to those published in high scoring magazines. This is how he summed up his review:

There are conclusive data from research on NLP, and the conclusion is that the principles and procedures suggested by NLP have failed to be supported by those data. (p.105) Certainly research data do not support the rather extreme claims that proponents of NLP have made as to the validity of its principles or the novelty of its procedures. (p. 106)

The subsequent three studies referred to the influence of counselors' or therapists' predicate matching on the effectiveness of their actions and quality of rapport (Dowd & Pety, 1982; Dowd & Hingst, 1983; Ellickson, 1983). None provided support for NLP-derived predictions.

Studies on the effectiveness of specific therapeutic techniques failed to support the NLP tenets, too. Krugman, Kirsch and Wickless, (1985) tested Bandler and Grinder's claim for a single-session cure of anxiety. They did not find support for this claim. Similarly, Matthews, Kirsch and Mosher (1985) tested the effectiveness of double hypnotic induction. Comparison of the experimental group against the control group did not support the hypothesis. In addition, application of pacing and metaphor to overcome client resistance did not support the Bandler and Grinder's claims (Dixon, Parr, Yarbrough, Rathael, 1986).

Additionally NLP proved to be of little use as a method of enhancing human performance considered by the US Army (Swets & Bjork, 1990). "The conclusion was that little if any evidence exists either to support NLP's assumptions or to indicate that it is effective as a strategy for social influence." (p. 90)

The third category comprised six studies with uncertain results. Mercier and Johnson in their research (1984) managed to obtain limited support for NLP theory, with much data contrary to the theory. The same was the case with research by Hammer (1983) on matching perceptual predicates. The findings created more doubts than conclusive data as to perceptual predicates. The researchers studying eye movement as an indicator of sensory components in thought Buckner and Mera (1987) found support for the visual and auditory portions of the model, but the kinesthetic portion was not supported. A similar partial support for the hypothesis that eye movements relate to processing imagery was found in the research by Wertheim, Habib and Cumming (1986).

Other research was carried out based on the assumption that the NLP tenets were true and tested. The examination by Durand, Wetzel and Hansen (1989) may serve as an example here with the researchers analyzing the content of written statements, telephone communications and electronic mail messages in terms of the occurrence of sensory predicate by means of computer software. Similar procedures were followed in other research (Wilbur and Wilbur, 1987).

Discussion

Among the studies classified as NLP supportive, there was none to indicate in unequivocal terms the existence of different representational systems. Similarly, there was no support found for the claim that subjectswere using primarily one predominant representational system in different life situations. Apart from one study (Yapko, 1981) there is no strong evidence that matching the primary representational system brings beneficial effects in communication and therapy. Two studies supporting some claims for eye movements should be replicated in order to treat their outcomes as supportive of for the hypotheses. Moreover, there are no more extensive and comprehensive research reviews. The only one which might be regarded as such, (Einspruch & Forman 1985) constitutes criticism of the available papers and it does not provide any data to support the NLP tenets. The analyzed works show numerous methodological errors and shortcomings, such as the lack of control groups, and only one research hypothesis being tested or one factor measured.

The studies classified into the non-supportive category are marked by a much higher methodological level. The majority allowed for the comparison against control groups, provided measurement of a number of variables, and used a higher number of indicators. Among the studies are two articles offering extensive and high quality research of research. Most results of research from this category were replicated.

Comparison of both categories both in terms of quantity and quality unequivocally indicates the predominance of articles that do not lend support for the NLP tenets, with the ratio of non-supportive to supportive of 3:1. When evaluating the whole empirical research output devoted to NLP, one should also consider the file drawer effect (Rosenthal, 1979). According to it, the NLP supportive studies should have a greater chance for publication then those showing lack of support. It may be easily assumed that a part of the studies that did not find any support for the NLP hypotheses was filed away by researchers.

Review of the articles issued in sources other than those from the Master Journal List indicate the existence of many review works showing the lack of any NLP underlying

principles as well. Two of them are worth mentioning. Heap (1988) analyzed 63 studies and concluded thatthe assertions of NLP writers concerning representational systems have been objectively and fairly investigated and found to be lacking. In consequence the hypothesis about the possibility to identify PRS through careful observation of eye movements was not confirmed either. In Heap's view, these conclusions, and the failure of investigators to convincingly demonstrate the alleged benefits of predicate matching seriously question the role of such procedure in counseling. Dorn, Brunson, Bradford and Atwater (1983) also concluded from their review of the literature that there was no demonstrably reliable method of assessing the hypothesized PRS.

While conducting my analysis I noted a certain historical aspect of NLP supportive research. As I realized, most of the research was carried out in the 1980s and partially in the 1990s. In the subsequent years, the number of such research studies decreased and they concerned secondary aspects of the concept or were performed based on the assumption that the fundamental principles of NLP are true. The world of science was apparently losing its interest in the concept of Bandler and Grinder, having confronted it with the research findings. The concept's proponents lacked motivation to undertake any type of research into, for instance, the effectiveness of its methods.

Another facet, which is worth discussion and that emerged during my analysis is the matter of investigating how the data base is utilized by its administrators, as well as its users. The base is commonly invoked by NLP followers and indicated as evidence for the existence of solid empirical grounds of their preferred concept. It is most likely that most of them have never looked through the base. Otherwise, they might have come to the conclusion that it provides evidence to the contrary – for the lack of any empirical underpinnings. Moreover, they not only fail to browse through the database, dare I say, but they also do not read articles available therein. Reading of two review papers (Sharpley, 1984, 1987) would enable them to first discover that the base lacks as many as 13 entries and then to update it. Fortunately for the present analysis, the missing 12 entries are not included on the Master Journal List.

The number of theoretical studies in the base, such as polemics, dissertations, and discussions is so high that referring to it as to the Research Data Base is considerable misinterpretation as well. What is even stranger is the fact that works completely unrelated to NLP are added to the base. While reading such articles I strengthened my belief that it was only due to some single key words that the NLP related status of those papers was approved. This gives rise to the suspicion that even the database administrators do not read articles, not to mention the abstracts.

All of this leaves me with an overwhelming impression that the analyzed base of scientific articles is treated just as theater decoration, being the background for the pseudoscientific farce, which NLP appears to be. Using "scientific" attributes, which is so characteristic of pseudo-science, is manifested also in other aspects of NLP activities. It is primarily revealed in the language – full of borrowings from science or expressions referring to it, devoid of any scientific meaning. It is seen already in the very name – neuro-linguistic programming - which is a cruel deception. At the neuronal level it provides no explanation and it has nothing in common with academic linguistics or programming. Similarly impressive sounding and similarly empty are expressions used for formulation of tenets of the concept, such as sub-modalities, pragmagraphics, surface structure, deep structure, accessing cue, and non-accessingmovement.

My analysis leads undeniably to the statement that NLP represents pseudoscientific rubbish, which should be mothballed forever. One may even come to believe that my analysis was a vain effort after all. It yielded the same conclusions as the ones arrived at by Sharpley (1984, 1987), Heap (1988) and others. Without doubt, NLP represents big business offering and tempting people with amazing changes, personal development and, what is worst, therapy. In this respect the analysis is an update of the state of knowledge on the subject by reviews published in the period after the latest analyses. Furthermore, is also provides arguments sufficient to answer the following ethical question: Is using and selling something non-existent and ineffective ethical?

The response will surely be similar to the statement given once by Einspruch and Forman (1985) – the effectiveness of NLP therapy undertaken in authentic clinical contexts bytrained practitioners has not yet been properly investigated. Additionally we will certainly be told that NLP works and this should be sufficient reason to use it. Nevertheless, the burden of proof with respect to finding evidence of the effectiveness of the NLP therapy lies on proponents, not skeptics. Here I would like to refer to the statement expressed by O'Donohue and Ferguson (2006), who propose that each type of therapy that does not have empirical supportive evidence of its effectiveness should be called experimental. They also put forward a suggestion that each case of performing such therapies without informing the clients about its experimental status should be referred to and treated as criminal activity. I fully agree with this view. We do not even imagine pharmaceutical concerns marketing medicines whose side effects are uncertain or unknown, yet we allow any psychotherapy to be practiced, in many cases – without any relevant research.

If the NLP assertions on the existence of PRS as well as on the possibility to enhance communication just through matching proved to be true, it would revolutionize neurosciences, cognitive psychology and some other disciplines. If the NLP claims on the instant effectiveness of

the proposed therapies proved to be true, the entire area of psychotherapy would turn upside down and research reports with respect to the effectiveness of therapy would have to position the NLP therapy at the top. Nothing like this is taking place. Instead we find NLP on the list of discredited therapies. Norcross, Koocher and Garofalo (2006) sought to establish consensus on discredited psychological treatments and assessments using Delphi methodology. A panel of 101 experts participated in a 2-stage survey, reporting familiarity with 59 treatments and 30 assessment techniques and rating these on a continuum from *not at all discredited* (1) to *certainly discredited* (5). Neuro-linguistic Programming for treatment of mental/behavioral disorders averaged 3.87 (SD=0.92).

Conclusions

The analysis of the NLP Research Data Base (state of the art) by all measures was like peeling an onion. To reach its core, first I had to remove some useless layers, and once I arrived, I was close to tears. Today, after 35 years of research devoted to the concept, NLP reminds one more of an unstable house built on the sand rather than an edifice founded on the empirical rock. In 1988 Heap passed a verdict on NLP. As the title of his article indicated, it was an interim one. In the conclusions he wrote:

If it turns out to be the case that these therapeutic procedures are indeed as rapid and powerful as is claimed, no one will rejoice more than the present author. If however these claims fare no better than the ones already investigated then the final verdict on NLP will be a harsh one indeed (p. 276).

I am fully convinced that we have gathered enough evidence to announce this harsh verdict already now.

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