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ORIGINAL ARTICLE

Effect Of Neuro Linguistic Programming Strategies In Physics On Higher Secondary Achievement

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Abstract:

This paper explores the effect of Neuro-Linguistic Programming in physics on achievement of higher secondary students. Neuro-Linguistic Programming, or NLP as it is more familiarly known, provides a powerful decoding mechanism for the way people speak, write and behave. Its purpose is to remove blockages and enable results-orientated change through better interaction with other people. This study is carried out on a representative sample of 96 higher secondary school students of class XII. For measuring the dependent variable the investigators developed and standardized an achievement test in higher secondary physics. The design employed in this study is pre test post test nonequivalent group design of quasi experimental research. The result revealed that NLP strategies are effective in improving the physics achievement scores of class XII students. This finding has considerable implications for the students, teachers, adolescents, parents, and for the society at large.

KEYWORDS:

Neuro-Linguistic, physical,Gregory Bateson ,Neuro ,NLP.

INTRODUCTION:

Science is a human endeavor. Science being the never ending attempts of man to know, it is very crucial to have man making strategies in science also. Education in science serves three purposes. First, it prepares students to study science at higher levels of education. Second, it prepares students to enter the workforce, pursue occupations, and take up careers. Third, it prepares them to become more scientifically literate citizens. The relative priority and alignment of these three purposes varies extensively across countries and cultures. Regardless of the setting, a sound education in science emphasizes that science is both a way of knowing and a body of knowledge. To impart science education there should be competent and resourceful teachers. The best teachers always retain their students' attention and find ways to create a positive learning environment. Neuro-Linguistic Programming is one such attempt towards the creation of positive learning environment.

NEURO LINGUISTIC PROGRAMMING

Neuro-Linguistic Programming was invented by two academics in the early 1970s. It was the brainchild of John Grinder, a professor of linguistics, and Richard Bandler, who studied psychology and psychotherapy. Neuro-Linguistic Programming developed from Grinder and Bandler investigating the work of outstanding therapists with a view to passing on their wisdom and techniques to others. It also included the study of hypnotherapy as a powerful tool in observing and resolving hidden psychological issues in people needing help. The 'Neuro' in the name refers to the use of our senses in assessing people and

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things around us. The 'Linguistic' self evidently relates to use of language, and 'Programming' is about the adjustments we make in order to succeed in our goals. Since its beginning it has been moved forward and developed by many different practitioners, and its use in education is well documented. The title, `Neuro-Linguistic Programming', refers to the view that a person is a whole mind-body system, and that there are assumed to be systematic, patterned connections between neurological processes. The term 'neuro-linguistics' was first used, we believe, by Alfred Korzybski in 1941.

Neuro-Linguistic Programming has been defined in various ways, and agreement on a singular definition is likely to prove elusive. Its promotional literature often emphasizes the notion of excellence in communication. A common alternative definition is the study of the structure of subjective experience.

Neuro-Linguistic Programming can be seen as a technology, a methodology, and an epistemology. As a technology, Neuro-Linguistic Programming comprises a substantial collection of frameworks, tools and techniques, some specific to Neuro-Linguistic Programming and some borrowed or adapted from other fields. These are presented in numerous popular publications. Neuro-Linguistic Programming, or NLP as it is more familiarly known, provides a powerful decoding mechanism for the way people speak, write and behave. Its purpose is to remove blockages and enable results-orientated change through better interaction with other people. NLP is practiced on five continents, hundreds of books have been written about it and hundreds of thousands of people have qualified as practitioners. Despite its exceptionally powerful attributes, it suffers, notably in the boardroom and other business environments, through having developed an exclusive vocabulary of its own. As a relatively new area of study, it was no doubt necessary to give it its own structure and culture, but now it represents far too useful an opportunity to be limited in use by its own language. There are different strategies used in NLP for different people having different personality types.

NEED AND SIGNIFICANCE OF THE STUDY

Neuro-Linguistic Programming has endured for more than thirty years. It is a field of practice and innovation with a wide range of tools and techniques that learners and professional educators can apply within both formal and informal educational settings. The distinctive contribution of NLP may lie in its applied methodology, known as modeling. While NLP is eclectic, its world view is fundamentally systemic and constructivist. It is a contested field, and there is a need for contemporary research to evaluate its claims and practices.

Neuro-Linguistic Programming is a field of study that attempts to build a set of transferable skills by programming the unconscious mind. NLP is a collection of models, tools and techniques that enable its practitioners to communicate more effectively, achieve excellence in their chosen field, overcome performance-limiting behaviours, program their unconscious mind, and program them to improve performance and results. NLP is a therapeutic technique to detect and reprogram unconscious patterns of thought and behavior in order to alter psychological responses. The basic principle of NLP is that it is in an individual`s power to change their own subconscious programming for the better. There is a strong emphasis in NLP on understanding the structure rather than the content of experience (Bandler and Grinder, 1975)

The pragmatic, theoretical stance espoused by the founders appears to have left a legacy of little engagement between practitioner and academic communities. The academic literature on Neuro-Linguistic Programming is sporadic, scattered across several fields. Research into NLP is also thin so far, dominated by a number of experimental studies from the 1980's and 1990's that focused on two particular NLP frameworks. It was concluded that those studies failed to support the two frameworks in question, though the status and validity of the studies that reviewed is disputed.

There is growing contemporary interest in research among NLP practitioners and in identifying the relevance of recent work in disciplines such as cognitive linguistics and neuroscience (Rizzolatti, Fogassi, & Gallese, 2001). Issues of ethics in the field are also important to address. NLP is adequate for people of all ages, but it has special significance in case of adolescence. Erick Erickson asserted that the essential problem of adolescence is discovering ones identity amid the confusion of playing many different roles for different audiences in an expanding social world. Resolving these social problems of identity helps the individual to develop a sense of coherent self. Resolution of this issue is both a personal and a social experience. Education has a lot to do with these issues of adolescence.

Today's science teaching is mainly focusing on the performance of the students in the achievement tests, rather than mastery of the concepts. Most of the methods in Science Teaching are focusing on the concept attainments rather than their application in the real life scenarios. The life skill development was ignored wither deliberately or unknowingly. But the contemporary competitive social scenario need not well qualified but well mould individuals. Being the king of science, Physics teaching also need the same vigor to prepare well built individuals to cope up with stress driven day to day life.

Many reviews of related literature show a positive correlation between NLP and academic achievement especially in case of foreign studies. But there is no such study conducted in the educational scenario in Kerala. Moreover that the investigators were working as teachers for several years and felt that there is a need for the development of new teaching strategies like NLP. With their experiences the investigators were motivated to carry out this study namely "Effect of Neuro Linguistic Programming strategies in Physics on higher secondary achievement."

SCOPE AND LIMITATIONS OF THE STUDY

The investigators realized that the method of NLP can build confidence and can motivate the children of higher secondary level. This method can develop thinking and reasoning power. It can also make the child creative. The achievement of children can be considerably improved by using NLP techniques.

The present study investigates the effect of Neuro linguistic programming strategies in physics on Achievement of higher secondary students with respect to personality types. Because such studies have not yet been conducted anywhere and it is a felt problem of the investigators also, the investigators decided to undertake this study among higher secondary school students. Significance of such a study in this present context is very high. The investigators felt that this study would be a great help to the practicing teachers and curriculum framers.

It was expected that the findings of the present study will help the curriculum framers and those who are connected with the educational field to understand the effectiveness and necessity of the application of the new strategies based on NLP in the teaching of physical science concepts, and to make teaching learning process more meaningful and interesting, thus to address their life skills and higher order thinking skills.

It would provide a broad development perspective to the educators for building a curriculum for the higher secondary students and help teachers to understand and use different teaching methods related with NLP in their classroom.

The following were the limitations of the present study:

1.The investigators had to limit the study to 12th standard children, since it is the part of the Ph.D programme.
2.Study was limited to Thrissur district of the Kerala state, India as the investigators hails from the same district.
3.Though there were number of other factors influenced by NLP, the investigators selected only one variable, say, achievement in physics as the investigators subjects specialization are physics and education.
4.Due to the time constraint, study was confined to boys.
5.Only two units of the content were selected for teaching due to the lack of time.
6.The complete equivalence of the groups was not assured as the study deals with students.
Even with these limitations researcher hope that the findings of the study would help to realize the appropriate way to make teaching of physical science in our class room effective by using Neuro Linguistic Programming.

OBJECTIVES

To determine the effect of Neuro Linguistic Programming strategies on the Physics achievement of higher secondary students belonging to experimental and control group.
To find out the difference of Neuro Linguistic Programming strategies on the physics achievement scores of extrovert and introvert higher secondary students.

HYPOTHESIS

There is a significant difference in the physics achievement of higher secondary students belonging to experimental and control group before and after the intervention.
There is a significant difference in the physics achievement scores of extrovert and introvert higher secondary students after the intervention.

METHODOLOGY

The study employs pre test post test non equivalent groups design of quasi experimental method. Teaching strategies are treated as the independent variables which involve Neuro linguistic programming strategies and lecture method and Achievement as the dependent variable. Age, non verbal intelligence and sex were taken as the control variables and personality type, namely, extrovert and introvert are the classificatory variables. Purposive sampling technique was used for selecting the sample. Higher secondary students of Class XII of SRKGVMHSS Puranattukara were taken as the sample for the study, which is representative sample of the higher secondary school students' population. Random assignment of subjects to experimental group and control group and also random assignment of treatments to the groups were done. The pre test was conducted in both the groups before the intervention and post test was conducted after the intervention. The experimental group was taught Physics using NLP strategies and the control group was taught the same topics in Physics through the lecture method.

The following tools and materials were used in the present study by the investigators.

Kundu introversion extroversion inventory (K.I.E.I).
Ravens progressive matrices of non verbal intelligence.
Test of achievement prepared by the investigators.
Lesson transcripts based on NLP strategies.
Lesson plan based on Lecture method.

The statistical procedures used in the study are the descriptive statistics and inferential statistics. For preliminary analysis of the data statistics like mean, median, mode, standard deviation, skewness and kurtosis were used. Inferential statistics like independent sample t test, ANOVA and ANCOVA were also used in this study.

ANALYSIS AND INTERPRETATION OF DATA

For statistical analysis the above hypotheses are restated in the null form. It was hypothesized that there is no significant difference in the physics achievement of higher secondary students belonging to experimental and control group before and after the intervention.

Table 1 Comparison of the difference between the means of pre test scores of achievement in physics of experimental and control groups

Group	No. of pupils	Mean	Standard Deviation	Critical Ratio	Level of Significance
Experimental Group	48	9.40	4.41	1.15	P>.05
Control Group	48	10.50	4.95		

From the table 1 it is clear that the pupils of the two groups do not differ significantly in their initial academic achievement, which is before the experiment, the two groups are more or less same in academic ability. But still there is slight difference between the means of the pre test scores of the two groups. This necessitates the adoption of Analysis of Co variance technique to compare the performance of the experimental group and control group.

Table 2 Comparison of the difference between the means of post test scores of achievement in physics of experimental and control groups

Group	No. of pupils	Mean	Standard Deviation	Critical Ratio	Level of Significance
Experimental Group	48	34.06	5.21	4.16	p<.01
Control Group	48	28.06	7.46		

From the table 2 it is clear that there is a significant difference between the means of the post test scores of pupils in the experimental and control groups. That is after the experiment, the pupils of the two groups differ significantly in their academic achievement.

Table 3 Summary of ANOVA of pre test (X) and post test (Y) scores of pupils in Experimental and Control groups, taken separately

Sources of Variance	Df	SS_x	SS_y	MS_x (V_x)	MS_y (V_y)
Among Means	1	29.26	715.04	29.26	715.04
Within the Groups	94	2067.47	3890.29	21.99	41.39
Total	95	2196.73	4605.33	-	-

F_x - 1.33
F_y - 17.28
From the table, for df - 1/95
F at .05 level - 3.95
F at .01 level - 6.92

The obtained Fx and Fy ratios were tested for significance. The table value of F ratio for df 1/95 is 3.95 at .05 level. The calculated value of Fx is 1.33, it is not significant even at .05 level (Fx = 1.26; p>.05). The pre test scores (X) falls far short of significance even at .05 levels when F test is applied. It shows that the means of pre test scores do not differ significantly. Thus the investigator was quiet successful in getting random samples in experimental and control groups.

The table value of F ratio of final scores (Y) for df 1/95 is 6.92 at .01 level. So the value of Fy obtained (Fy = 17.28; p<.01) is significant at .01 level. This indicates that there is significant difference in post test between the performance of pupils in experimental and control groups. The final (Y) scores were corrected for differences in initial (X) scores. For that, the SSy have been adjusted for any variability in Y contributed by X. The adjusted sum of squares of Y, that is SSyx, were computed and the F ratio (Fyx) was calculated. The summary of Analysis of Covariance of pre test and post test scores of pupils in experimental and control groups is given in Table 4.

Table 4 Summary of ANCOVA of pre test and post test scores of pupils in Experimental and Control Groups

Sources of Variance	df	SS_x	SS_y	SS_{xy}	SS_{yx}	MS_{yx}	Sd_{yx}
Among the groups	1	29.26	715.04	29.26	715.04	913.88	5.49
Within the groups	94	2067.47	3890.29	22.23	41.83	214.50	
Total	95	2196.73	4605.33	125.91	502.22		

F_{yx} = 913.88/5.49 - 166.46
From the table, for df - 1/95
F at .05 level - 3.95
F at .01 level - 6.92

The obtained Fyx ratio was tested for significance. Since the table value of F ratio for df 1/95 is 6.92 at .01 level, the calculated value is highly greater than the table value. Thus the obtained Fyx ratio is highly significant (Fyx =166.46; p<.01). It is clear from the significant Fyx ratio that the two final means which depend upon the experimental and control variables differ after they have been adjusted for initial difference in the pre test scores.

Table 5 Comparison of data for Adjusted Means of post test scores of pupils in Experimental and Control group

Groups	N	M_x	M_y	M_{yx}(Adjusted)
Experimental group	48	9.58	34.06	533.75
Control group	48	10.5	68.65	68.16
General means	96	10.04	51.35	-

SE_m between the adjusted means - 0.45
F = 48.17
for df = 95 ,from the table for critical value of F, we have,
F at .05 level = 3.95
F at .01 level = 6.92

The F value obtained was 48.17 and the table value of t for significance for df=95 is 6.92 at .01 level. Therefore, the obtained value is significant at .01 level of significance. The significant F value leads to the conclusion that the two means differ considerably. This implies that the experimental group and the control group differ significantly in their achievement.

From the table, df - 1/95
t at .05 level - 3.95
t at .01 level - 6.92
Minimum difference required for significance,
Significant difference at .05 level - 1.58
Significant difference at .01 level - 2.77
Obtained difference = 465.59

The difference between the adjusted means of post test scores of pupils in the experimental and control groups were tested for significance. The significant difference between the adjusted Y means calculated is 1.58 at .05 levels and 2.77 at .01 levels. Since the difference between the adjusted Y means at .01 level is greater than the significant difference at .05 level, it is highly significant.

The significant difference between the adjusted Y means indicated that the pupils of experimental and control groups differ significantly in their achievement in the post test. Since the adjusted means of post test scores of pupils in the experimental group is superior to the control group in academic achievement, it could be concluded that when initial differences are allowed for, use of NLP based instructional package for teaching Physics makes significant changes in final (post test) scores. Thus the pupils taught by NLP based instructional package have better academic achievement in Physics than those taught by lecture method.

Thus the hypothesis, that there is no significant difference in achievement in Physics of students belonging to experimental and control group before and after the intervention was rejected. Thus one can conclude that there is a significant difference in Physics achievement of students belonging to experimental and control group; experimental group students performs better than the control group students.

Another hypothesis stated in null form is that there is no significant difference in achievement score of extrovert and introvert student after the intervention. For the testing of hypothesis, t test was performed with the data of extrovert and introvert students.

Table 6 Personality Type wise N, Mean, SD and t values for physics achievement test

Personality Type	N	Mean	SD	't'
Extrovert	54	11.39	2.92	3.62**
Introvert	42	8.10	5.8	

** significant at 0.01 level

From the table 6 it is obvious that the t value 3.62 is significant at 0.01 level of significance. This indicates that, the extrovert students scored more in achievement test than introvert students. Thus the null hypothesis, that there is no significant difference in achievement scores of extrovert and introvert students after the intervention is rejected. Thus one may conclude that the extrovert students performed well in achievement test than the introvert students or NLP strategies in Physics influenced the achievement of students with respect to their personality type.

MAJOR FINDINGS OF THE STUDY

The present study was aiming to study the "Effect of Neuro Linguistic Programming strategies in Physics on higher secondary achievement". The data analysis shows that the NLP strategies positively influenced the students in improving their achievement in Physics. To be more specific theses strategies are effective in improving the physics achievement scores of class XII students. It may also be concluded that, the NLP strategies influenced the achievement scores in physics of the introvert and extrovert students. To be more specific extrovert students performed well in achievement test than the introvert students after the intervention.

RECOMMENDATIONS

The investigators believe that NLP is the next generation of psychology. It has been called the New Learning Paradigm and the New Language of Psychology. As a model of the structure of human experience, it may be as profound a step forward as the invention of language. At the very least it is a powerful process that will continue to generate ways of achieving excellent results in a wide range of different fields. Because it is about subjective experience and communication, it is in a sense about everything and nothing. Gregory Bateson described NLP as the first systematic approach to learning to learn; it is the first applied epistemology.

NLP, as the study of the structure of subjective experience, enables us to explore ourselves. For it is a study of how we make models. It does not take the models we have made and confuse them with reality. As a way of creating excellence it is infiltrating and influencing many fields. In a way, when this process is complete, NLP could cease to exist as a separate discipline. It would be assimilated into everyday life like the teacher who succeeds by making himself redundant, because his students can now learn for themselves.

NLP is part of a movement that is growing steadily stronger. It is a movement towards acting in the world more effectively, using the skills and knowledge that we have, with grace, wisdom and balance. We can learn much from the Balinese maxim, 'we have no art, we just do things as well as possible'.
One of the important function of education is the all round development of the children. Personality development of each individual is most important for the all round development of children. NLP can very well affect the personality structure of individuals so that personality development is the ultimate end of this strategy.

CONCLUSION

The present study was an attempt to shed light to a rarely explored area in education in the Indian scenario. As its first part, a thorough review of literature has done. A detailed methodology is presented as the next part. The data collected are analyzed and these are interpreted by using statistical techniques.

The study analyzed the effect of Neuro Linguistic Strategies on the higher secondary school teachers in regard with the personality type. This study found that NLP has significant effect on academic achievement as well as on the personality types. The study suggests for more comprehensive study in this field.

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