Pilot Study – Does NLP have a positive impact on self-esteem, self-efficacy, locus of control or optimism?

By Melody Cheal

I had the opportunity to work with a group to test out the hypotheses that NLP has an impact on factors such as self-esteem, self-efficacy, optimism and locus of control. The null hypotheses would mean there is no impact caused by the intervention.

The sample used for this small study were all self-selected participants on an NLP Practitioner programme. Their purpose in attending was two fold, personal development and to learn some techniques they could use to help other people. The programme was an intensive course of nine consecutive days. I have included an outline in the appendix to provide an overview of the topics covered. The final day of the programme includes an assessment of practical skills.

Each person completed four questionnaires on day one and then repeated the same questionnaires on the ninth day. The first was administered before teaching began and the final one on completion of input but before assessment.

I recruited a second group attending a "non-NLP" corporate training programme who completed the same questionnaires over the same time span to provide a control group. Both groups had similar backgrounds, gender, age and ethnicity.

The four measures used were the Generalised Self-Efficacy Scale (Schwarzer & Jerusalem 1995); Life Orientation Test-Revised (LOT-R) (Scheier, Carver & Bridges 1994); Rosenberg Self-Esteem Scale; and Brief Rotter's Locus of Control Scale (Lumpkin 1985).

The first questionnaire completed was the Generalised Self-Efficacy Scale (GSE) (Schwarzer & Jerusalem 1995). This is a ten item scale using a four point Likert scale ranging from (1) not true at all to (4) Exactly true.

A number of studies reviewed by Luszczynska et al (2005) have reported high reliability, stability and construct validity for the GSE scale. There is also supporting evidence that only one global dimension is being measured and it has been found to be configurally equivalent across twenty eight nations. In a review of literature Chen et al (2001) report that GSE has strong relationships with other constructs including self-esteem, locus of control and neuroticism. There have been challenges as to whether GSE is a construct distinct from self-esteem (Chen et al 2001).

The Life Orientation Test-Revised (Scheier, Carver & Bridges 1994) was developed to replace the earlier version (Scheier & Carver 1985). It has good internal consistency and is considered stable over time. One of the issues with the earlier version seems to have been overcome now that the positive and negative subsets have a better relationship. There is a continuous distribution of scores with only slight skewing towards optimistic (Carver and Scheier 2003). There is a possibility that the LOT-R is measuring two distinct dimensions, there are some biological explanations offered for this (Watson and Tellegen 1985 in Carver and Scheier 2003) that there is not space to explore further here. The LOT-R may be more a measure of trait than state optimism and pessimism (Burke et al 2000) so may not change over the course of this study.

The questionnaire itself has six coded items of which three are coded for optimism and three for pessimism and there are four filler items. The scoring uses a five point Likert scale ranging from strongly disagree to strongly agree.

The third scale used, the Rosenberg Self-Esteem Scale (Rosenberg 1965) is the most widely used measure for global self-esteem and it has high internal reliability (alpha 0.92) (Heatherton & Wyland 2003). It has been criticised because it may be measuring two separate factors, positive and negative (Carmines & Zeller 1974 in Heatherton & Wyland 2003). This has been countered with suggestions that wording of items may have caused this effect as both factors correlated very closely with a criterion variable in direction, consistency and strength suggesting that they are associated with the same general construct (Rosenberg 1979 in Heatherton & Wyland 2003). There is some evidence to suggest that a significant relationship exists between positive self-esteem and academic self-efficacy (Ang et al 2006).

The ten item scale contains five positively worded and five negatively worded items. A four point Likert scale is used ranging from 3 (strongly agree) to 0 (strongly disagree). Typical scores are around 22 with most people scoring between 15-25 (Heatherton & Wyland 2003).

The final scale used in this study was the Brief Rotter's Locus of Control Scale (Lumpkin 1985). It is a six item test with three items measuring internal and three measuring external locus of control. A five point Likert Scale is used ranging from (1) strongly disagree to (5) strongly agree.

A significant relationship has been reported between locus of control and GSE, for example people with an internal locus of control will attribute past successes to themselves and this in turn seems to boost GSE (Stanley & Murphy 1997). This relationship will not be explored in this study due to time constraints.

The raw data provided what appeared to be differences between the control and experimental groups and is shown in figure 1. The mean score of the repeated experimental group for self-efficacy was 35.5 (standard deviation 4.67) while the repeated measure mean for the control group was 30.2 (standard deviation 2.61. The experimental group had an increase of 7.1 while the difference for the control group was just 0.9. This seems to suggest that the NLP intervention had an impact on self-efficacy. As would be expected the raw data for self-esteem shows a similar pattern (experimental group increase between measures of 5.3 compared to 0.7 for the control group). There was also some suggestion of impact from the LOT-R scores with the experimental group mean increasing by 3.2 compared to just 1 on the control group. The raw scores for Locus of Control do not appear to indicate general impact.

Figure 1a: Raw data from experimental group.

Experimental Group															
Subject	Self-efficacy			LOT-R			Self-esteem			Locus of Control					
										Internal			External		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
1	30	33		27	24		22	26		11	9		7	8	
2	34	40		24	30		27	30		10	13		6	5	
3	30	40		26	29		22	30		11	15		3	8	
4	29	36		18	27		23	30		15	11		3	11	
5	25	31		18	19		10	11		11	10		11	11	
6	29	38	36	22	25	24	13	29	22	10	13	12	10	7	6
7	33	40		29	30		21	29		12	14		7	4	
8	31	38	35	20	26	21	29	28	30	11	10	12	8	8	9
9	26	26		19	16		10	8		11	12		7	9	
10	17	33	32	19	28	20	11	20	20	10	13	9	12	6	11
Mean	28.4	35.5		22.2	25.4		18.8	24.1		11.2	12		7.4	7.7	
Sd dev	4.86	4.67		4.05	4.67		7.18	8.29		1.48	1.94		3.03	2.31	

Figure 1b: Raw data from experimental and control groups.

Control Group															
Subject	Self-efficacy			LOT-R			Self-esteem			Locus of Control					
										Internal			External		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
1	33	35		21	21		25	23		12	12		7	6	
2	33	33		24	23		22	24		11	8		9	6	
3	32	31		19	21		20	25		7	10		9	6	
4	29	29		18	19		15	14		9	11		10	9	
5	29	32		19	19		21	26		11	13		7	6	
6	26	29		17	20		20	18		10	11		11	11	
7	26	26		18	22		17	18		11	11		9	9	
8	28	28		18	18		16	15		11	11		10	10	
9	28	29		18	17		20	21		12	11		6	5	
10	29	30		15	17		25	24		13	8		10	4	
Mean	29.3	30.2		18.7	19.7		20.1	20.8		10.7	10.6		8.8	7.2	
St d	2.58	2.61		2.41	2.06		3.41	4.29		1.70	1.58		1.62	2.35	

The test chosen for this investigation was a paired t-test with the same subjects across time with an intervention in between for the experiment group. Degree of freedom is n-1.

Null Hypotheses: there will be no difference between the two observations.
Hypotheses : there will be a difference between the two observations.

If the p-value associated with t is low (<0.05), there will be evidence to reject the null hypotheses and evidence would exist for the hypotheses. In this investigation four different measures are being tested against the above Null Hypotheses and Hypotheses.

Results: Self-efficacy

Figure 2: T-test results on scores relating to self-efficacy.

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	VAR00001 - VAR00002	-7.1000	4.22821	1.33708	-10.1247	-4.0753	-5.310	9	.000
Pair 2	VAR00003 - VAR00004	-.9000	1.37032	.43333	-1.8803	.0803	-2.077	9	.068

The t value for the experimental group is -4.0753 with 9 dfs and the significance is listed as 0.000. SPSS only displays 3 decimal places for significance so this means that the p is at least less than 0.05. Therefore there is a significant difference between the repeated measures for the experimental group but not for the control group.

There were only three responses for the 2nd repeated measure.

Figure 3: Descriptive statistics for the 2nd repeated measure of self-efficacy (experimental group).

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	VAR00001	25.6667	3	7.57188	4.37163
	VAR00002	34.3333	3	2.08167	1.20185

Figure 4: t-test results of 2nd repeated measure for self-efficacy (experimental group).

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	VAR00001 - VAR00002	-8.6667	5.68624	3.28295	-22.7921	5.4587	-2.640	2	.119

With the smaller sample the results were not significant however the raw data still shows interesting differences. I will endeavour to collect data from the other seven participants as this may still produce a significant result.

Results: LOT-R

Figure 5: t-test results on scores relating to LOT-R

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	VAR00001 - VAR00002	-3.2000	4.34102	1.37275	-6.3054	-.0946	-2.331	9	.045
Pair 2	VAR00003 - VAR00004	-1.0000	1.69967	.53748	-2.2159	.2159	-1.861	9	.096

Figure 6: Descriptive statistics for the 2nd repeated measure of LOT-R (experimental group).

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	VAR00003	20.3333	3	1.52753	.88192
	VAR00004	21.6667	3	2.08167	1.20185

Figure 7: t-test results of 2nd repeated measure for LOT-R (experimental group).

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	VAR00003 - VAR00004	-1.3333	.57735	.33333	-2.7676	.1009	-4.000	2	.057

The results for this test were not significant supporting the suggestion that optimism and pessimism may be a trait (Burke et al 2000).

Results: Self Esteem

Figure 8: t-test results on scores relating to Self-esteem

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	VAR00001 - VAR00002	-5.3000	5.41705	1.71302	-9.1751	-1.4249	-3.094	9	.013
Pair 2	VAR00003 - VAR00004	-.7000	2.62679	.83066	-2.5791	1.1791	-.843	9	.421

The t value for the experimental group was -3.094 with 9 dfs and the significance was listed as 0.013. The p score was 0.013 which is less than 0.05. Therefore there is a significant difference between the repeated measures for the experimental group but not for the control group.

Figure 9: Descriptive statistics for the 2nd repeated measure of self-esteem (experimental group).

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	VAR00005	17.6667	3	9.86577	5.69600
	VAR00006	24.0000	3	5.29150	3.05505

Figure 10: t-test results of 2nd repeated measure for self-esteem (experimental group).

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Pair 1	VAR00005 - VAR00006	-6.3333	4.61880	2.66667	-17.8071	5.1404	-2.375	2	.141

As with the results for self-efficacy the small sample size may explain why the 2nd repeated measure is not significant.

Results:Locus of Control

Figure 11: t-test results on scores relating to Locus of Control

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Pair 1	VAR00001 - VAR00002	-.8000	2.65832	.84063	-2.7016	1.1016	-.952	9	.366
Pair 2	VAR00003 - VAR00004	-.3000	4.05654	1.28279	-3.2019	2.6019	-.234	9	.820
Pair 3	VAR00005 - VAR00006	.1000	2.42441	.76667	-1.6343	1.8343	.130	9	.899
Pair 4	VAR00007 - VAR00008	1.6000	1.89737	.60000	.2427	2.9573	2.667	9	.026

Figure 12: Descriptive statistics for the 2nd repeated measure of locus of control (experimental group).

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	VAR00007	10.3333	3	.57735	.33333
	VAR00008	11.0000	3	1.73205	1.00000
Pair 2	VAR00009	10.0000	3	2.00000	1.15470
	VAR00010	8.6667	3	2.51661	1.45297

Figure 13: t-test results of 2nd repeated measure for locus of control (experimental group).

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Pair 1	VAR00007 - VAR00008	-.6667	1.52753	.88192	-4.4612	3.1279	-.756	2	.529
Pair 2	VAR00009 - VAR00010	1.3333	2.51661	1.45297	-4.9183	7.5849	.918	2	.456

The results were not significant for locus of control.

Discussion

The results of this study provide some evidence that further research is necessary into the effectiveness of NLP as a positive psychology intervention. Changes in both self-esteem and self-efficacy suggest that the interventions used did allow people to experience positive change in the short term. Longer term changes may have occurred however further measurement is required.

A number of factors may have influenced the outcome of this study in addition to the NLP interventions. The sample size was small (10) and self-selecting so may not have been representative. There may well have been similar issues to Seligman et al's (2005) study with regard to this self-selection. Participants will also have experienced a high level of social support which may also have impacted on the results (Sheldon & Lyubomirsky 2004) add to this the role of the facilitators (Seligman et al 2005) and another confounding variable has been identified. In other words change may have been influenced by the style and rapport building skills of the trainers rather than specific interventions. This may have been intensified by the feeling of acceptance within the group which on its own may have promoted increased feelings of self-esteem. On reflection the timing of the first repeated measures may have had a negative impact on results. Participants were asked to complete the second set of measures while waiting to take the assessment. Many people experience anxiety while waiting for tests so some or all of the participants may have been affected. The choice of questionnaires was largely convenience, it may be that there are more appropriate measures that could be used in future research.

The nature of the nine day workshop makes it difficult to identify specifically what caused differences on the repeated measures. For example, it is possible that any changes measured may have been due to one particular activity or intervention. Alternatively there could be a cumulative effect. Future work is needed to design a framework of interventions that can be measured more objectively. Other designs may involve testing each intervention in isolation.

The control group selection was not ideal as I had also been involved in training them in a management development programme. A more suitable group would have been people not involved in any type of intervention.

NLP has attracted extreme criticism by many people in academic circles which seems strange when many of it's original ideas are based on the work of others who are respected. The scope of this paper does not allow a thorough literature review of the background and foundation of these interventions. At this stage I will confine myself to a brief outline of the more obvious links.

NLP borrows from many other disciplines in constructing it's own frame work of interventions. The earliest work in NLP was based on modelling the work of people such as Fritz Perls, Virginia Satir, Milton Erikson and Gregory Bateson. The work of Satir and Erikson produced the two major language patterns that underpin NLP, the Meta model and Milton model respectively (Bandler & Grinder 1975,1976). Some of the techniques developed in conjunction with this are detailed in Peltier (2001) such as indirect suggestion, the use of ambiguity, specific language and reframing. He also mentions modelling, use of imagery, story telling and metaphor all key interventions in NLP. Peltier (2001) points to these as creative, useful "non-linear" techniques that can help clients to shift but cautions that some are manipulative. NLP has a whole philosophy underpinning it's use that encourages practitioners to behave ethically some of this is mapped out in the presuppositions of NLP that can be traced back to Watzlawick et al (1967, 1974 in Peltier 2001). Further work is needed to explore the value NLP brings to positive psychology.

About the Author

Melody Cheal is currently doing a Masters Degree in Applied Positive Psychology, already holding a degree in Psychology and a diploma in Psychotherapy. She is an NLP Licensed Trainer and Master Practitioner which allows her to run Practitioner and Master Practitioner courses certified by the Society of NLP and Richard Bandler.

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