

HYPNOTIC SUSCEPTIBILITY AND HOLISTIC/EMOTIONAL STYLES OF THINKING

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Abstract

It has been suggested that an everyday preference for holistic and emotional thought is related to the ability to enter hypnosis, although research addressing the idea has often yielded inconsistent results. This study correlated hypnotic susceptibility, as measured by the Harvard Group Scale (Shor and Orne, 1962), with three measures of a holistic/emotional thinking style: the experiential sub-scale of the Rational Versus Experiential Inventory (RVEI) (Epstein et al., 1995), the right hemisphere sub-scale of the Human Information Processing Survey (HIPS) (Taggart and Torrance, 1984) and the elaborative processing sub-scale of the Inventory of Learning Processes (ILP) (Schmeck et al., 1977). A social desirability measure was also included. Only the experiential scale of the RVEI and the social desirability scale showed significant positive correlations with susceptibility; a multiple regression analysis showed the RVEI scale to be the best predictor of susceptibility. The implications of these results for the *analytic-holistic hypothesis in hypnosis* are discussed.

Key words: hypnosis, hypnotizability, cognitive style, analytic thinking, holistic thinking, social desirability

Introduction

The notion that hypnosis involves some sort of temporary inhibition of reality-based, logical thought allowing more emotional, intuitive and holistic cognitive processes to predominate – the so-called *analytic-holistic hypothesis* (Brown and Oakley, 1997) – has an extensive history within hypnosis research, and represents a point of significant correspondence between accounts of hypnosis from across the theoretical spectrum (Brown and Oakley, 1997, in prep). Evidence indicating that hypnosis is characterized by an increase in imaginative processing (e.g. Crawford and Allen, 1983) and heightened affect (e.g. Crawford et al., 1989) has often been cited in support of this idea, and the widely popular and well researched notion of hypnosis as a state of absorption (Tellegen and Atkinson, 1974) also rests on similar premises. Moreover, there is some evidence to indicate that the ability to enter hypnosis is related to heightened affect intensity (Crawford and Brown, 1987) and an everyday preference for holistic processing (e.g. Wallace, 1990) that, in some cases, involves considerable engagement in fantasy-related behaviour (Lynn and Rhue, 1986).

However, despite the popularity of the analytic-holistic hypothesis, an examination of the evidence cited in support of the idea indicates that its validity is far from having been unequivocally established (see Brown, 1996). For example, although imaginative processes clearly bear some relation to hypnosis and hypnotic susceptibility, a series of inconsistent findings have led to considerable uncertainty regarding the nature of that relationship (Sheehan, 1979; deGroh, 1989). Similarly, while there is

some evidence to suggest that high susceptibles possess a superior holistic processing ability to lows (e.g. Crawford, 1981; Wallace, 1990), this finding has not proven particularly robust and there is some evidence to indicate that high susceptibles may in fact have a superior *analytic* processing ability compared with lows (e.g. Wallace et al., 1994). Clearly there is a need for much more research before we can say with any certainty whether hypnosis represents a state of increased holistic processing, or whether hypnotic susceptibility is related to an everyday preference for processing in this way.

In this paper evidence will be presented that bears on the latter of these two possibilities. The distinction between analytic and holistic cognitive processes has existed for many years within the wider sphere of psychology as a whole, and the notion of individual differences in analytic and holistic processing preference has been a popular one within the learning style and personality literatures. The research presented here attempts to assess the relationship between hypnotic susceptibility and three self-report measures obtained from these literatures. By assessing the relationship between sub-scales obtained from these measures and standard measures of hypnotic susceptibility, we aim to shed some light on the validity of the analytic-holistic hypothesis in hypnosis. The measures that we selected were the Rational Versus Experiential Inventory (RVEI) (Epstein et al., 1995), the Human Information Processing Survey (HIPS) (Taggart and Torrance, 1984) and the Inventory of Learning Processes (ILP) (Schmeck et al., 1977).

The RVEI is based on Cognitive-Experiential Self-Theory (CEST) (Epstein, 1983, 1994), a global theory of personality that postulates the existence of two separate processing systems, the rational and the experiential. The rational system operates via the conscious manipulation of symbols in a logical and analytical fashion, while experiential processing is holistic, emotional and imaginative. All behaviour is determined by the dynamic balance that exists between the two systems, and the RVEI attempts to assess the relative degree to which individuals prefer to process rationally or experientially.

The HIPS is derived from the creativity and learning-style literatures and is based on a biological metaphor that distinguishes between left cerebral hemisphere activities involving language, logic and analysis, and more image-based, emotional and holistic activities that are the putative remit of the right hemisphere. While the validity of the biological metaphor has been questioned since the development of the HIPS (Beyler and Schmeck, 1992), a number of studies have supported the validity of the behavioural distinction underlying the scale (Taggart and Torrance, 1984).

Like the HIPS, the ILP was also developed within the learning-styles literature and is designed to assess the processes that students go through in the course of learning. It comprises four sub-scales representing particular styles of learning of which one, the elaborative processing sub-scale, is of interest here. A number of studies have suggested that the elaborative processing scale measures the degree to which students are flexible processors, capable of using both analytic and holistic learning strategies (e.g. Schmeck and Geisler-Brenstein, 1989). However, although the elaborative processing sub-scale is designed to measure flexible functioning of this sort, individuals who score high on this particular measure reportedly demonstrate a preference for a more intuitive, holistic style of thinking despite the capacity for processing analytically. If a significant positive correlation were found between susceptibility and scores on this scale, it would suggest that the ability to enter hypnosis is related to both a holistic style of thinking, and the ability to flexibly shift between different cognitive styles and structures according to task demands. As Crawford (1989) has pointed out, there is good evidence to suggest that this 'cognitive flexibility' is indeed related to hypnotic susceptibility.

Each of the measures that we have selected uses the analytic-holistic processing distinction as a useful descriptive and predictive construct. If the ability to enter hypnosis is related to an everyday preference for thinking in a holistic fashion, we should expect to find a positive relationship between standard measures of hypnotic susceptibility, such as the Harvard Group Scale of Hypnotic Susceptibility (HGSHS) (Shor and Orne, 1962), the experiential sub-scale of the RVEI, the right hemisphere sub-scale of the HIPS, and the elaborative processing sub-scale of the ILP.

Method

Subjects

Subjects were 93 graduate and undergraduate students from University College London, of which 33 were male (mean age was 21.83 years, sd 4.66, range 18–48 years). All were homogeneous in terms of educational level and socio-economic status. Informed consent was obtained from all subjects. Each participant was paid £7 for taking part. Subjects were recruited on a volunteer basis for participation in a hypnotizability study.

Measures

Harvard Group Scale of Hypnotic Susceptibility

The Harvard group scale comprises an initial hypnotic induction followed by 12 test suggestions of roughly increasing difficulty. The more suggestions passed, the higher the susceptibility score. Although the Harvard is perhaps not as sensitive to differences in susceptibility as the Stanford scales, it demonstrates good test-retest reliability (Fellows, 1988) and its format allows the testing of groups of up to 30 subjects, making the test a good practical alternative to the individually administered Stanford scales.

Rational Versus Experiential Inventory, short form

The short form of the RVEI consists of four main sub-scales sub-divided into a further eight lower-order sub-scales; of these, only the experiential scale is of relevance here. The experiential sub-scale was derived from the sensing-intuiting sub-scale of the Myers Briggs Type Inventory (MBTI) (Briggs and Myers, 1976) and is designed to assess the degree to which individuals prefer to rely on their emotions (e.g. 'I tend to use my heart as a guide for actions') and intuitions (e.g. 'A solution to a problem will often come to mind without having to consciously reason it out') when making decisions. Although the experiential scale is divided into separate preference and ability dimensions, for the sake of conceptual clarity and statistical power we have collapsed the two sub-scales into one. The combined scale is composed of 10 statements, to which subjects must rate the truthfulness as it relates to them on a five-point Likert scale ranging from 'completely false' to 'completely true'.

Human Information Processing Survey

The HIPS is composed of 40 multiple choice questions, each of which has three possible answers corresponding to right hemisphere, left hemisphere and integrated sub-scales. Right hemisphere responses consist largely of behaviours associated with intuition, emotion and imagination, while left hemisphere responses correspond to more linguistic and logical behaviours; no preference between left and right hemisphere options represents an integrated processing response. In the present context, we are only interested in scores on the right hemisphere sub-scale.

Inventory of Learning Processes

The ILP is composed of four main sub-scales, each corresponding to an aspect of learning behaviour. Of the four, only one is of relevance here: the elaborative processing sub-scale. According to Beyler and Schmeck (1992) this sub-scale measures the degree to which students are capable of flexibly shifting between analytic and holistic styles of thinking. However, those scoring highly on the elaborative scale also generally prefer to process holistically, relying on their intuitions and 'gut-feelings' in decision-making situations regardless of processing flexibility. Although the recently revised version of the ILP (ILP-R) (Schmeck et al., 1991) further sub-divides the elaborative processing sub-scale into two additional thinking styles, we will retain the original super-ordinate division for the sake of clarity and statistical power. The scale comprises 10 statements* concerning holistic (five items, e.g. 'Ideas in books often make my mind wander to other topics not necessarily related to what I am reading'), intuitive (two items, e.g. 'I believe in intuition') and emotional (three items, e.g. 'My feelings are a very important part of my decision-making or judgement') styles of thinking, which subjects must rate on a six-point Likert scale indicating the extent of their agreement with it.

Social Desirability Scale

Many of the statements forming the questionnaires used here have potentially socially desirable responses; as such, we will use the Crowne and Marlowe (1960) Social Desirability Scale to be included as a predictor in subsequent regression analyses. The scale is the most commonly used instrument for assessing the influence of individual differences in the need for good social presentation (A. Furnham, 1996, personal communication). It comprises 34 true-false statements of which each has a desirable and a socially undesirable response; the total score is given by the number of desirable responses made.

Design and procedure

The nature of the study is correlational by definition. In addition to assessing simple correlations, an explorative regression analysis will also be performed in order to account for the potential influence of social desirability.

Questionnaires were presented together in a random order and completed under supervised, quiet and well-lit conditions. Testing occurred in small groups but all subjects were kept separate. Completion of the questionnaire package took approximately 25 minutes.

Susceptibility testing took place in a separate session after completion of the questionnaires. Again, testing occurred in small groups but all subjects were kept separate. Completion of the Harvard took approximately one hour for each group. Anonymity of responses was maintained throughout the experiment in an attempt to minimize the possible influence of social desirability.

Results

Scores on each of the measures fell within the standard range for a student population, and each sample of scores conformed to a normal distribution. Table 1 shows the inter-correlations between each of the measures. All correlations shown correspond to the Pearson product-moment correlation coefficient (r). To take into

*These items have been identified by the present authors as either holistic, intuitive or emotional on the basis of face validity; no such distinction is made by Schmeck, Ribich and Ramaniah (1977) due to common factor loadings for these items.

Table 1. Correlation matrix

	HARV	HIPS-R	ILP-E	RVEI-E
HIPS-R	0.1154			
ILP-E	0.1660	0.3539**		
RVEI-E	0.2629*	0.3451**	0.3992**	
SDS	0.2573*	-0.1252	-0.0014	0.1129

*Significant at $p < 0.01$ **Significant at $p < 0.0001$

account the high number of correlations being carried out, a relatively conservative alpha value of 0.01 will be used in this study.

As can be seen from Table 1, the experiential scale of the RVEI, the elaborative processing sub-scale of the ILP and the right hemisphere sub-scale of the HIPS all show moderate inter-correlations with one another. This is to be expected given that each of the scales purports to be measuring a similar construct. However, contrary to expectation, neither the right hemisphere sub-scale of the HIPS nor the elaborative processing sub-scales of the ILP show significant correlations with the Harvard scale of susceptibility. Indeed, of the holistic processing questionnaires, only the experiential sub-scale of the RVEI showed a significant, but modest, positive correlation ($r = 0.2629$; $p < 0.01$) with susceptibility. However, a significant positive correlation ($r = 0.2573$; $p < 0.01$) between social desirability and hypnotic susceptibility was also found.

An explorative step-wise multiple regression was performed on the susceptibility scores with each of the measures as predictors. The best predictor of susceptibility was the experiential scale of the RVEI (adj $R^2 = 0.06$; $F_{1,88} = 6.78$, $p < 0.01$). Of the other measures, only the social desirability scale contributed to any further variance in susceptibility (adj. $R^2 = 0.10$; $F_{2,87} = 6.13$, $p < 0.005$).

Discussion

The findings obtained here provide only partial support for the analytic-holistic hypothesis in hypnosis. Consistent with our hypotheses we found a significant, though modest, positive relationship between hypnotic susceptibility and scores on the experiential sub-scale of the RVEI. Despite a significant association between susceptibility and social desirability, a multiple regression indicated that the experiential scale of the RVEI was the best predictor of susceptibility. However, contrary to our predictions no significant relationship was found between susceptibility and scores on the right hemisphere sub-scale of the HIPS, or the elaborative processing sub-scale of the ILP. Nevertheless, consistent with our expectations all of the holistic processing scales correlated significantly with one another, suggesting that each measure is tapping, to an extent at least, a similar construct.

Given the significant intercorrelations between each of the holistic processing measures, the fact that only the experiential scale of the RVEI correlated significantly with susceptibility is somewhat surprising. In order to account for these findings, an examination of the items in each of the questionnaires is required. All of the items comprising the experiential scale of the RVEI refer to the use of gut-feelings, instincts, emotions and intuitions when making decisions. However, although both

the right hemisphere sub-scale of the HIPS and the elaborative processing sub-scale of the ILP contain items of this nature, there is a significant departure from this theme in many of the other questions. Given the unidimensional nature of the experiential scale of the RVEI, we would argue that, in this sample at least, the significant (but moderate) inter-correlations between each of these measures reflects more the consistency in their inclusion of emotionally based items than any sort of assessment of a general holistic thinking style. Indeed, we believe that the pattern of findings here highlights the problem in using 'holistic processing' as a generic term that includes aspects of imagery, a preference for wholes over parts and the importance of intuition and emotion. A more precise operationalization of the term appears to be needed, something on which we are currently working (Brown and Oakley, in prep).

The significant positive correlation between susceptibility and the experiential scale of the RVEI would seem to suggest, then, that the ability to enter hypnosis is in some way related to the degree to which individuals rely on their gut-feelings and intuitions when making decisions. This finding lends support to the analytic-holistic hypothesis in its present form (see Brown and Oakley, 1997). Such a findings is also consistent with evidence indicating that high susceptibles experience their emotions more strongly than lows do (Crawford and Brown, 1987): clearly, the more intensely that a particular emotion is felt, the more likely that subsequent decisions will be made on the basis of it. Moreover, this finding is consistent with evidence suggesting that hypnosis is characterized by an increase in emotionality (Crawford et al., 1989). It seems reasonable to suggest that individuals who regard their emotions as fundamental to their everyday decision-making processes are more likely to allow themselves to enter a state in which emotions are heightened. This may be of particular relevance clinically, particularly if the client regards hypnosis as a way of achieving insight into the nature of their emotional problems.

It could also be argued that these findings support the notion that hypnosis is a state of higher level functional inhibition, the basis of the dissociated control theory of hypnosis (e.g. Woody and Bowers, 1994). It is possible that individuals who rely more on their emotions and intuitions than logic and reason when making decisions do so because of a relative inability to think about situations in a logical way. Given that the conscious and analytical processes involved in logical thought are governed by higher level control functions (Brown and Oakley, 1997), and that the covert interpretations that underlie emotions and intuitions are controlled at a lower level, it seems reasonable to assume that an everyday bias towards lower level processing facilitates the entry into a state of higher level processing inhibition. However, there are a number of alternatives to this explanation that are equally, if not more, feasible. For example, if an individual associates hypnosis with unconscious, emotional processes and a lack of control and logical thought, then completing a set of questionnaires quite transparently designed to assess ones preference for emotional and intuitive decision-making might in some way affect their subsequent performance on a susceptibility test. Thus, a high scorer may believe that they are likely to be highly susceptible and consequently allow themselves to become more engaged in the hypnotic experience. Conversely, individuals who believe (or desire) themselves to be highly susceptible may be inclined to complete the questionnaires according to the belief that high susceptibles are more emotional or intuitive. These potential effects are liable to be exacerbated by presenting the questionnaires within a hypnotic context as they were in this case, a factor that should be taken into account when planning further research of this sort (cf Laurence, 1997).

One other finding of importance is the significant positive correlation between susceptibility and social desirability, a finding that supports the socio-cognitive pre-

diction that high susceptibles possess a need for positive self-presentation. Given this evidence, we would argue that the inclusion of a social desirability measure is an essential requisite of research concerning hypnotic susceptibility, particularly when susceptibility is being measured by self-report (as in the case of the HGSHS) and where other questionnaire measures are being used.

The findings presented here provide partial support for the analytic-holistic hypothesis in hypnosis, in that susceptibility appears to be modestly related to an everyday preference for making decisions on the basis of intuitive and emotional feelings. Contrary to the hypothesis, other apparently holistic behaviours as measured by the right hemisphere sub-scale of the HIPS and the elaborative processing sub-scale of the ILP do not appear to be related to susceptibility. Furthermore, the present research is unable to assess whether a self-reported emotional bias is related to susceptibility as a function of belief and expectation about hypnosis, or as a cognitive predisposition towards experiencing certain information processing alterations during hypnosis. Although the use of questionnaires can be constructive in identifying areas of potential interest, when it comes to accurately assessing questions of this sort more research using more precise and objective measures is clearly needed. Moreover, in order for this to be done in a constructive way, a sound and well-defined theoretical foundation is required. We (Brown and Oakley, in preparation) are currently working towards this end.

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