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## Message from the Editors

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Welcome to Volume 14 of the *European Journal of Parapsychology*. This volume is dated 1998-1999 because, due to a shortage of papers, we were unable to release the journal on schedule in 1998. We do apologise and thank subscribers for their patience.

The responsibility for production and editorship of the journal is about to change and it seems appropriate to begin the new production in the new era of the year 2000. The Koestler Parapsychology Unit has had responsibility for the *EJP* for a decade. During this time, we have increased the subscription base, and re-styled the journal into a more modern and accessible format. However, we have always found it a challenge to produce the journal in addition to our academic and research responsibilities. We now believe that the *EJP* would benefit from the fresh perspective and new ideas that will come with new editors.

We are pleased to announce that the new editors will be Dr Adrian Parker and Dr Jan Dalkvist, based in Sweden. There will be a period of handover in 1999, and the next issue, volume 15, will be released by the Swedish team in 2000. Our aim will be to minimise disruption to subscribers and authors, to ensure a smooth transition period.

We are sure that the new editors will strive to maintain and build upon the success of the *EJP*. In addition, your active support as subscribers and authors is vital to the journal's healthy status. We wish the new editors, and the journal, every success.

Deborah Delanoy, Robert Morris, Fiona Steinkamp & Caroline Watt

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## Schizotypal Processes and Belief in the Paranormal: A Multidimensional Study

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**Abstract:** Previous research has established a relationship between paranormal beliefs and the construct of schizotypy or personality traits reflective of schizophrenia-proneness. As yet, however, there has been insufficient cognisance of the multidimensional nature of schizotypy. In this study 194 Australian adults completed multidimensional questionnaire measures of schizotypy and paranormal belief, and then performed a laboratory task that indexed central monitoring efficiency, a cognitive process previously implicated in the positive symptoms of schizotypy and schizophrenia. Canonical correlation analysis revealed that the factors of schizotypy predicted three specific combinations of six out of seven paranormal beliefs, but the size and the direction of the underlying interrelationships varied. There was little evidence that paranormal beliefs are related to a central monitoring dysfunction. The findings suggest that the relationship between paranormal beliefs and schizotypy is complex. Certainly the data do not encourage the simplistic view that paranormal believers uniformly suffer a tendency toward schizophrenic-like thought disorder.

Although some people may claim to be persuaded of the existence of paranormal phenomena by the findings of experimental parapsychological research, for most members of the general public the endorsement (or indeed, the repudiation) of paranormal beliefs is likely to spring most fundamentally from personal psychodynamic characteristics such as personality and needs. For this reason social scientists in recent years have devoted increasing research effort to the study of the psychological origins of belief in the paranormal (for reviews of this literature see Irwin, 1993, 1999). The objective of the present project was to investigate the intensity with which individual paranormal beliefs are embraced in relation to aspects of schizotypy and to schizophrenia spectrum processes more generally.

Much of the impetus for research into this issue may be attributed to the Australian parapsychologist Michael Thalbourne. Although Windholz and Diamant (1974) had previously reported that global paranormal belief is correlated with the Schizophrenia scale of the Minnesota Multiphasic Personality Inventory (MMPI), Thalbourne's curiosity was tweaked by Eckblad and Chapman's (1983) inclusion of items about parapsychological phenomena in their Magical Ideation Scale, an index of schizotypal tendencies or personality traits "potentially prodromal of schizophrenia" (Thalbourne, 1985, p. 85). The tacit implication was that the interpretation of personal anomalous experience within a framework of paranormal beliefs was symptomatic of schizotypy or an inherent proneness to schizophrenia. In an investigation of this notion, Thalbourne (1985) found a separate measure of psi belief was correlated with magical ideation scores whether or not the parapsychological items were retained in Eckblad and Chapman's scale. Thalbourne and his colleagues have replicated this relationship using a variety

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of measures of schizotypy (Thalbourne, 1994; Thalbourne, Bartemucci, Delin, Fox, & Nofi, 1997; Thalbourne & Delin, 1994; Thalbourne, Dunbar, & Delin, 1995; Thalbourne & French, 1995).

Schizotypy has been found to correlate also with beliefs in a broader range of paranormal phenomena than psi. In an extension of Thalbourne's initial study, Anderson (1988) found ESP belief and global paranormal belief correlated positively with magical ideation (with or without the parapsychological items), as well as with another measure of schizotypy. Anderson's results admittedly may have uncertain generality; his sample comprised both trance mediums (to represent extreme paranormal believers) and non-mediums matched for age and gender. Again, Williams (Williams, 1989, 1995; Williams & Irwin, 1991) reported that magical ideation (with and without the parapsychological items) correlates positively with global paranormal belief and with every individual dimension of Tobacyk's Paranormal Belief Scale (Tobacyk, 1988; Tobacyk & Milford, 1983), namely, belief in traditional religious concepts, psi, witchcraft, superstition, spiritualism, extraordinary life forms, and precognition. With the exception of traditional religious belief, Williams also confirmed these results using a different index of schizotypy. Much the same pattern of correlations was found by Tobacyk and Wilkinson (1990) and by Thalbourne et al. (1995). The only minor difference between these sets of data was that in Tobacyk and Wilkinson's (1990) sample the correlation for traditional religious belief was *negative* for men (and nonsignificant for women). This disparity might reflect differences in religious conservatism between the Louisiana population sampled by Tobacyk and Wilkinson, and the Australian population sampled by Williams and by Thalbourne et al. (see also Irwin, 1991). British research also has revealed a positive relationship between schizotypy and religious belief or experience (Jackson, 1997). It might be noted that the classification of traditional religious belief as a paranormal

belief is itself contentious on both conceptual and empirical grounds (Fitzpatrick & Shook, 1994; Lawrence, 1995; Williams, Taylor, & Hintze, 1989).

Notwithstanding the one anomalous finding, there is reasonably substantial evidence of a positive relationship between diverse paranormal beliefs and schizotypy, whether or not the measure of the latter includes items on parapsychological experience. The correlation between schizotypy and global paranormal belief is typically reported to be about 0.6; the correlations with individual facets of paranormal belief range from about .55 for belief in psi and spiritualism, to about .25 for belief in traditional religious concepts and extraordinary life forms (e.g., Thalbourne et al., 1995).

It is important to note that in this corpus of research schizotypy is conceptualised as a personality continuum distributed within the general (nonclinical) population (Claridge, 1990, 1997). The findings therefore do not relate explicitly to the diagnostic category, schizotypal personality disorder, a formal clinical condition which entails not merely a high score on the schizotypy dimension as a whole but rather, the concurrent presence of *several* distinct schizophrenic-like symptoms. The psychometric assessment of clinically relevant personality traits (each as a continuum) is fundamentally distinct from the diagnosis of a personality disorder as a categorical or dichotomous condition (Costello, 1996; Livesley, 1998), and it is only to the former that the previous research and the present study are addressed. In this context schizotypal tendencies therefore comprise a dimensional personality construct that is clinically relevant to the schizophrenia spectrum disorders but which nonetheless can be conceptualised and assessed independently of the clinical condition known as schizotypal personality disorder.

One limitation of past research on the relationship between paranormal belief and schizotypy is that investigators have relied on unidimensional measures of schizotypy. Several studies used a measure of magical

belief, yet this is merely one limited facet of the schizotypal thought style (Chapman, Chapman, & Kwapil, 1995). Even in those studies utilising more than one index of schizotypy (e.g., Williams, 1989), the scales can not be said to have reliably captured psychometrically distinct *factors* of schizotypy. Nonetheless, schizotypy has been shown to be a multifactorial domain; indeed, the identified factors of schizotypy may well correspond to discriminable types of people (Mason, Claridge, & Williams, 1997). The number of schizotypy factors is still the subject of some dispute (Raine et al., 1994; Mason et al., 1997); three factors have consistently been identified, but in some studies there are suggestions of a possible fourth factor. As an example, one reasonably representative study Raine et al. (1994) identified a three-factor solution and on this basis the researchers constructed a multidimensional measure of schizotypy, the Schizotypal Personality Questionnaire. The three components of this scale are as follows. The *Cognitive-Perceptual* factor encompasses tendencies toward such schizotypal dysfunctions as magical thinking, unusual perceptual experiences (e.g., hallucinations), paranoid ideation, and ideas of reference (i.e., a neutral environmental event such as a television program is taken to have an intended personal meaning). The *Interpersonal* factor reflects deficits in interpersonal functioning such as social anxiety, lack of close friends, some aspects of paranoia, and blunted affect. The *Disorganized* factor relates to odd mannerisms and speech. An aim of the present study was to investigate the relationship between paranormal beliefs and each of these factorially distinct facets of schizotypy.

The interpretation of the relationship between paranormal belief and schizotypy is another issue that warrants empirical scrutiny. To some sceptically oriented commentators, evidence for this relationship may simply reinforce their view that believers in the paranormal are psychologically dysfunctional (Zusne & Jones, 1989). A rather more searching analysis of the relationship nevertheless is called for.

Thalbourne himself has proposed an account in terms of the concept of *transliminality* (Thalbourne & Delin, 1994; Thalbourne et al., 1997). Transliminality pertains to the ease with which large amounts of imagery, ideation, and affect can "cross the threshold" into awareness (Thalbourne et al., 1997). This tendency is held to underlie a susceptibility to parapsychological and mystical experience (Myers, 1903) and thence to the development of paranormal beliefs. Similarly, schizotypal or schizophrenic-like experiences might be interpreted, at least in part, as a difficulty in excluding from consciousness all manner of mentation that is irrelevant to the person's current intentions. Paranormal beliefs and schizotypy therefore correlate because both are underpinned by a common factor, transliminality.

Thalbourne's depiction of schizotypal processes is highly concordant with a substantial body of empirical work that constructs schizotypal and schizophrenic experience in terms of a deficit in cognitive inhibition (for a review see Williams & Beech, 1997). For example, schizophrenics' performance in selective attention tasks suggests a fault in the cognitive mechanism responsible for the active suppression of irrelevant information from consciousness (Frith, 1979). Recently this approach to the schizophrenia spectrum has emphasised the role of central monitoring processes (Frith & Done, 1989; Mlakar, Jensterle, & Frith, 1994; Williams, 1996). That is, schizophrenic patients and others high in schizotypal tendencies are held to have some degree of defect in their ability to monitor their own cognitive activity. By way of illustration, if schizotypal people fail to monitor adequately their own thought processes, they might mistakenly interpret these as telepathic thought insertions; such individuals are seemingly oblivious to the fact that they originally generated these mentations themselves (Frith & Done, 1989). The central monitoring account is held to be specially applicable to so-called positive symptoms of schizophrenia and schizotypal per-

sonality disorder; these include delusions, hallucinations, and other "first rank" Schneiderian symptoms (Schneider, 1959). If paranormal beliefs have the same basis as these schizotypal symptoms, it should be possible to demonstrate a relationship between the intensity of paranormal belief and an inefficiency of central monitoring. This was a second aim of the project.

It should be stressed that the investigation of paranormal belief and central monitoring is not a direct test of Thalbourne's transliminality hypothesis but rather, an exploratory study of the idea that a cognitive process thought to underlie positive schizotypal symptoms might also be implicated in the development of paranormal beliefs.

## Method

### *Design*

The study was undertaken as an adjunct to two other research projects, one investigating schizophrenia spectrum processes ( $N = 100$ ) and the other, an undergraduate Psychopathology class exercise ( $N = 94$ ). Participants initially completed questionnaire measures of dimensional schizotypy and paranormal belief, and on returning these forms, they were contacted to attend a psychological laboratory for the purpose of experimentally assessing their central monitoring efficiency.

### *Participants*

The participants in the study were 194 Australian adults. The sample comprised 83 men and 111 women ranging in age from 18 to 46 years (mean = 22.2, median = 20,  $s = 6.05$ ). A substantial majority of participants were university students.

### *Materials*

In the first stage of the project participants completed a set of questionnaire forms that included a request for basic demographic information (age and

gender), a measure of schizotypal tendencies, and a survey of paranormal beliefs. A "plain language" statement was attached to the questionnaire inventory; this statement described the topic of the study, and stressed that participation was voluntary and confidential. An appeal was made to participants to respond to the questionnaire items as spontaneously and openly as possible.

Schizotypal traits were indexed by Raine and Benishay's (1995) Schizotypal Personality Questionnaire-Brief (SPQ). Derived from a well-established but lengthy measure of schizotypy (Raine, 1991; Raine et al., 1994), the SPQ has 22 dichotomous (Yes/No) items distributed across three factorially-determined subscales. The Cognitive-Perceptual subscale (8 items) addresses schizophrenia-like cognitive and perceptual deficits such as ideas of reference, magical thinking, unusual perceptual experiences, and paranoid ideation. The Interpersonal subscale (8 items) surveys the principal social characteristics of schizotypy, that is, social anxiety and lack of close relationships. The six items in the Disorganized subscale concern odd behaviour and speech. Each item answered affirmatively receives a score of 1 point; thus, SPQ Cognitive-Perceptual and Interpersonal scale scores can range from 0 to 8, and the Disorganized score, from 0 to 6, with higher scores signifying stronger schizotypal tendencies. Judging by data gathered in the course of the test's development (Raine & Benishay, 1995), the reliability and criterion validity of the SPQ seem to be highly satisfactory.

Paranormal beliefs were surveyed with Tobacyk's (1988) Revised Paranormal Belief Scale or PBS, an amended version of the scale originally developed by Tobacyk and Milford (1983). The PBS incorporates an extremely liberal view of the scope of "the paranormal". Its 26 items are distributed over 7 subscales relating to belief in traditional religion, psi, witchcraft, superstition, spiritualism, extraordinary life forms (e.g., the Loch Ness monster), and precognition. The response to each item is

made on a 7-point Likert scale, with a higher rating signifying stronger endorsement. Scores on individual subscales are computed as the average rating recorded on the component items and thus have a range of 1 to 7. The score on the full PBS is the sum of ratings over all 26 items and ranges from 26 to 182. There has been considerable debate over the construct validity and the factorial structure of the PBS (cf., Lawrence, 1995; Tobacyk & Thomas, 1997), but despite its shortcomings, the PBS arguably remains the best available multidimensional measure of belief in the paranormal as the latter is broadly conceived.

### *Procedure*

Participants returned the completed survey forms to the project co-ordinator (HJI). The SPQ-B was not scored until after the experimental component of the study had been completed by all participants. The administrator of the laboratory task (MJG) therefore was blind to the level of schizotypy reported by experimental participants.

In the second stage of the study, individual participants attended a laboratory and performed an experimental test of central monitoring efficiency. The performance measure of central monitoring efficiency took the form of a computer game and closely replicated that devised by Frith and Done (1989), except that the video display in the present study entailed laser cannons being fired at a UFO instead of men shooting at birds, and imaginative use of colour and sound effects was made in an endeavour to sustain participants' interest. The nature of this task will be described briefly; full details about the spatial and temporal dimensions of the test configuration are provided by Frith and Done (1989).

The task was conducted in two versions for each participant. On each trial of the first version of the task, a UFO appeared on a randomly selected side of the video display and the participant was asked to use a joystick to fire the one of two laser

cannons that was aimed at the UFO; movement of the joystick to the left would fire one cannon and movement to the right would fire the other. The correspondence between the fired cannon and the direction in which the joystick was moved nevertheless was alternated from one trial to the next. That is, the cannon pointing to the right could be fired by displacing the joystick to the right on one trial, but this cannon could be fired only by displacing the joystick to the left on the immediately following trial. A participant's success in firing the correct cannon therefore requires substantial concentration, and errors are relatively frequent. At the same time, the laser burst fired by a cannon took 2800 msec to reach the UFO, and this interval provided the participant with an opportunity to correct an erroneous response by moving the joystick in the opposite direction before the UFO disappeared from the display.

Each participant completed 20 practice trials and 80 test trials on this version of the task. At the end of each trial the participant received a message on the video display so as to indicate whether the response was correct, corrected after an initial error, incorrect, or inappropriately amended after an initially correct response. The last of these messages was intended to inhibit participants' deliberate use of the strategy of displacing the joystick in both directions on each trial.

The crucial index of central monitoring efficiency was generated by the second version of the task which was performed immediately after the first. The sole change in the video display for the second version was that there was a "brick wall" covering most of the space between the tip of the cannon and the place where the UFO appeared. The effect of this change in the video display was that for the first 2000 msec after displacing the joystick, the participant had no visual feedback about the correctness of the response. Correction of an erroneous response within this period therefore is an indication that the participant was *monitoring* his or her responses in the task. Each participant



completed 80 trials with this version of the task. Following Frith and Done (1989), the percentage of erroneous responses corrected within 2000 msec was taken as an index of central monitoring efficiency. Scores thus may vary from 0 to 100, with high scores indicating efficient central monitoring. A count was taken also of inappropriate amendments to an initially correct response so as to identify for exclusion any participant persistently using a strategy of making two responses on every trial. Individual participants performed the two versions of the central monitoring task in the same session. The task was presented as a computer game, and participants were instructed to respond as quickly as possible on each trial. If there was no response within 670 msec a message appeared on the video display that the response was too late; these missed trials were not counted toward the total of 80 trials to be completed for each version of the task.

### Results

Descriptive statistics (mean and standard deviation) for the questionnaire data are given in Table 1.

In a preliminary assessment of the relationship between paranormal belief and dimensions of schizotypy, scores on the

PBS scales were correlated with those on the three SPQ scales using SPSS software (SPSS, 1995). The Pearson correlation matrix is given in Table 2. These data are presented principally for completeness of information; they might be considered to be suggestive of a relationship between paranormal belief and schizotypy, but they have two major limitations. First, these correlations do not take due account of possible artifactual effects of age and gender. Second, and perhaps more importantly, because of possible inter-correlations between the dimensions of schizotypy and between the dimensions of paranormal belief, the data in Table 2 are not a sound basis for deciding whether or not all dimensions of schizotypy are relevant to all dimensions of paranormal belief. The technique of canonical correlation provides a means for redressing these limitations. Canonical correlation analyses the relationship between two sets of variables (Tabachnick & Fidell, 1996). In the present context, one set of variables (conceptualised as the dependent variables) comprised the seven dimensions of paranormal belief as indexed by the PBS. The other set of (predictor) variables comprised the three dimensions of schizotypy (SPQ scales), gender, and age. Analysis was conducted using SAS software (SAS Institute, 1990).

Table 1  
*Means and Standard Deviations of Scores on Research Scales (N = 194)*

Scale	Mean	SD
<b>Tobacyk PBS</b>		
Full Scale	91.45	28.65
Traditional Religious Belief	4.57	1.83
Psi Belief	3.72	1.60
Witchcraft	3.65	1.79
Superstition	1.74	1.17
Spiritualism	3.55	1.67
Extraordinary Life Forms	3.52	1.32
Precognition	3.42	1.50
<b>Raine SPQ</b>		
Cognitive-Perceptual	3.14	2.02
Interpersonal	3.17	2.12
Disorganized	2.31	1.79



Table 2

*Pearson correlations between paranormal beliefs (PBS) and dimensions of schizotypy (SPQ)*  
(N = 194)

	SPQ scales		
	Cognitive-Perceptual	Interpersonal	Disorganized
<b>PBS scales</b>			
Full Scale	.35***	-.02	.24***
Traditional Religious Belief	.08	-.09	-.08
Psi Belief	.30***	-.09	.19**
Witchcraft	.26***	-.07	.28***
Superstition	.06	-.01	-.04
Spiritualism	.38***	.08	.30***
Extraordinary Life Forms	.26***	.17*	.27***
Precognition	.29***	.02	.20**

Note: \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$  (uncorrected)

Five canonical correlations were identified (Wilks' lambda = .504,  $p = .0001$ ). The first canonical correlation was .52 (27% overlapping variance), the second was .43 (18% overlapping variance), and the third, .32 (10% overlapping variance). "Peel off" significance tests for canonical variate pairs showed the remaining two canonical correlations, .20 and .15, did not add significantly in accounting for the relationships between the two sets of variables ( $p > .17$ ). That is, the first three pairs of canonical variates accounted for the significant relationships between the set of paranormal beliefs and the predictor set. Data on the first three pairs of canonical variates are given in Table 3. This table shows correlations between the variables and their canonical variates, standardized canonical variate coefficients, within-set variance accounted for by the canonical variates (percentage of variance), redundancies, and canonical correlations. Redundancy data indicate that the first pair of canonical variates was moderately related, but that the second and third pairs were only minimally related. Interpretation of the second and third pair of canonical variates necessarily will be moot.

Using the standardized canonical variate coefficients as a guide, the principal aspects of paranormal belief that composed the first canonical variate were Spiritualism and Precognition. Among the set of

predictor variables, the Cognitive-Perceptual scale of the SPQ and female gender correlated with the first canonical variate. Taken as a pair, these variates suggest that women who exhibit the cognitive-perceptual (e.g., magical thinking) style of schizotypy are likely to endorse spiritualist concepts and the possibility of divining the future.

The second canonical variate in the paranormal belief set primarily comprised belief in extraordinary life forms and witchcraft, and lack of belief in precognition and traditional religious tenets. The predictor variables that correlated with the second canonical variate were the SPQ Disorganized scale and male gender. The second pair of canonical variates therefore may indicate that men who exhibit the disorganized style of schizotypy (e.g., odd mannerisms) are inclined to believe in extraordinary life forms and witchcraft, but at the same time they reject traditional religious concepts and the possibility of divining the future.

The paranormal beliefs that predominantly composed the third canonical variate were spiritualism and lack of belief in both psi and witchcraft. The sole predictor variable to correlate with the third canonical variate was the SPQ Interpersonal scale. The indication of the third pair of canonical variates is that people marked by the interpersonal style of

# SCHIZOTYPAL PROCESSES & BELIEF IN THE PARANORMAL

Table 3

*Correlations, standardized canonical coefficients, canonical correlations, percentages of variance, and redundancies between paranormal belief (PBS) and schizotypy (SPQ) variables and their corresponding canonical variates (N = 194)*

	First canonical variate		Second canonical variate		Third canonical variate	
	Correlation	Coefficient	Correlation	Coefficient	Correlation	Coefficient
<b>PBS set</b>						
Traditional Religious Belief	.37	.15	-.54	-.54	-.16	-.24
Psi Belief	.66	-.02	.23	.07	-.50	-1.10
Witchcraft	.72	.15	.31	.50	-.33	-.52
Superstition	.24	-.23	-.40	-.33	.04	.06
Spiritualism	.92	.67	.17	.15	.15	1.04
Extraordinary Life Forms	.29	-.21	.52	.58	.24	.30
Precognition	.80	.43	-.14	-.55	.06	.16
% of Variance	.42		.13		.07	Total = .62
Redundancy	.11		.02		.01	Total = .14
<b>Predictor set</b>						
Cognitive-Perceptual	.69	.64	.32	-.08	.12	-.30
Interpersonal	.01	-.37	.26	-.06	.91	1.04
Disorganized	.52	.37	.70	.73	.27	.01
Gender (F)	.49	.58	-.74	-.69	.20	.29
Age	.26	.32	.20	.06	.12	.20
% of Variance	.11		.08		.09	Total = .28
Redundancy	.03		.01		.01	Total = .05
<b>Canonical correlation</b>	.52		.43		.32	

schizotypy (e.g., lack of close friends) may endorse spiritualism yet repudiate psi and witchcraft.

Finally, the results for the central monitoring task may be reported. The experimental data for one participant could not be computed; thus, the effective sample size for these analyses was 193. The mean score on central monitoring efficiency was 11.90 ( $s = 19.86$ ); as the distribution of these scores was positively skewed, all analyses were conducted using nonparametric techniques.

Central monitoring performance did not correlate with any of the SPQ scales (Spearman  $\rho = .02$  to  $.06$ ). There is no evidence, therefore, that the efficiency of central monitoring in a performance task was related to scores on the questionnaire measures of schizotypal tendencies. Central monitoring efficiency correlated with only one dimension of paranormal belief, namely, spiritualism ( $\rho = -.16$ , uncorrected  $p = .023$ ); after correction for the computation of multiple (seven) coefficients, even this result should be regarded at best as suggestive and more strictly, as statistically nonsignificant ( $p > .15$ ).

## Discussion

With the possible exception of superstition, all aspects of paranormal belief (in specific combinations) were significantly related to factors of the personality construct of schizotypy. The findings therefore are broadly consistent with previous research and provide moderate support for the general hypothesis of a relationship between paranormal belief and dimensional schizotypy. At the same time, it must be acknowledged that the effect sizes of the observed relationships typically were lower than those reported by Thalbourne and his colleagues (e.g., Thalbourne et al., 1995).

The present study nevertheless adds to the empirical literature on this issue by clarifying the aspects of schizotypy that seem to have the most bearing on paranormal beliefs. The findings of the

study certainly can not reasonably be used to sustain a case that, when controlling for the contributions of gender and age, the three factors of schizotypy work in the same way to facilitate the development of belief or disbelief in the paranormal. On this point, findings in relation to each pair of canonical variates are best addressed in turn, because each primarily implicates a different factor of schizotypy.

The first pair of canonical variates generated by the canonical analysis bears principally on the SPQ Cognitive-Perceptual scale. This pair of variates suggests that people, especially women, who have schizotypal tendencies in the cognitive-perceptual domain are likely to endorse beliefs in spiritualism and precognition. This is consistent with previous reports (e.g., Thalbourne et al., 1995) that these two dimensions of paranormal belief were those most closely related to magical ideation. Two possible interpretations of these findings warrant consideration.

First, it should be noted that unlike the other scales of the SPQ, the Cognitive-Perceptual scale has items that most closely address parapsychological experiences. Three of the eight items (namely, items 2, 4, and 12) refer to experiences of ESP, telepathic agency, and the non-sensory awareness of the presence of another person. It might be argued, therefore, that this SPQ scale is predictive of paranormal belief because it indexes in part the respondent's past parapsychological experiences. According to previous research (e.g., Thalbourne et al., 1995; Williams, 1989), however, the exclusion of such items from the measure of schizotypy does not substantially reduce its correlation with the PBS scales. A post hoc correlational analysis suggested that much the same conclusion pertained here.

A second interpretation of the predictive power of the Cognitive-Perceptual factor of the SPQ is that this facet of schizotypy is the closest analogue to the positive schizophrenic symptom of delusions. Thus, like schizophrenic delusions, belief in spiritualism and

precognition may be endorsed because they provide some sense of emotional security rather than because they are grounded on reliable and critically evaluated objective information. There is a degree of empirical support for this view. Sappington (1990) found that paranormal beliefs could be changed by increasing his experimental participants' emotional arousal but not by varying the amount of objective information provided to participants. The extent to which this applies to individual dimensions of paranormal belief awaits further investigation. Nonetheless, the present study encourages the need for the exploration of paranormal belief in relation to the psychological characteristics of delusions (e.g., see Linney, Peters, & Ayton, 1998). Further investigation of this issue might usefully avoid a limitation of the present study, namely, that the data for the significant findings all were obtained from the same type of assessment technique, namely, self-report questionnaires. The procedure devised by Sappington (1990) provides just such an opportunity.

The second pair of canonical variates generated by the canonical correlation analysis bears principally on the SPQ Disorganized scale. This pair of variates suggests that people, especially men, who have schizotypal tendencies marked by disorganization are likely to endorse beliefs in extraordinary life forms and witchcraft but will disavow belief in precognition and traditional religious views. Possibly these findings reflect an underlying element of disinhibited nonconformity, that is, an inclination to behave oddly and to openly express unconventional tastes. Again, the Disorganized factor is regarded as the closest schizotypal analogue to the negative schizophrenic symptom of formal thought disorder (Raine et al., 1994). It is notable, therefore, that the Disorganized scale seems to be a positive predictor of extraordinary life forms and witchcraft but not of the other paranormal beliefs. This finding suggests it may be inappropriate to construe all types of paranormal beliefs as due to a schizophrenic-like disturbance in

the capacity to reason in a conventionally logical manner, as Alcock (1981) has been inclined to do. In other words, while there might well be an element of irrationality involved in the endorsement of beliefs in extraordinary life forms and witchcraft, there are no such indications here for other paranormal beliefs, and indeed, the opposite may be the case for traditional religious belief and precognition. That the disavowal of traditional religious beliefs is associated with schizotypal disorganization is particularly noteworthy in that it cautions that not all facets of schizotypy have a positive relationship with paranormal belief. The possibility of negative associations is not sufficiently anticipated by the previous research and deserves due scrutiny in future investigations.

The canonical correlation analysis yielded a third pair of canonical variates, and in this instance the SPQ Interpersonal scale was the key schizotypal factor. This pair of canonical variates suggests that people with schizotypal interpersonal deficits are relatively inclined to embrace spiritualist beliefs but to disbelieve in psi and witchcraft. The finding for spiritualism perhaps could be taken to suggest that the pursuit of spirit communication and astral travel may be a behaviour which in part serves as a compensation for the lack of fulfilling communication with the living. Again, it is important to appreciate that the Interpersonal factor of schizotypy has a *negative* relationship with belief in psi and witchcraft. That is, the schizotypal tendency toward social anxiety and lack of close relationships evidently serves to inhibit the development of these two paranormal beliefs. This is a most noteworthy result in that it cautions against the interpretation of paranormal beliefs as uniformly a consequence of maladjustive characteristics of schizotypal people. Indeed, some paranormal beliefs may be more dependent than others on effective interpersonal relationships for their dissemination and nurturance.

The null findings of the experimental phase of the study constitute a lack of support for the possibility that the

formation of paranormal beliefs is in some way linked to a central monitoring dysfunction as has been implicated in some positive schizophrenic symptoms (Mlakar et al., 1994). Although the possible role of central monitoring deserves continued empirical scrutiny, perhaps with a different measure of this phenomenon, the future investigation of other cognitive bases of schizotypal tendencies might help to illuminate the nature of beliefs in the paranormal. As an anonymous reviewer of this paper has remarked, however, the association between schizotypy and schizophrenia is far from perfect, and thus the cognitive mechanisms underlying schizophrenia might differ in some respects from those of schizotypy. Further, as the same reviewer suggests, it would be difficult to validate the assertion by Frith and his colleagues (Frith & Done, 1989; Mlakar et al., 1994) that the computer task operationalises the construct of central monitoring efficiency.

In summary, it would seem that the relationship between paranormal beliefs and schizotypy is a complex one. The relationship varies qualitatively and quantitatively over the three factors of schizotypy, and the associated canonical variates for paranormal belief include both positive and negative contributions of these beliefs. By no means can the relationship be construed simply to document the presence of a tendency toward a schizophrenic-like thought disorder in all paranormal believers.

## References

- Alcock, J.E. (1981). *Parapsychology: Science or Magic? A Psychological Perspective*. Elmsford, NY: Pergamon Press.
- Anderson, J. (1988). *Trance Mediums and Schizophrenics: A Psychological Assessment and P300 Analysis*. Unpublished Master's thesis, University of New England, Armidale, Australia.
- Chapman, J.P., Chapman, L.J., & Kwapil, T.R. (1995). Scales for the measurement of schizotypy. In A. Raine, T. Lencz, & S.A. Mednick (Eds.), *Schizotypal Personality*. Cambridge: Cambridge University Press. 79-106.
- Claridge, G. (1990). Can a disease model of schizophrenia survive? In R.P. Bentall (Ed.), *Reconstructing Schizophrenia*. London: Routledge. 157-183.
- Claridge, G. (1997). Theoretical background and issues. In G. Claridge (Ed.), *Schizotypy: Implications for Illness and Health*. Oxford: Oxford University Press. 3-18.
- Costello, C.G. (1996). The advantages of focusing on the personality characteristics of the personality disordered. In C.G. Costello (Ed.), *Personality Characteristics of the Personality Disordered*. New York: Wiley. 1-23.
- Eckblad, M., & Chapman, L. (1983). Magical ideation as an indicator of schizotypy. *Journal of Consulting and Clinical Psychology*, 51, 215-225.
- Fitzpatrick, O.D., & Shook, S.L. (1994). Belief in the paranormal: Does identity development during the college years make a difference? An initial investigation. *Journal of Parapsychology*, 58, 315-329.
- Frith, C.D. (1979). Consciousness, information processing and schizophrenia. *British Journal of Psychiatry*, 134, 225-235.
- Frith, C.D., & Done, D.J. (1989). Experiences of alien control in schizophrenia reflect a disorder in the central monitoring of action. *Psychological Medicine*, 19, 359-363.
- Irwin, H.J. (1991). The reasoning skills of paranormal believers. *Journal of Parapsychology*, 55, 281-300.
- Irwin, H.J. (1993). Belief in the paranormal: A review of the empirical literature. *Journal of the American Society for Psychical Research*, 87, 1-39.
- Irwin, H.J. (1999). *An Introduction to Parapsychology* (3rd ed.) Jefferson, NC: McFarland.
- Jackson, M. (1997). Benign schizotypy? The case of spiritual experience. In G. Claridge (Ed.), *Schizotypy: Implications for Illness and Health*. Oxford: Oxford University Press. 227-250.
- Lawrence, T.R. (1995). How many factors of paranormal belief are there? A critique of the Paranormal Belief Scale. *Journal of Parapsychology*, 59, 3-25.
- Linney, Y.M., Peters, E.R., & Ayton, P. (1998). Reasoning biases in delusion-prone individuals. *British Journal of Clinical Psychology*, 37, 285-302.

- Livesley, W.J. (1998). Suggestions for a framework for an empirically based classification of personality disorder. *Canadian Journal of Psychiatry*, 43, 137-147.
- Mason, O., Claridge, G., & Williams, L. (1997). Questionnaire measurement. In G. Claridge (Ed.), *Schizotypy: Implications for Illness and Health*. Oxford: Oxford University Press. 19-37
- Malakar, J., Jensterle, J., & Frith, C.D. (1994). Central monitoring deficiency and schizophrenic symptoms. *Psychological Medicine*, 24, 557-564.
- Myers, F.W.H. (1903). *Human Personality and its Survival of Bodily Death* (2 vols.) London: Longmans, Green.
- Raine, A. (1991). The SPQ: A scale for the assessment of schizotypal personality based on DSM-III-R criteria. *Schizophrenia Bulletin*, 17, 555-564.
- Raine, A., & Benishay, D. (1995). The SPQ-B: A brief screening instrument for schizotypal personality disorder. *Journal of Personality Disorders*, 9, 346-355.
- Raine, A., Reynolds, C., Lencz, T., Scerbo, A., Triphon, N., & Kim, D. (1994). Cognitive-perceptual, interpersonal, and disorganized features of schizotypal personality. *Schizophrenia Bulletin*, 20, 191-201.
- Sappington, A.A. (1990). The independent manipulation of intellectually and emotionally based beliefs. *Journal of Research in Personality*, 24, 487-509.
- SAS Institute (1990). *SAS/STAT User's Guide, Version 6* (4th ed.) Cary, NC: SAS Institute Inc.
- Schneider, K. (1959). *Clinical Psychopathology*. New York: Grune & Stratton.
- SPSS [Computer software]. (1995). Chicago, IL: SPSS Inc.
- Tabachnick, B.G., & Fidell, L.S. (1996). *Using Multivariate Statistics* (3rd ed.) New York: HarperCollins.
- Thalbourne, M.A. (1985). Are believers in psi more prone to schizophrenia? [summary]. In R. A. White & J. Solfvin (Eds.), *Research in Parapsychology 1984*. Metuchen, NJ: Scarecrow Press. 85-88.
- Thalbourne, M.A. (1994). Belief in the paranormal and its relationship to schizophrenia-relevant measures: A confirmatory study. *British Journal of Clinical Psychology*, 33, 78-80.
- Thalbourne, M.A., Bartemucci, L., Delin, P.S., Fox, B., & Nofi, O. (1997). Transliminality: Its nature and correlates. *Journal of the American Society for Psychical Research*, 91, 305-331.
- Thalbourne, M.A., & Delin, P.S. (1994). A common thread underlying belief in the paranormal, creative personality, mystical experience and psychopathology. *Journal of Parapsychology*, 58, 3-38.
- Thalbourne, M.A., Dunbar, K.A., & Delin, P.S. (1995). An investigation into correlates of belief in the paranormal. *Journal of the American Society for Psychical Research*, 89, 215-231.
- Thalbourne, M.A., & French, C.C. (1995). Paranormal belief, manic-depressiveness, and magical ideation: A replication. *Personality and Individual Differences*, 18, 291-292.
- Tobacyk, J.J. (1988). *A Revised Paranormal Belief Scale*. (Unpublished manuscript, Louisiana Tech University, Ruston, LA)
- Tobacyk, J.J., & Milford, G. (1983). Belief in paranormal phenomena: Assessment instrument development and implications for personality functioning. *Journal of Personality and Social Psychology*, 44, 1029-1037.
- Tobacyk, J.J., & Thomas, A. (1997). How the big orthogonal seven is really the oblique seven. *Journal of Parapsychology*, 61, 337-342.
- Tobacyk, J.J., & Wilkinson, L.V. (1990). Magical thinking and paranormal beliefs. *Journal of Social Behavior and Personality*, 5(4), Special Issue, 255-264.
- Williams, J.M.G. (1996). Personality disorder and the will: A cognitive neuropsychological approach to schizotypal personality. In P.M. Salkovskis (Ed.), *Trends In Cognitive And Behavioural Therapies*, Vol. 1. London: Wiley. 63-76.
- Williams, L. (1989). *An Exploratory Study of the Relationship Between Paranormal Belief, Magical Ideation and Schizotypy*. Unpublished honours thesis, University of New England, Armidale, Australia.
- Williams, L. (1995). Belief in the paranormal: Its relationship with schizotypy and cognitive style. *Australian Parapsychological Review*, 20, 8-10.
- Williams, L., & Beech, A. (1997). Investigations of cognitive inhibitory processes in schizotypy and schizophrenia. In G. Claridge (Ed.), *Schizotypy: Implications for Illness and Health*. Oxford: Oxford University Press. 63-79

- Williams, L.M., & Irwin, H.J. (1991). A study of paranormal belief, magical ideation as an index of schizotypy, and cognitive style. *Personality and Individual Differences*, 12, 1339-1348.
- Williams, R.N., Taylor, C.B., & Hintze, W.J. (1989). The influence of religious orientation on belief in science, religion and the paranormal. *Journal of Psychology and Theology*, 17, 352-359.
- Windholz, G., & Diamant, L. (1974). Some personality traits of believers in extraordinary phenomena. *Bulletin of the*

*Psychonomic Society*, 3, 125-126.

- Zusne, L., & Jones, W.H. (1989). *Anomalous Psychology: A Study of Magical Thinking* (2nd ed.) Hillsdale, NJ: Lawrence Erlbaum Associates.

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### Schizotypische Processen en Geloof in het Paranormale: een Multidimensioneel Onderzoek

**Samenvatting:** Uit eerder onderzoek is een samenhang gebleken tussen geloof in het paranormale en het construct schizotypie of persoonlijkheidskenmerken die op vatbaarheid voor schizofrenie wijzen. Tot nu toe is er echter nog onvoldoende kennis over de multidimensionele aard van schizotypie. In dit onderzoek vulden 194 Australische volwassenen een multidimensioneel vragenformulier in over schizotypie en geloof in het paranormale. Daarna voerden zij in het laboratorium een taak uit die een index opleverde over de efficiency van centraal bewaken, een cognitief proces dat eerder werd gezien als een positief symptoom van schizotypie of schizofrenie. Multiple regressietechnieken toonden aan dat de schizotypische factoren de intensiteit van zes van de zeven factoren van geloof in het paranormale voorspelden, hoewel de sterkte en de richting van de onderliggende verbanden niet constant waren. We vonden slechts zwak bewijs voor een verband tussen geloof in het paranormale en een slecht functioneren van centraal bewaken. De resultaten suggereren dat het verband tussen geloof in het paranormale en schizotypie complex is. De onderzoeksgegevens ondersteunen zeker niet het simpele standpunt dat mensen die in het paranormale geloven lijden aan een schizofrenieachtige afwijking in hun denkvermogen.

### Schizotypiska Processer och yro på Paranormala Fenomen: Multidimensionell Undersökning

**Sammanfattning:** Tidigare forskning har utvisat att det finns ett förhållande mellan tro på paranormala fenomen och formningen av schizotypi eller karaktärsdrag som tyder på mottaglighet för schizofreni. Hittills har dock kännedom om schizotypins multidimensionella karaktär varit för dålig. I denna undersökning har 194 australiska vuxna fyllt i en multidimensionell blankett med frågor om schizotypi och tro på paranormala fenomen. Efter det utförde de en uppgift i laboratoriet som resulterade i ett index över effektiviteten av central bevakning, en kognitiv process som tidigare ansågs som ett positivt symptom på schizotypi och schizofreni. Flerfaldiga regressionstekniker har visat att schizotypiska faktorer spådde intensiteten av 6 av 7 faktorer som har att göra med tro på paranormala fenomen. Storleken av och riktningen på underliggande förhållanden var dock inte konstant. Det fanns inte mycket som tydde på ett förhållande mellan tro på paranormala fenomen och bristande funktionsförmåga i samband med central bevakning. Resultaten tyder på ett komplext förhållande mellan tro på paranormala fenomen och schizotypi. Resultaten stödjer inte den förenklade synpunkten att alla människor som tror på paranormala fenomen lider av en schizofrenliknande defekt i tankeförmågan.



## SCHIZOTYPAL PROCESSES & BELIEF IN THE PARANORMAL

### Schizotype Prozesse und Glaube an das Paranormale: Eine Multidimensionale Untersuchung

**Zusammenfassung:** Frühere Forschungen haben einen Zusammenhang zwischen paranormalem Glaubensbereitschaften und dem Konstrukt der Schizotypie oder Persönlichkeitsmerkmalen festgestellt, die die Anfälligkeit für Schizophrenie widerspiegeln. Dennoch ist die multidimensionale Natur der Schizotypie bislang nur unzureichend zur Kenntnis genommen worden. In der vorliegenden Untersuchung machten 194 australische Erwachsene in einem multidimensionalen Fragebogen Angaben zu Schizotypie und paranormaler Glaubensbereitschaft. Danach unterzogen sie sich einer experimentellen Aufgabe im Labor, die einen Index für die zentrale Überwachungseffizienz abgibt, für einen kognitiven Prozeß mithin, der von positiven Symptomen für Schizotypie und Schizophrenie begleitet war. Multiple Standard-Regression zeigte, daß die Schizotypie-Faktoren die Stärke von sechs aus sieben Arten paranormaler Glaubensbereitschaft vorhersagen. Größe und Richtung der zugrundeliegenden Wechselbeziehung variierten allerdings. Es gab wenige Hinweise für die Annahme, daß eine Beziehung zwischen paranormalen Glaubensbereitschaften und einer funktionellen Störung zentraler Überwachung bestehen könnte. Diese Ergebnisse lassen auf eine komplexe Beziehung zwischen paranormalen Glaubensbereitschaften und Schizotypie schließen. Keinesfalls unterstützen die Daten die stark vereinfachende Ansicht, daß Personen, die an Paranormales glauben, allesamt unter schizophrenieartigen Denkstörungen litten.

### Processi Schizotipici e Credenza nel Paranormale: Uno Studio Multidimensionale

**Sommario:** Ricerche precedenti avevano rinvenuto un rapporto tra credenza nel paranormale e costruito di schizotipia o tratti di personalità indicativi di tendenza alla schizofrenia. Finora, comunque, si avevano conoscenze insufficienti sulla natura multidimensionale della schizotipia. Nel presente studio 194 adulti di nazionalità australiana hanno risposto a un questionario multidimensionale di schizotipia e convinzioni sul paranormale ed hanno poi effettuato una prova di laboratorio tesa a misurare l'efficienza della vigilanza centrale, un processo cognitivo che si sa implicato nei sintomi positivi di schizotipia e schizofrenia. Una regressione multipla standard ha evidenziato che i fattori di schizotipia erano predittivi di 6 su 7 convinzioni sul paranormale, però erano variabili l'entità e la direzione dei relativi rapporti. Si sono avute limitate indicazioni che le credenze nel paranormale possono correlare a disfunzioni della vigilanza centrale. Questi riscontri indicano che il rapporto tra credenze paranormali e schizotipia è complesso. I dati in realtà non sostengono l'opinione semplicistica che i credenti nel paranormale soffrano tutti di disturbi di pensiero di tipo schizofrenico.

### Procesos de Esquizotipia y Creencia en lo Paranormal: Un Estudio Multidimensional

**Resumen:** Investigaciones anteriores han establecido una relación entre creencia en lo paranormal y el concepto de esquizotipia o rasgos de personalidad que reflejan propensión a la esquizofrenia. Sin embargo, hasta ahora no se ha considerado lo suficiente la naturaleza multidimensional de la esquizotipia. En este estudio 194 adultos australianos contestaron medidas multidimensionales de esquizotipia y creencia en lo paranormal, y entonces llevaron a cabo una tarea en el laboratorio que medía eficiencia central de monitoria, un proceso cognoscitivo que se ha relacionado a los síntomas positivos de la esquizotipia y de la esquizofrenia. Regresiones múltiples revelaron que los factores de la esquizotipia predicen la intensidad de seis de siete creencias en lo paranormal, pero la magnitud y la dirección de las interrelaciones variaba. Hubo poca evidencia de que las creencias en lo paranormal estaban relacionadas a problemas de monitoreo central. Los resultados sugieren que la relación entre creencias en lo paranormal y la esquizotipia es compleja. Los datos ciertamente no apoyan la idea simple de que creyentes en lo paranormal sufren de forma uniforme de trastorno de pensamiento esquizofrénico.

**Processos Esquizotípicos e Crença no Paranormal:  
Um Estudo Multidimensional**

**Resumo:** Pesquisas anteriores estabeleceram uma relação entre as crenças paranormais e a construção da esquizotipia ou de traços de personalidade que refletem uma propensão à esquizofrenia. Até o momento, no entanto, não há conhecimento suficiente sobre a natureza multidimensional da esquizotipia. Neste estudo, 194 australianos adultos responderam questionários mensuradores de esquizotipia e crença paranormal, e então realizaram uma tarefa laboratorial que indexava a eficiência de monitoramento central, um processo cognitivo previamente implicado nos sintomas de esquizotipia e de esquizofrenia. Regressões múltiplas padrão revelaram que os fatores de esquizotipia previram a intensidade de seis entre sete crenças paranormais, mas o tamanho e a direção das inter-relações subjacentes variaram. Houve pouca evidência de que as crenças paranormais estivessem relacionadas a uma disfunção de monitoramento central. Os resultados sugerem que a relação entre crenças paranormais e esquizotipia é complexa. Certamente os dados não encorajam a visão simplista de que quem tem crenças paranormais sofre uniformemente de uma desordem de pensamento de tipo esquizofrênico.

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## Belief in Life After Death and its Relationship to Transliminality-Relevant Variables

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**Abstract:** Transliminality is a factor-analytically derived variable currently defined as "susceptibility to, and awareness of, large volumes of imagery, ideation and affect — these phenomena being generated by subliminal, supraliminal and/or external input". One of the core constituent variables of this factor is paranormal belief and experience, and there are eight others thus far identified (Thalbourne, 1998). Moreover, previous research has demonstrated that correlates of belief in life after death can differ according to the form of survival envisaged (Thalbourne, 1996c). In this study ( $N = 301$  psychology students) it was predicted that transliminality, its constituent variables, and certain of its correlates and associated variables might differ in relation to the kind of afterlife believed in. For the most part the results bore out this prediction. On transliminality itself, using the 29-item Transliminality Scale (Form B), reincarnationists and eclectics (the latter of whom believe in both immortality and reincarnation) were found to score highest, the lowest scores being obtained by extinctionists.

Just as belief in ESP and PK has definite demographic and psychological correlates (see Irwin, 1993, for a review), so too does general belief in life after death (Thalbourne, 1989). However, in the case of the latter it has recently been shown that these correlates can vary according to the *form* of afterlife believed in (Thalbourne, 1996b, 1996c)<sup>1</sup> For example, while belief in, and alleged experience of, ESP and PK is relatively high in general afterlife believers, it is especially so among those respondents who subscribe to the reincarnation hypothesis (Thalbourne, 1996b, 1996c). Again, general afterlife believers tend to be more conservative than disbelievers (Thalbourne, 1994). However, a breakdown into *type* of afterlife believed in shows that it is the immortalists who are most conservative while the reincarnationists are very liberal (Thalbourne, 1996c). Thus, there is value in examining

afterlife belief in this more fine-grained manner. The study to be described in this paper is an example of this approach.

The variables to be examined in this study were, with several exceptions, relevant to the concept of transliminality (Sanders, 1997; Thalbourne, 1991; Thalbourne, 1996a; Thalbourne, 1998; Thalbourne, Bartemucci, Delin, Fox & Nofi, 1997; Thalbourne & Delin, 1994; Thalbourne and Delin, 1995; Thalbourne & Delin, in press). Transliminality is currently defined as "susceptibility to, and awareness of, large volumes of imagery, ideation and affect — these phenomena being generated by subliminal, supraliminal and/or external input". The mind is seen as possessing various levels to pass along which material has to cross a threshold, or minimum of disinhibition. Material from the subliminal mind, from the supraliminal mind and from the external environment is seen as passing "across thresholds" (*trans limines*) to bring about experience in consciousness. The nine core constituents of this new variable that have been found by factor analysis (Thalbourne, 1998) are belief in (and

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<sup>1</sup> There seems to be a typology of believers in ESP too: See Irwin (1997).

alleged experience of) the paranormal (ESP, PK and life after death), creative personality, mystical experience, magical ideation, history of manic-like experience<sup>2</sup>, attitude to dream interpretation, fantasy-proneness, absorption, and hyperaesthesia (hyper-sensitivity to environmental stimulation). In the course of a large-scale study on transliminality (Thalbourne, 1998) the opportunity arose to examine all these variables — and a composite scale measuring overall transliminality itself — in relation to type of afterlife belief subscribed to. This was essentially an exploratory exercise, but it was formally predicted, on the basis of previous research, that reincarnationists would score highest on belief in and experience of ESP and PK and on measures of schizotypy (such as schizotypal personality and magical ideation), while immortalists would score higher on religiosity.

## Method

### *Participants*

Participants consisted of 301 subjects, mainly students at various levels of psychology at the University of Adelaide, two thirds of whom volunteered for the study and a third of whom did the questionnaires as a class exercise in psychological computing (points which must be remembered when attempting to generalise the results). Of these participants, 29% were males. Age ranged from 17 to 63, with a mean of 24.33 and an *SD* of 9.57, the distribution being strongly skewed towards the younger end.

### *Materials*

*Set 1.* These measures are listed in order of administration.

<sup>2</sup> History of depressive experience was a constituent of transliminality in the first factor analysis conducted (Thalbourne & Delin, 1994) but, for some unknown reason, thereafter failed to correlate consistently with the other variables and was therefore dropped. It was, however, present in the variables used in the present paper.

1. The 18-item visual analogue Australian Sheep-Goat Scale (Thalbourne & Delin, 1993) as a measure of belief in, and alleged experience of, paranormal phenomena. Because this scale contains two items about belief in an afterlife these were removed (general belief in an afterlife being used as a variable in its own right) leaving a 16-item Reduced version of the Sheep-Goat Scale concerning basically ESP and PK.

2. The revised version of the Survey of Belief in an Afterlife (Thalbourne, 1996b, 1996c); using this questionnaire respondents can be classified as extinctionists (nonsurvivalists), reincarnationists, immortalists (who come closest to orthodox Christian belief), eclectics (combining reincarnation with immortality<sup>3</sup>), "other" believers (who believe in a life after death but not one of the reincarnationist or immortalist variety), or agnostics.

3. The 9-item (true-false) Creative Personality Scale devised by Thalbourne and Delin (1994), which measures personality characteristics said to be typical of creative persons; for one attempt to validate this scale see Thalbourne et al. (1997: Study IV) and another more successful attempt see Thalbourne (1998).

4. The 22-item (true-false) Mystical Experience Scale (Thalbourne, 1991: three contentious items have been dropped from the original 25-item scale).

5. The 34-item (true-false) Absorption Scale, devised by Tellegen and Atkinson, which is said to measure "a disposition for having episodes of "total" attention that fully engages one's representational (i.e., perceptual, enactive, imaginative, and ideational) resources" (Tellegen & Atkinson, 1974, p. 268).

<sup>3</sup> To avoid misunderstanding, the wording of the eclectic option was simply: "The 'conscious personality' survives the death of the body, and indeed is immortal; it may be reincarnated into a new body, this process occurring over and over again; there may (or may not) be a 'Resurrection of the Dead' ".

6. The 48-item (true-false) Inventory of Childhood Memories and Imaginings: Children's Form (ICMIC), devised by Myers (1983) as a measure of fantasy-proneness. Note that as the ICMIC contains five items of a parapsychological nature, it was deemed wise to use instead a version of the scale (here called ICMIC Reduced) that omitted such items to avoid overlap with other scales, in particular the Sheep-Goat Scale.

7. The 8-item multivalued-response scale devised by Haraldsson (1981: Appendix A, items 1 through 8) to measure religiosity in a general sense (for validation data see Thalbourne, 1995, and Thalbourne, 1998).

8. The 6-item (true-false) Hyperaesthesia Scale compiled by Thalbourne (1996a) to measure hypersensitivity to environmental stimulation.

9. The single true-false item "A person should try to understand their dreams and be guided by or take warnings from them.", which is MMPI item #11 (Dahlstrom, Welsh & Dahlstrom, 1972).

10. The single multi-valued item "Do you attempt to interpret or understand your dreams?" (never / seldom / now and then / often) from Haraldsson (1981, Appendix A, item 14).

Bernstein and Putnam's (1986) 28-item visual-analogue Dissociative Experiences Scale was presented for half the subjects in Set 1, and in the other half in Set 2.

Set 2. Again in order of presentation, this set consisted of:

1. The 30-item (true-false) Magical Ideation Scale as an index of schizotypy (Eckblad & Chapman, 1983). Eight items were removed because of their parapsychological nature, to prevent item overlap, this scale being called Magical Ideation Reduced.

2. The 18-item (true-false) Manic-Depressiveness Scale (Thalbourne, Delin & Bassett, 1994), 9 items of which are scored for history of Manic-like Experience and 9 items for history of Depressive Experience.

3. The 37-item (true-false) STA scale

reported by Claridge and Broks (1984) as a measure of schizotypal personality.

4. The 12-item (true-false) Hallucination Scale devised by Launay and Slade (1981) as a way of measuring predisposition to hallucinations of the visual and auditory type.

5. Riley's (1988) 26-item (true-false) Questionnaire of Experiences of Dissociation.

6. For 82 subjects, the Eysenck Personality Questionnaire — Revised (Eysenck & Eysenck, 1991), measuring extraversion (E), neuroticism (N: the focus of particular interest in this study), psychoticism (P), and dissimulation (the Lie scale L). As in McCreery and Claridge (1995, p. 138) "the object of their inclusion was to be able to locate the various subject groups by reference to the longer-established dimensions of extraversion and neuroticism ... for comparison purposes".

7. The 29-item Transliminality Scale, responses to which were not procured on a separate scale but were *derived* from portions of the data above (see Thalbourne, 1998).

The core constituents of transliminality thus far uncovered by factor analysis are paranormal belief and experience, magical ideation, mystical experience, creative personality, manic experience, absorption, fantasy-proneness, hyperaesthesia, and attitude to dream-interpretation.

Correlates of transliminality include schizotypal personality (STA), dissociation (as measured by both the Questionnaire of Experience of Dissociation and the Dissociative Experiences Scale), the Launay-Slade Hallucination Scale, frequency of dream-interpretation, religiosity and depressive experience.

Descriptive statistics for the "belief in an afterlife" visual analogue scale indicate a range from 1 to 44, that is, across the entire possible range of scores, with a mean of 29.78 (indicating a tendency towards belief) and a standard deviation of 11.68, skewness being an acceptable -.70, with an unusually large number of subjects (14%) marking the highest possible position on

the visual analogue scale, which was scored as 44 (complete belief in an afterlife).

Descriptive statistics for the other variables from both sets 1 and 2 may be found in Thalbourne (1998: Table 1) (except for the Transliminality Scale, whose results may be found there in the relevant text). All measures were found by inspection of histograms to be approximately normally distributed except for the Dissociative Experience Scale (DES), which was positively skewed (skewness greater than 1.00); we should therefore be cautious about results with parametric analyses with the DES. With that exception, these data are in a form appropriate for Pearson correlations: most of the data fall within two standard deviations of the mean, and the mean is relatively close to half way between the minimum and maximum recorded values.

#### *Procedure*

The proposed questionnaires were submitted to the scrutiny of a departmental ethics committee, and were found to comply with ethical guidelines. Except for the class exercise in computing, which was for teaching purposes, all subjects gave written consent to participate on two occasions, separately for Set 1 and for Set 2.

The majority of subjects completed Set 1 of the questionnaires in a one-hour timeslot, and Set 2, if they so volunteered (which not all did), in a similar timeslot one week later. They were told in advance that the questionnaires were about ESP (Sceptics welcome!), and this fact may well have influenced who volunteered. The computing subjects completed both sets together at their leisure without being told in advance what they were about, and the majority returned the questionnaires filled in. Feedback about the suggested meaning of the responses to the questionnaires was made available to those who wished.

#### Results

##### *General (undifferentiated) belief in life after death*

General belief in life after death (form of life unspecified) correlated as shown in Table 1, in order of magnitude of Pearson correlation coefficient. All probability values in this Table are two-tailed.

General afterlife believers thus tended to be more religious (understandably), to believe in and report more experience of ESP and PK, to report more mystical experience, to be more transliminal (that is, material crosses thresholds more readily into consciousness), to report more magical ideation, as well as more manic-like experience and more signs of schizotypal personality, tended to report more proneness to hallucination, more fantasy-proneness (a small effect, as are those which follow), a more positive attitude towards dream-interpretation, a higher degree of absorption, a higher frequency of dream-interpretation, more hyperaesthesia, and more dissociative experience as measured by the DES. There was no significant association with manic-depressiveness, the QED measure of dissociation, the four Eysenck variables (especially neuroticism, which one might have expected to be raised in believers), creative personality, or depressive experience (apparently, people do not believe in an afterlife because they are depressed with this one). The non-significant correlation with P, psychoticism, might seem a little unexpected in view of the fact that so many of the schizotypal scales correlated with belief in life after death. This may be because the P-scale measures more anti-social traits rather than positive symptoms.

We can thus see that general afterlife belief correlates significantly positively with a large number of our research variables. The question is, do these associations differ according to *form* of belief of life after death believed in? Which afterlife-believers are contributing most to these correlations?

### Frequencies of various beliefs in life after death

Using the revised version of the Survey of Belief in an Afterlife (Thalbourne, 1996b, 1996c), 29 persons (10%) were extinctionists, 62 were reincarnationists (21%), 56 were immortalists (19%), 27 were eclectic (combining belief in immortality with belief in reincarnation: 9%), 62 believed in something other than the options offered (21%), and 59 were agnostics (20%), while 6 persons (2%) did not respond — at all, or appropriately. Comparison of these percentages with a Table given by Thalbourne (1996b, p. 286) suggests that in the present sample reincarnationists and "other" believers are over-represented, while immortalists and extinctionists are under-represented. This can be explained, in part, by recalling that the reincarnationists traditionally have the highest level of belief

in the paranormal, and would be more likely therefore to volunteer to fill out a questionnaire explicitly described by the experimenter as being, in part, about ESP. Extinctionists, and to a lesser extent immortalists, having lower belief in the paranormal, would be less inclined to take up the experimenter's offer.

### Differences between the various afterlife believers (Set one)

Because of differing *N*s, the results are most appropriately presented in a number of tables rather than just one. We first draw attention to the statistics in Table 2.

The differences between means were analysed first for all variables using Multivariate Analysis of Variance, and next with univariate ANOVAs (or nonparametric Kruskal-Wallis one-way ANOVA if assumptions were not met). The means

Table 1  
Pearson correlations between general afterlife belief and the research variables (max *N* = 299)

Variable	<i>r</i>	<i>p</i>
Religiosity	.54	<.001
Belief in and experience of ESP and PK	.39	<.001
Mystical experience	.32	<.001
Transliminality	.31	<.001
Magical ideation (reduced)	.24	<.001
Manic experience	.22	<.001
Schizotypal personality (STA)	.21	<.001
Launay-Slade Hallucination Scale	.20	<.001
Fantasy-proneness (ICMIC, reduced)	.19	<.001
Attitude towards dream-interpretation	.17	.004
Absorption	.17	.006
E (Extraversion)†	.16	.163
Frequency of dream-interpretation	.14	.014
Hyperaesthesia	.14	.018
Dissociative Experiences Scale	.12	.048
Manic-depressiveness	.11	.084
Questionnaire of Experience of Dissociation	.09	.162
P (Psychoticism)†	-.06	.592
N (Neuroticism)†	-.04	.695
Creative personality	.03	.597
Depressive experience	-.02	.733
L (Lie Scale)†	.02	.883

† *N* = 83



were then compared using the Scheffé test (Scheffé, 1953) with  $\alpha = .10$  to counteract the conservativeness of the test. The overall multivariate Wilks' statistic for Table 2 was .450 (approximate  $F = 6.97$ ,  $df = 35, 1168$ ,  $p < .001$ ). There was thus a significant difference between the afterlife-belief categories on the dependent variables taken as a whole. (Bartlett-Box tests of homogeneity of variance showed that in the case of creative personality and fantasy-proneness the assumption was violated, leading to the use of the alternative Kruskal-Wallis.)

Results will now be given scale by scale.

### *The Religiosity Scale*

As observed on previous occasions, it was the immortalists who scored highest on this variable, and significantly higher than the low-scoring extinctionists, agnostics and "other" believers. Reincarnationists were significantly more religious than extinctionists, agnostics and "other" believers, and eclectics and "other" believers were more religious than extinctionists and agnostics. The afterlife belief variable accounted for 31% of the variance in the religiosity scores.

### *The Australian Sheep-Goat Scale (Reduced)*

Marked differences in scoring were found on this scale, the reincarnationists being, as predicted, highest in belief in and experience of ESP and PK. Extinctionists scored the lowest. By Scheffé test the reincarnationists were significantly higher than all other categories. In addition, eclectics were significantly higher than immortalists, agnostics and extinctionists. Perhaps psi experimenters would be well advised to select reincarnationists (and perhaps also eclectics) for their studies.

### *The Mystical Experience Scale*

Reincarnationists were highest and agnostics were the lowest on mystical experience. The difference between reincarnationists and agnostics, extinctionists,

"other" believers, eclectics and immortalists was significant, while at the same time immortalists scored significantly higher than agnostics.

### *The ICMIC (Inventory of Childhood Memories and Imaginings, Children's Form, Reduced)*

On this measure of fantasy-proneness reincarnationists scored highest and extinctionists the lowest. Kruskal-Wallis non-parametric ANOVA yielded a highly significant difference between the afterlife-belief categories ( $\chi^2 = 40.68$  [corrected for ties],  $df = 5$ ,  $p < .0001$ ). (No post hoc comparisons are available for this non-parametric ANOVA.)

### *The Absorption Scale*

Reincarnationists scored highest on the absorption variable, extinctionists the lowest. Reincarnationists were significantly higher than all other categories except eclectics.

### *The Hyperæsthesia Scale*

Reincarnationists were again the high scorers, and again the extinctionists were the lowest. Reincarnationists were significantly higher than all other categories except eclectics.

Reincarnationists thus seem to be more prone to over-sensitivity to sensory stimulation.

### *The Creative Personality Scale*

Eclectics were highest and immortalists lowest on this scale but the differences were not significant. Kruskal-Wallis nonparametric ANOVA yielded a non-significant difference between the afterlife-belief categories ( $\chi^2 = 8.92$ ,  $df = 5$ ,  $p = .11$ ).

### *The Dissociative Experiences Scale*

Table 3 gives the breakdown for the data on the Dissociative Experiences Scale,

# TRANSLIMINALITY AND BELIEF IN LIFE AFTER DEATH

Table 2

*Means, (standard deviations in italics), and other statistics for the various believers in an afterlife (MAX N = 295)*

Scale (Theoretical range in parenthesis)	Extinct. <i>n</i> = 29	Reincarn. <i>n</i> = 62	Immort. <i>n</i> = 56	Eclectic <i>n</i> = 27	Oth. Bel. <i>n</i> = 62	Agnostic <i>n</i> = 59	F(5,283)	<i>p</i>	eta <sup>2</sup>
Religiosity (8-31)	14.4 4.5	20.7 4.9	23.0 5.4	19.9 4.7	18.0 4.3	14.9 3.9	25.37	<.001	.31
Australian S-G Scale (Red.) (1-32)	11.4 5.2	21.4 5.9	13.1 5.5	17.4 3.7	14.2 6.0	12.1 6.0	23.27	<.001	.29
Mystical experience (1-22)	9.2 4.1	14.9 5.1	12.0 3.9	11.5 5.0	10.8 4.8	8.6 4.3	12.26	<.001	.19
ICMIC (Reduced) (0-39)	16.3 5.7	23.8 6.8	19.5 7.4	22.6 5.3	19.6 5.7	17.6 4.9	†	†	.15
Absorption (0-34)	19.3 7.2	26.3 5.7	20.3 7.1	22.9 4.7	21.3 7.2	20.5 6.0	8.17	<.001	.13
Hyperæsthesia Scale (0-6)	1.6 1.4	2.8 1.8	1.8 1.4	2.3 1.5	1.9 1.6	1.7 1.3	5.23	<.001	.08
Creative personality (0-9)	6.6 1.7	6.8 1.6	6.0 2.0	6.7 1.0	6.3 1.7	6.1 1.6	†	†	.03

† See text

which violated the assumptions of normality and homogeneity of variance and was therefore analysed using Kruskal-Wallis one-way ANOVA. Significant differences between groups were obtained.

Eclectics scored highest on this variable, followed closely by the reincarnationists, while extinctionists and agnostics were the lowest, but, as mentioned above, post hoc comparisons are not possible with this non-parametric test.

*Differences between the various afterlife believers (Set two and transliminality)*

The mean scores on various dependent variables for the six different categories of afterlife believer are displayed in Table 4, again in order of magnitude of the effect size eta-squared.

For the data in Table 4, Wilks' statistic was .705 (approximate  $F = 2.74$ ,  $df = 30$ , 898,  $p < .001$ ). Again, overall, there was a significant difference between the afterlife-belief categories on the dependent variables taken as a group. (Bartlett-Box tests of homogeneity of variance showed that the assumption was met in all cases.) Once again, results will be given scale by scale.

*The Transliminality Scale*

This measure is a composite scale made up of selected items from nine of the variables mentioned in the Method, and is thus in some sense an overall or summary picture of many of the afterlife-belief differences. Thus we find that, as might be predicted by now, reincarnationists scored the highest on this scale. Reincarnationists scored significantly higher on transliminality than did all other categories (extinctionists were the lowest) except their cousins the eclectics. Eclectics were themselves significantly higher than agnostics and extinctionists. The amount of variance in common between afterlife belief and transliminality is, at 29%, the largest in this set of variables.

*The Magical Ideation Scale (Reduced)*

As predicted in the introduction, reincarnationists scored highest; extinctionists were the lowest. The differences between reincarnationists and all other categories (except eclectics) were significant, as were those between eclectics and agnostics and extinctionists.

*Schizotypal Personality (STA)*

Again as predicted, reincarnationists scored highest on this measure of schizotypy; they were significantly higher than extinctionists (who scored the lowest), and agnostics.

*The Launay-Slade Hallucination Scale*

Reincarnationists were highest on proneness to hallucination, and extinctionists the lowest. The differences were significant between reincarnationists and extinctionists, agnostics, and "other believers", and also between eclectics and extinctionists.

*The Questionnaire of Experience of Dissociation*

The reincarnationists scored highest on this measure of dissociation and extinctionists were the lowest. The differences between reincarnationists and extinctionists and agnostics were significant.

*The Manic-Depressiveness Scale*

This scale is the summation of the Manic Experience scale and the Depressive Experience scale. Eclectics scored highest on this variable, reincarnationists following close behind. Extinctionists scored lowest on this scale, and the differences were significant.

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Table 3

Means, (standard deviations in italics), and other statistics for the various believers in an afterlife (N = 273), for the Dissociative Experiences Scale

Scale (Theoretical range in parenthesis)	Extinct. N = 26	Reincarn. N = 58	Immort. N = 49	Eclectic N = 27	Oth. Bel. N = 56	Agnostic N = 57	$\chi^2(5)$	p	eta <sup>2</sup>
Dissociative Experiences Scale (0-100)	13.4 <i>8.0</i>	24.9 <i>17.8</i>	21.1 <i>14.1</i>	26.7 <i>17.1</i>	20.3 <i>14.4</i>	15.8 <i>11.0</i>	16.71	.005	.08

Table 4

Means, (standard deviations in italics), and other statistics for the various believers in an afterlife (Max N = 239)

Scale (Theoretical range in parenthesis)	Extinct. N = 24	Reincarn. N = 50	Immort. N = 47	Eclectic N = 25	Oth. Bel. N = 45	Agnostic N = 48	F(5,229)	p	eta <sup>2</sup>
Transliminality (0-29)	10.9 <i>4.6</i>	20.9 <i>6.0</i>	13.6 <i>5.4</i>	17.2 <i>4.3</i>	14.1 <i>5.8</i>	12.6 <i>4.6</i>	19.05	< .001	.29
Magical Ideation (Reduced) (0-22)	4.3 <i>2.8</i>	9.4 <i>4.2</i>	5.3 <i>3.6</i>	7.5 <i>3.6</i>	5.6 <i>3.6</i>	4.4 <i>2.7</i>	13.22	< .001	.23
Schizotypal Personality (STA) (0-37)	13.0 <i>7.0</i>	21.0 <i>7.4</i>	16.9 <i>7.3</i>	20.8 <i>6.9</i>	17.0 <i>7.8</i>	15.9 <i>5.7</i>	5.72	< .001	.12
L-S Hallucination Scale (0-12)	2.5 <i>1.8</i>	5.3 <i>2.6</i>	4.0 <i>2.5</i>	4.8 <i>2.4</i>	3.7 <i>2.5</i>	3.3 <i>2.2</i>	6.01	< .001	.12
Quest. on Exper. of Dissoc. (0-26)	9.1 <i>4.0</i>	13.5 <i>5.8</i>	11.1 <i>4.5</i>	12.6 <i>4.1</i>	10.8 <i>4.9</i>	10.5 <i>3.8</i>	3.89	.002	.08
Manic-Depressiveness (0-18)	8.6 <i>3.2</i>	10.4 <i>2.6</i>	10.0 <i>2.6</i>	11.0 <i>2.2</i>	9.3 <i>3.4</i>	9.6 <i>2.4</i>	2.71	.021	.05
Manic Experience (0-9)	4.5 <i>2.0</i>	5.7 <i>1.4</i>	5.3 <i>1.6</i>	5.7 <i>1.2</i>	5.0 <i>1.8</i>	5.3 <i>1.5</i>	2.21	.054	.05
Depressive Experience (0-9)	4.1 <i>2.0</i>	4.7 <i>1.8</i>	4.7 <i>1.9</i>	5.3 <i>1.7</i>	4.3 <i>2.2</i>	4.3 <i>1.5</i>	1.53	.181	.03

Table 5

*Means, (standard deviations in parenthesis), and other statistics for the various believers in an afterlife (MAX N = 84)*

Scale (Theoretical range in italics)	Extinct. N = 7	Reincarn. N = 18	Immort. N = 17	Eclectic N = 8	Oth. Bel. N = 20	Agnostic N = 12	F(5,75)	p	eta <sup>2</sup>
L (Lie Scale: 0-21)	6.1 2.4	6.7 4.1	7.0 3.4	7.6 4.3	6.8 3.9	4.0 2.4	1.52	.193	.08
N (Neuroticism: 0-24)	13.0 5.7	13.0 5.2	15.5 5.0	14.9 5.3	14.1 5.1	16.8 3.9	1.13	.354	.07
E (Extraversion: 0-23)	12.5 5.9	16.6 4.7	14.4 4.3	15.4 5.0	15.2 5.9	14.1 4.3	.79	.562	.05
P (Psychoticism: 0-32)	6.0 3.5	7.4 3.6	5.6 2.8	6.3 2.3	6.1 4.0	6.3 2.3	.65	.661	.04

*The Manic Experience Scale*

Reincarnationists and eclectics scored highest on this variable, and the extinctionists were lowest, but the differences were non-significant by Scheffé test.

*The Depressive Experience Scale*

The results of this analysis can be described as non-significant. Eclectics scored highest and extinctionists lowest, but the differences were non-significant by Scheffé test.

*Differences between the various afterlife believers (Eysenck variables)*

The mean scores on the four Eysenck variables for the six different categories of afterlife believer are displayed in Table 5, in order of magnitude of the effect size eta-squared. It should be borne in mind that in this case the sample size is considerably lower than it is for the sample as a whole.

For the data in Table 5, Wilks' statistic was .779 (approximate  $F = .935$ ,  $df = 20$ ,  $240$ ,  $p = .543$ , and therefore non-significant). There was no overall significant difference between the afterlife-belief categories on the dependent variables taken as a group. In particular this means that levels of neuroticism did not vary between groups, whether extinctionists, reincarnationists, or other type of believer.

*The two dream interpretation variables*

Afterlife belief was cross-tabulated with frequency of dream interpretation and attitude to dream interpretation, the latter a core constituent of translminality. On frequency of interpretation, all those who believed in some sort of afterlife were high (c. 80% who engaged in dream interpretation often or now and again) while extinctionists and agnostics were significantly lower (c. 64%:  $\chi^2 = 11.86$ ,  $df = 5$ ,  $p = .037$ ). The story is a little different for attitude towards dream-interpretation, where reincarnationists were most positive (85%) of all afterlife believers (generally

around 70%), while agnostics and extinctionists were least positive (60% and 50% respectively [ $\chi^2 = 13.71$ ,  $df = 5$ ,  $p = .018$ ]).

## Discussion

General (undifferentiated) belief in life after death yielded significant results in 14 of the 22 analyses performed, indicating that there are indeed correlates of the general question "Do you believe in life after death?". But this question does not throw any light on whether these variables differ in accordance with the *type* of afterlife believed in, and it was the main thrust of this paper to inquire into this question.

The most striking finding was that it was the reincarnationists who, by and large, tended to score highest on these translminality-relevant variables (exceptions being the Religiosity Scale, the Dissociative Experiences Scale and the Manic-Depressiveness scale), and that it was the extinctionists who scored lowest. Agnostics tended to score like extinctionists, but not quite so extremely, and likewise eclectics tended to score like reincarnationists, though again not so extremely, while the immortalists and "other" believers tended to score somewhere in between. (It would be interesting in future research to probe deeper into what exactly "other" believers do believe, if anything, since on this showing they scored more like extinctionists and agnostics.)

Reincarnationists, and to almost the same extent eclectics, scored significantly higher on translminality. Reincarnationists, and partly as a consequence of their high scores on translminality, were also significantly higher on absorption, the sheep-goat variable, hyperaesthesia, fantasy-proneness, mystical experience, dissociation (the QED), magical ideation, schizotypal personality, hallucination-proneness, and manic experience. Some of these variables have psychopathological implications, but it is probably too early in the research to say whether reincarnationists are more prone to psychosis (with

all the good and the bad that that entails: see Jamison, Gerner, Hammen, & Padesky, 1980) or whether they are simply more imaginative (or both: see Claridge, Clark and Davis, 1997, pp. 384-385). The fact that the neuroticism scores are no different for reincarnationists and the other groups (and close to the norms given in the manual) suggests that the reincarnationists are not suffering any greater stress than the other categories, and may well be perfectly well-adjusted. They would then come into the category of what McCreery and Claridge (1995) call the "happy schizotypic" "who is functional despite, or perhaps even in part because of, his or her anomalous experiences" (p. 142). Transliminality appears in the latest research not to be correlated with neuroticism (Thalbourne, 1998), and hence we can perhaps speak also of the "happy transliminal" — high in transliminality but not necessarily prone to mental illness.

It must be emphasized that, if these findings generalize beyond this sample, they may well not generalize to non-Western countries. Indian reincarnationists, for example, might show a very different psychological profile.

Finally, it would be interesting to test the transliminality scores of mediums and similar sensitives. Perhaps transliminality indicates a sensitivity to the threshold between this life and the next, if there is one!

## References

- Bernstein, E.M. & Putnam, F.W. (1986). Development, reliability, and validity of a dissociation scale. *Journal of Nervous and Mental Disease*, 174, 727-734.
- Claridge, G.S. & Broks, P. (1984). Schizotypy and hemisphere function. 1. Theoretical considerations and the measurement of schizotypy. *Personality and Individual Differences*, 5, 633-648.
- Claridge, G.[S], Clark, K. & Davis, C. (1997). Nightmares, dreams, and schizotypy. *British Journal of Clinical Psychology*, 36, 377-386.
- Dahlstrom, W.G., Welsh, G.S. & Dahlstrom, L.E. (1972). *An MMPI Handbook. Volume 1: Clinical Interpretation. A Revised Edition.* Minneapolis, MN: University of Minnesota Press.
- Eckblad, M. & Chapman, L.J. (1983). Magical ideation as an indicator of schizotypy. *Journal of Consulting and Clinical Psychology*, 51, 215-225.
- Eysenck, H.J. & Eysenck, S.B.G. (1991). *Manual of the Eysenck Personality Scales (EPS Adult)*. London: Hodder & Stoughton.
- Haraldsson, E. (1981). Some determinants of belief in psychical phenomena. *Journal of the American Society for Psychical Research*, 75, 297-309.
- Irwin, H.J. (1993). Belief in the paranormal: A review of the empirical literature. *Journal of the American Society for Psychical Research*, 87, 1-39.
- Irwin, H.J. (1997). An empirically derived typology of paranormal believers. *European Journal of Parapsychology*, 13, 1-14.
- Jamison, K.R., Gerner, R.H., Hammen, C. & Padesky, C. (1980). Clouds and silver linings: Positive experiences associated with primary affective disorders. *American Journal of Psychiatry*, 137, 198-202.
- Launay, G. & Slade, P.D. (1981). The measurement of hallucinatory predisposition in male and female prisoners. *Personality and Individual Differences*, 2, 221-234.
- McCreery, C. & Claridge, G. (1995). Out-of-the-body experiences and personality. *Journal of the Society for Psychical Research*, 60, 129-148.
- Myers, S.A. (1983). The Wilson-Barber inventory of childhood memories and imaginings: Children's form and norms for 1337 children and adolescents. *Journal of Mental Imagery*, 7, 83-94.
- Riley, K.C. (1988). Measurement of dissociation. *Journal of Nervous and Mental Disease*, 176, 449-450.
- Sanders, R.E. (1997). The role of transliminality, emotional states as targets, and participant interaction in an ESP task. Unpublished B.A. (Honours) thesis, Department of Psychology, University of Adelaide, Adelaide, South Australia.
- Scheffé, H. (1953). A method for judging all contrasts in the analysis of variance. *Biometrika*, 40, 87-104.
- Tellegen, A., & Atkinson, G. (1974). Openness to absorbing and self-altering experiences ("absorption"), a trait related to hypnotic susceptibility. *Journal of Abnormal Psychology*, 83, 268-277.



- Thalbourne, M.A. (1989). On the psychology of belief in life after death. In G.K. Zollschan, J.F. Schumaker, & G.F. Walsh (Ed.), *Exploring the Paranormal: Different Perspectives on Belief and Experience*, 215-236. Bridport, Dorset, England: Prism.
- Thalbourne, M.A. (1991). The psychology of mystical experience. *Exceptional Human Experience*, 9, 168-186.
- Thalbourne, M.A. (1994). Conservatism and its relation to various aspects of belief in the paranormal. *Journal of the Society for Psychical Research*, 60, 86-94.
- Thalbourne, M.A. (1995). Psychological characteristics of believers in the paranormal: A replicative study. *Journal of the American Society for Psychical Research*, 89, 153-164.
- Thalbourne, M.A. (1996a). An attempt to predict precognition scores using translminality-relevant variables. *Journal of the Society for Psychical Research*, 61, 129-140.
- Thalbourne, M.A. (1996b). Belief in life after death: Psychological origins and influences. *Personality and Individual Differences*, 21, 1043-1045.
- Thalbourne, M.A. (1996c). Varieties of belief in life after death: A factor-analytic approach. *Journal of the American Society for Psychical Research*, 90, 268-291.
- Thalbourne, M.A. (1998). *Transliminality: Correlates and a short measure*. Paper submitted for publication.
- Thalbourne, M.A., Bartemucci, L., Delin, P.S., Fox, B. & Nofi, O. (1997). Transliminality: Its nature and correlates. *Journal of the American Society for Psychical Research*, 91, 305-331.
- Thalbourne, M.A. & Delin, P.S. (1993). A new instrument for measuring the sheep-goat variable: Its psychometric properties and factor structure. *Journal of the Society for Psychical Research*, 59, 172-186.
- Thalbourne, M.A. & Delin, P.S. (1994). A common thread underlying belief in the paranormal, creative personality, mystical experience and psychopathology. *Journal of Parapsychology*, 58, 3-38.
- Thalbourne, M.A. & Delin, P.S. (1995). Correlates of belief in the paranormal: A partial replication. Unpublished manuscript.
- Thalbourne, M.A. & Delin, P.S. (in press). Transliminality: Its relation to dream-life, religiosity and mystical experience. *International Journal for the Psychology of Religion*.
- Thalbourne, M.A., Delin, P.S. & Bassett, D.L. (1994). An attempt to construct short scales measuring manic-depressive-like experience and behaviour. *British Journal of Clinical Psychology*, 33, 205-207.

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## Geloof in Leven na de Dood en het Verband met Variabelen die Relevant Zijn voor Transliminality

**Samenvatting:** Transliminality is een via factoranalyse afgeleide variabele, gedefinieerd als "ontvankelijkheid voor en bewustheid van krachtige verbeelding, ideeënvorming en affect, opgewekt door subliminale, supraliminale en / of externe stimuli". Tot de centrale bouwstenen van deze factor behoren geloof in het paranormale en paranormale ervaringen, maar er zijn nog acht andere bekend (Thalbourne, 1998). Bovendien heeft eerder onderzoek aangetoond dat correlaten met geloof in een leven na de dood kunnen verschillen afhankelijk van de voorziene vorm van overleven (Thalbourne, 1966c). In dit onderzoek (met 301 psychologiestudenten) was de hypothese dat transliminality, de bouwstenen daarvan en bepaalde correlaten en ermee samenhangende variabelen zouden verschillen afhankelijk van het soort leven na de dood waarin men gelooft. Het merendeel van de resultaten ondersteunt deze voorspelling. Op de variabele transliminality op zich, gemeten met de 29 items van de Transliminality Scale (Form B), scoorden de proefpersonen die in reïncarnatie geloven en de eclecticici (die zowel in onsterfelijkheid als reïncarnatie geloven) het hoogste. De laagste scores werden behaald door de proefpersonen die geloven dat er na de dood niets is.

**Tro på Livet Efter döden och dess Förhållande till Variabler som är  
Relevanta för Transliminalitet**

**Sammanfattning:** Transliminalitet är en med faktoranalys formad variabel, definierad som "mottaglighet för och medvetande om stora mängder av föreställningsförmåga, bildning av uppfattningar och affekt — dessa fenomen förorsakas av subliminalt, supraliminalt och/eller extern påverkan". En av kärnvariablerna i denna faktor är tro på paranormala fenomen och erfarenheter och ytterligare åtta faktorer har identifierats hittills (Thalbourne, 1998). Dessutom visade det sig i tidigare undersökningar att korrelationer med tro på livet efter döden kan variera. Det beror på överlevnadens form (Thalbourne, 1996c). I denna undersökning (med 301 psykologistudenter) var hypotesen att transliminalitet, dess konstituanta variabler och några korrelationer och sammanhängande variabler kan variera i samband med vilket sorts liv efter döden man tror på. För det mesta har resultaten bekräftat denna förutsägelse. Vad som gäller själva transliminaliteten mätt med Transliminality Scale (Form B, 29 frågor), hade både de som tror på reinkarnation och eklektiker (de tror på odödlighet och reinkarnation) bästa resultat. De som tror att det inte finns någonting efter döden fick sämst resultat.

**Der Glaube an ein Leben nach dem Tod und seine Beziehung  
zu Transliminalitäts-Relevanten Variablen**

**Zusammenfassung:** Transliminalität ist eine aus der Faktorenanalyse abgeleitete Variable, die aktuell definiert wird als "Empfänglichkeit für, und Bewußtheit von, starker Vorstellungskraft, Einfallsreichtum und Affekt — diese Phänomene werden durch subliminale, supraliminale und / oder externe Stimuli erzeugt." Zu den wesentlichen Kernvariablen dieses Faktors gehören Glaube an und Erfahrung mit dem Paranormalen — acht weitere Variablen sind bislang identifiziert (Thalbourne, 1998). Zudem haben frühere Untersuchungen gezeigt, daß Korrelate des Glaubens an ein Leben nach dem Tod mit der Art des vorgestellten Überlebens differieren (Thalbourne, 1996c). In der vorliegenden Untersuchung (N = 301 Studenten der Psychologie) wurde vorausgesagt, daß Transliminalität, ihre wesentlichen Variablen und bestimmte ihrer Korrelate und assoziierten Variablen je nach der Art des vorgestellten Überlebens des körperlichen Todes differieren könnten. Die meisten der Ergebnisse stützen diese Voraussage. Im Hinblick auf Transliminalität selbst, gemessen mit den 29 Items der Transliminality Scale (Form B), schnitten Reinkarnationsgläubige und Eklektiker (letztere glauben an Unsterblichkeit und Wiedergeburt) am besten ab, während die Versuchspersonen, die nach dem Leben nichts anderes als den Tod erwarten, hier die niedrigsten Ergebnisse erzielten.

**La Credenza nella Vita Dopo la Morte ei Suoi Rapporti con le Variabili Connesse  
alla Transiliminalità**

**Sommario:** La transiliminalità è una variabile derivata per analisi fattoriale, correntemente definita come "suscettibilità a, e consapevolezza di, grandi quantità di imagery, ideazione e affetto, essendo questi fenomeni generati da uno stimolo subliminale, supraliminale e / o esterno". Una delle componenti fondamentali di questo fattore è la credenza ed esperienza paranormale; oltre a ciò finora ne sono state identificate altre otto (Thalbourne, 1998). Ricerche precedenti hanno inoltre dimostrato che i correlati della credenza nella vita oltre la morte possono differire a seconda della forma di sopravvivenza delineata (Thalbourne, 1996c). In questo studio (al quale hanno preso parte 301 studenti di psicologia) l'attesa era che la transiliminalità, le sue variabili fondamentali e altre componenti correlate avrebbero potuto differire in base al tipo di sopravvivenza cui si aderisce. Per la maggior parte i risultati hanno suffragato le attese. In merito alla transiliminalità stessa, secondo la Scala di Transiliminalità a 29 voci (Forma B), i punteggi più alti sono stati raggiunti dai reincarnazionisti e dagli eclektici (i quali ultimi credono sia nell'immortalità che nella reincarnazione), mentre quelli più bassi sono stati ottenuti dagli estinzionisti.

## TRANSLIMINALITY AND BELIEF IN LIFE AFTER DEATH

### La Croyance dans l'Après-Vie et à Relation aux Variables Liés à la Transliminalité

**Résumé:** La transliminalité est une variable dérivée par Analyse des Facteurs. Elle est définie actuellement comme "la tendance d'avoir une abondance d'images mentales, de concepts et d'émotions en réaction aux stimuli de nature subliminale, supraliminale et/ou externe". Une de variables centrales définissant ce facteur est la croyance aux phénomènes paranormaux et le vécu de ces expériences. Huit autres variables ont également été identifiées. De plus, des études antérieures ont démontré que les différentes facettes d'une croyance à l'après-vie varient en fonction de la façon dont on imagine l'après-vie. Dans l'étude actuelle (impliquant N = 301 étudiants en psychologie) nous avons prédit que la transliminalité, ses variables constitutives, et d'autres facteurs associés allaient varier selon les représentations mentales du sujet vis à vis de l'après-vie. Pour la plupart, les résultats soutiennent cette prédiction. Utilisant l'Echelle de Transliminalité (Formulaire B), impliquant 29 questions, nous avons trouvé que les scores les plus élevés ont été obtenus par ceux qui croient en la réincarnation ou à des concepts voisins (par exemple, combinant les concepts de la réincarnation et de l'immortalité); les plus bas scores étaient associés avec ceux qui croient à l'extinction de l'esprit avec la mort.

### Creencia en la Vida Después de la Muerte y su Relación con Relacionadas a la Transliminalidad

**Resumen:** La transliminalidad es una variable derivada factorialmente que se define como una "susceptibilidad a, y conciencia de, grandes volúmenes de imágenes, ideas y emoción -- estos fenómenos son generados por información subliminal, supraliminal y externa." Una de las principales variables de este factor es la creencia en y la experiencia de lo paranormal, y hay otras ocho que se han identificado hasta ahora (Thalbourne, 1998). Por añadidura, investigaciones anteriores han demostrado que los correlatos de creencia en la vida después de la muerte pueden ser diferentes de acuerdo a la forma de sobrevivencia considerada (Thalbourne, 1996c). En este estudio (N = 301 estudiantes de psicología) se hizo la predicción de que la transliminalidad, sus variables constituyentes, y algunos de sus correlatos y variables asociadas pueden ser diferentes de acuerdo a la clase de vida después de la muerte en la que la persona cree. En su mayor parte los resultados apoyan esta predicción. En relación a la transliminalidad, usando la Escala de Transliminalidad de 29 ítems (Forma B), los/as reencarnacionistas y los/as eclécticos/as (estos/as últimos/as creen tanto en la inmortalidad y en la reencarnación) obtuvieron las puntuaciones más altas, las puntuaciones más bajas fueron obtenidas por los/as extincionistas.

### A Crença na Vida Após a Morte e sua Relação com as Variáveis de Relevância à Transliminaridade.

**Resumo:** A transliminaridade é uma variável derivada analiticamente de um fator atualmente definido como "susceptibilidade a, e consciência de grandes volumes de imaginação, ideação, e afeto -- sendo esses fenômenos gerados pela entrada de estímulos externos supraliminares e/ou subliminares. Uma das principais questões relacionadas a variáveis desse fator é a crença e a experiência paranormal, e também as outras oito variáveis identificadas. (Thalbourne, 1998). Além disso, pesquisas anteriores demonstram que correlatos de crença na vida após a morte podem diferenciar de acordo com a forma da consideração pessoal sobre a sobrevivência (Thalbourne, 1996c). Neste estudo (N = 301 estudantes de Psicologia) previu-se que a transliminaridade, suas variáveis constituintes e certos correlatos e variáveis associados a ela, podem diferir em relação ao tipo de crença na vida após a morte. A maior parte dos resultados atingiu essa previsão. Sobre a própria transliminaridade, utilizando-se a Escala de Transliminaridade de 29 itens (Ficha B), os reencarnacionistas e ecléticos (que acreditam tanto na imortalidade quanto na reencarnação) atingiram os maiores escores, sendo que os menores escores foram obtidos pelos extingüicionistas (que acreditam que não há vida após a morte).

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## **Psi Experiences and the "Big Five": Relating the NEO-PI-R to the Experience Claims of Experimental Subjects**

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**Abstract:** This study was based on an analysis of data collected for a ganzfeld study conducted at the University of Edinburgh (Morris, Dalton, Delaney, & Watt, 1995). In this study we attempted to relate psi experiences to the five factors and corresponding facets of the NEO-PI-R and to a variety of dream experiences, absorption experiences and other variables. We used data from 97 artists and musicians recruited for the purpose of conducting ESP tests in the Ganzfeld. We predicted that an index of claims of psi experiences would correlate significantly and positively to the Openness factor and to the Fantasy facet of the NEO-PI-R, and that the Psi Index would correlate positively to two questions about spontaneous alteration of consciousness taken from a participant information form, namely losing sense of your surroundings and the passage of time while engaged in an activity. Our predictions of a positive correlation between the Psi Index (a combined measure of the incidence of several psi experiences) and openness to experience ( $r = .20, p = .02$ , one-tailed) and Fantasy ( $r = .22, p = .02$ , one-tailed) were confirmed. The Psi Index was significantly correlated to the question of losing awareness of the sense of time ( $r = .16, p = .05$ , one-tailed), but not to the questions about losing awareness of surroundings ( $r = .13, p = .10$ , 1t). The Psi Index correlated significantly and negatively with the Order facet of the Conscientiousness factor ( $r = -.29, p = .004$ , two-tailed). In addition, there were significant positive relationships between the Psi Index and being raised in an environment with a tradition of paranormal abilities ( $t = 3.03, p = .003$ , two-tailed, Cohen's  $d = .73$ ) and having members of the family with psi experiences ( $t = 3.01, p = .004$ , two-tailed,  $d = 1.05$ ). The authors encourage further research using the experiential claims of experimental subjects.

In recent decades there have been many questionnaire studies that have attempted to relate spontaneous parapsychological experiences to a variety of psychological variables. Some have studied ESP claims and other phenomena in relation to dream variables such as recall, lucidity and vividness (e.g., Haraldsson, Gudmundsdottir, Ragnarsson, Loftsson, & Jonsson,

1977; Kohr, 1980; Palmer, 1979; Usha & Pasricha, 1989). Others have explored a variety of personality and cognitive variables as correlates of parapsychological experiences (e.g., Alvarado & Zingrone, 1997; Haight, 1979; Irwin, 1985; Nelson, 1989; for a review see Irwin, 1994 and Stokes, 1997). In this paper we report on our attempts to study personality variables, as measured by the NEO-PI-R (Costa & McCrae, 1992), with a group of creative individuals recruited to participate in ganzfeld ESP testing at the Koestler Parapsychology Unit. Most of this work was conceived as frankly exploratory, designed to uncover possible relationships to test in other experimental databases.

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We were particularly interested in testing for a possible positive correlation between psi experiences and Openness to Experience (OE), as measured by the above mentioned scale (NEO-PI-R). OE has been considered to contain "active imagination, aesthetic sensitivity, attentiveness to inner feelings, preference for variety, intellectual curiosity, and independence of judgement" (Costa & McCrae, 1992, p. 15). Individuals high on OE "are curious about both inner and outer worlds, and their lives are experientially richer. They are willing to entertain novel ideas and unconventional values, and they experience both positive and negative emotions more keenly than do closed individuals" (Costa & McCrae, 1992, p. 15). These characteristics seem to be related to absorption, as measured by Tellegen's Absorption Scale (Tellegen & Atkinson, 1974). In fact, there is evidence of a positive and significant relationship between absorption and OE (Gliski, Tataryn, Tobias, Kihlstrom, & McConkey, 1991; Wild, Kuiken, & Schopflocher, 1995). Because several studies have related ESP and other parapsychological experiences to absorption (Alvarado & Zingrone, 1997; Glicksohn, 1990; Irwin, 1985; Kennedy, Kanthamani, & Palmer, 1994; Nadon & Kihlstrom, 1987; Nelson, 1989), we hypothesized that psi experience claims would be positively related to OE as well. After we conducted this study we learned that Palmer (1996) found a significant positive correlation between OE and a different measure of psi experience from that used in the present study.

The OE factor of the NEO-PI-R includes a Fantasy facet. Costa and McCrae (1992) the developers of the NEO-PI-R, have said: "Individuals who are open to fantasy have a vivid imagination and an active fantasy life. They daydream not simply as an escape but as a way of creating for themselves an interesting inner world. They elaborate and develop their fantasies and believe that imagination contributes to a rich and creative life" (p. 17). Because this facet seemed similar to the construct of fantasy proneness (Lynn & Rhue, 1988; Wilson & Barber, 1983), which, in turn, has

been positively correlated to parapsychological experiences in previous work (Alvarado & Zingrone, 1994; Council & Huff, 1990; Lawrence, Edwards, Barraclough, Church & Heatherington, 1995; Myers & Austrin, 1985; Rao, 1992; Sherwood, 1997; Wilson & Barber, 1983), we also predicted a significant and positive association between psi experiences and the Fantasy facet of the NEO-PI-R.

One of the measures we used from the experimental data set, a general information form to be described later, had a variety of questions about dreams, imagery and alteration of consciousness experiences in daily life. In light of the relationship between Tellegen Absorption Scale and psi experiences documented in the literature (Alvarado & Zingrone, 1997; Glicksohn, 1990; Irwin, 1985; Nadon & Kihlstrom, 1987; Nelson, 1989), we speculated that responses to a combined measure of psi experiences to be described later would also be related to two other items covering the loss of a sense of the passage of time and the loss of a sense of the surroundings while engaged in physical activities. These questions could be interpreted as absorption experiences or as dissociative experiences, to which it should be mentioned claims of spontaneous parapsychological experiences have been associated in previous studies (Richards, 1991; Ross & Joshi, 1992; Zingrone & Alvarado, 1994).

Some of the past work with spontaneous ESP experiences (of the unverified type) and personality variables has not found evidence of a relationship with neuroticism (Greiner, 1964; Sandford, 1979) or extroversion (Greiner, 1964; Hearne, 1984; Sandford, 1979). However, Haight (1979) found a positive relationship with a facet of Cattell's High School Personality Questionnaire that may be indicative of a relationship between psi experiences and neuroticism (cortertia). More recently, Hearne (1984) found elevated scores of neuroticism in a study of precognitive experiences using Eysenck's Personality Inventory. Although these findings are not consistent enough to

generate hypotheses, we decided to perform exploratory analyses of the relationship between psi experience claims in our data set and measures of neuroticism and extroversion.

In summary, we predicted that an index of claims of psi experiences would correlate positively to Openness factor scores and to Fantasy facet scores on the Openness factor, and that a Psi Index constructed from individual experience claims would also correlate positively to self-ratings on two spontaneous alteration of consciousness questions, losing a sense of awareness of one's surroundings, and losing a sense of the passage of time while engaged in an activity.

The data used in this paper was originally collected for a ganzfeld-ESP study conducted at the Koestler Parapsychology Unit (Morris, Dalton, Delanoy, & Watt, 1995). In the section that follows we summarise the method section reported in the original report. Further uses of this data in relation to those participants who reported out-of-body experiences will appear in a different report (Alvarado, Zingrone & Dalton, in press).

## Method

### *Participants*

Ninety-seven artists and musicians were recruited from art and music colleges and from other sources in Edinburgh, Scotland. Fifty-four percent were females and 46% were male. The mean age of the participants was 27 (range: 17 - 61). The participants were selected on the basis of presumed artistic talent, and on the basis of having had spontaneous psi experiences, and having a positive attitude for the existence of psi phenomena. The participants came to the Koestler Parapsychology Unit to be tested in an ESP experiment and expected to complete a variety of questionnaires as part of the study.

### *Procedure*

The participants arrived at the laboratory of the Koestler Parapsychology Unit, were greeted by the experimental team and were briefed for about 30 minutes on the ganzfeld project itself. Before taking part in a ganzfeld session, participants completed the NEO-PI-R, the Participant Questionnaire collected from all participants of the Koestler Unit's experiments, and a questionnaire on creativity developed for this particular study by one of us (K.D.). After completing the questionnaires the participants completed a formal ganzfeld session. After the session participants completed post-session questionnaires, the content of which are not relevant to the present study, and were debriefed, thanked and shown out of the laboratory. For information about the laboratory layout the reader is referred to the paper by Dalton et al. (1996).

### *Questionnaires*

Form S of the NEO-PI-R was used in this study (Costa & McCrae, 1992). This instrument has a considerable literature behind it (for a review see Costa & McCrae, 1992), which shows good evidence for validity and reliability. The instrument has five scales that include neuroticism, extroversion, openness, agreeableness, and conscientiousness. Each of these has six sub scales. The questionnaire has 240 statements that are answered on a five-point scale with the following choices: strongly disagree, disagree, neutral, agree, and strongly agree.

The Participant Questionnaire (PQ)<sup>1</sup> is used in the Koestler Chair to collect general information about the participants' back-

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<sup>1</sup> The PQ is the equivalent to the better known Participant Information Form (PIF). While other research reports with the present data base have called this questionnaire PIF (Morris et al., 1995), we prefer to call the questionnaire by the name which appears on the current form and which the participants saw when they answered the questions.

ground (demographics, psi experiences, belief in psi, spontaneous alterations of consciousness, and practices related to meditation and self-exploration). It contains 77 items, many of which have subsections (the relevant questions for this study are reproduced in the Appendix). The participants were asked to tick a box along a 7-point scale ranging from "yes" to "no" with the option of "uncertain" in the middle. We decided to use only those participants who chose "yes" (a score of seven) or "no" (a score of one) in the analyses related to the questions about claims of psychic experiences because we felt that it was conceptually problematic to interpret the middle range of scores, all of which reflected levels of participant uncertainty. The ambiguity of the response format, we felt, could complicate the interpretation of an already ambiguous question as well as artificially inflate the results of the analyses. That is, because a score of four was assigned to an answer that did not necessarily represent frequency or intensity, but more likely expressed some level of doubt, we felt resulting correlations would not be easily or precisely interpretable. Our decision to select only the "yes" and "no" answers reduced the number of data points at our disposal and forced us to use less sensitive statistical tests when analysing the relationships of the variables in questions. The decision did, however, allow us to be clearer about the meaning of those relationships because in all cases we contrasted unequivocal "yes" with unequivocal "no" responses.

Some of the 7-point response scales in the questionnaire were reversed during data entry so as to maintain a positive range of 1-7 as opposed to a negative one of 7-1. Only selected questions of the PQ were used. Three questions of the PQ did not use the 7-point scale but rather had a "yes" and "no" response format. These were the items about lucid dreams, having been raised in an environment with a tradition of paranormal abilities, and the practice of mental disciplines.

We constructed an index, or count, of psi experiences (called the Psi Index) for each subject based on the number of "yes" replies to questions about having had experiences of telepathy, clairvoyance, precognition, psychokinesis and visions (possible apparitions). The question about out-of-body experiences was not included in the index because we have performed independent analyses with this question (Alvarado, Zingrone, & Dalton, in press). The Psi Index had a range from 0 (no experiences reported) to 5 (having reported all the experiences listed). This index was correlated to the factors and facets of the NEO-PI-R.

Before the respondents answered the questions about parapsychological experiences presented in the Appendix, they read the following definitions printed on the questionnaire: "Extrasensory Perception (ESP): Reception of information without the use of known senses or logical inference. ESP is for convenience further subdivided into three categories: Telepathy: ESP of the thoughts, feelings or behaviour of another person or organism. Clairvoyance: ESP of distant physical events or concealed objects. Precognition: ESP of the future. Psychokinesis (PK): Mental influence on the physical world."

In addition to the PQ, we used one question from the Creativity Questionnaire developed by one of us (KD). This question asked the participant to rate his or her level of creativity on a scale ranging from one to ten (the question appears in the Appendix).

### *Analyses*

Data analysis was conducted using independent group *t* tests and Pearson correlations. We set an alpha of .05 (one-tailed) for our predicted analyses, and an alpha of .01 (two-tailed) for the rest. We are aware that we can be accused of over-analysing our data, but because our purpose was exploratory we felt that it was necessary to exhaust the comparison options that the individual psi experiences and the facets and factors of the NEO-PI-R



afforded us. Therefore, because the ratio of number of observations (Ns ranged from 3 to 65) to variables on the NEO-PI-R (5 factors and 36 facets by 5 individual psi experiences) was not sufficient to use a more comprehensive technique such as multiple regression, we made the decision to run the *t* tests. Because we were interested in uncovering as many useful relationships as possible for future testing, we decided not to correct for multiple analyses. However, we did decide to limit our discussion only to those resultant *t* test statistics that were associated with

large effect sizes ( $\geq .80$ ) as measured by Cohen's *d*.

## Results

### *Incidence of claims of parapsychological experiences*

Table 1 shows the frequency of claims of parapsychological experiences. As can be seen in the table experiences of telepathy were the most common ones, while psychokinesis experiences were the least common.

Table 1  
*Incidence of parapsychological experiences*

Experience	Percent	N
Telepathy	93	41
Clairvoyance	44	46
Precognition	73	45
Apparitions	48	54
Psychokinesis	17	52

Note: The N represents all the participants who answered "yes" or "no" to each question

Table 2  
*Form of ESP*

Form	Percent	N
Sense, feeling, intuition or thought	85	96
Vision of a figure or of an object	21	95
Internal mental imagery	46	94
Mainly visual	*56	*71
Mainly auditory	7	68
Mainly olfactory	10	68
Mainly kinesthetic	22	69

Note: The N represents all the participants who answered "yes" or "no" to each question. The imagery category had six options indicating different modalities. Three of them were unclear or indeterminate. The other three indicated a general feeling, intuition, and dreams and thoughts.

\* These columns refer to those participants who answered "yes" to having had internal mental imagery in their experience, not to the total sample.

Table 3

*Psi experiences index and the factors of the NEO-PI-R*

Factor	Pearson $r$	$p$
Neuroticism	0.01	0.95
Extroversion	0.02	0.84
Openness	0.20	*0.02
Agreeableness	0.13	0.20
Conscientiousness	-0.19	0.07

Table 2 shows the frequency of form of manifestation of ESP experiences in the sample. The category of "sense, feeling, intuition or thought" was the most frequent one, followed by mental imagery and by visions. Those participants who claimed to have had imagery experiences reported that the most common mode was visual, followed by kinaesthetic, olfactory and auditory.

#### *The Psi Index*

The Psi Index had a mean of 1.30 ( $N = 97$ , Range: 0-5,  $SD = 1.32$ ). The percent of responses for each score was: 0 (35%), 1 (30%), 2 (16%), 3 (10%), 4 (8%), and 5 (1%).

The mean Psi Index of males ( $N = 45$ ,  $M = 1.36$ ) was slightly higher than the mean Psi Index for female participants ( $N = 52$ ,  $M = 1.25$ ), but not significantly so,  $t [95] = .39$ ,  $p = .70$ , two-tailed, Cohen's  $d = .08$ . The direction of the relationship between the Psi Index and Openness was predicted. The alpha level set for this analysis was .05, one-tailed. All other relationships were tested against an alpha of .01, two-tailed.

#### *Psi experiences and the five factors of personality*

Table 3 contains the Pearson correlations between the five factors of the NEO-PI-R and the Psi Index. Our prediction of a positive correlation between the index and openness to experience was confirmed ( $r = .20$ ,  $p = .02$ , one-tailed). None of the other analyses of factor scores were significant, although mean scores on the Conscientiousness factor were sugges-

tively negatively correlated with the Psi Index ( $r = -.19$ ,  $p = .07$ , two-tailed).

Our prediction of a positive correlation between the Psi Index and the Fantasy facet of the Openness Factor of the NEO-PI-R was confirmed ( $r[94] = .22$ ,  $p = .02$ , one-tailed). In addition, we obtained a significant negative correlation with the Order facet of the Conscientiousness factor ( $r [94] = -.29$ ,  $p = .004$ , two-tailed). This, and other non-significant correlations appear on Table 4.

#### *Psi experiences and spontaneous alterations of consciousness*

We predicted positive correlations between the index of Psi Experiences and questions about spontaneous alterations of consciousness during physical activity. Both questions had seven point scales ranging from "never" to "always." One question asked: "How often do you lose awareness of your surroundings when you get involved in an activity?" This question obtained a mean of 4.59 ( $N = 97$ , Range: 1-7,  $SD = 1.45$ ). The other question was "How often do you lose your sense of time when you get involved in an activity?" This item obtained a mean of 4.79 ( $N = 96$ , Range: 1-7,  $SD = 1.39$ ). The correlation of the Psi Index and losing awareness of the passage of time was significant and positive ( $r[94] = .16$ ,  $p = .05$ , one-tailed). The analysis about losing awareness of surroundings was in the expected direction but was non-significant ( $r[95] = .13$ ,  $p = .10$ , one-tailed).

Table 4

*Psi experiences and the facets of the factors of the NEO-PI-R*

Facets	Pearson <i>r</i>	<i>p</i>
<b>Neuroticism:</b>		
Anxiety	0.05	0.65
Angry/Hostility	-0.08	0.44
Depression	0.05	0.63
Self-Consciousness	-0.03	0.76
Impulsiveness	0.07	0.52
Vulnerability	-0.01	0.86
<b>Extroversion:</b>		
Warmth	-0.05	0.63
Gregariousness	-0.08	0.42
Assertiveness	0.04	0.70
Activity	0.15	0.16
Excitement Seeking	-0.10	0.35
Positive Emotions	0.15	0.15
<b>Openness:</b>		
Fantasy	0.22	*0.020
Aesthetics	0.19	0.060
Feelings	0.16	0.130
Actions	0.10	0.350
Ideas	-0.07	0.520
Values	0.13	0.220
<b>Agreeableness:</b>		
Trust	0.00	0.990
Straightforwardness	0.18	0.090
Altruism	-0.11	0.280
Compliance	0.13	0.210
Modesty	0.18	0.090
Tender-Mindedness	0.11	0.280
<b>Conscientiousness:</b>		
Competence	-0.18	0.080
Order	-0.29	0.004
Dutifulness	-0.10	0.350
Achievement Striving	-0.13	0.220
Self-Discipline	0.00	0.970
Deliberation	-0.10	0.350

\* The relationship between the Psi Index and Fantasy was predicted. Therefore it was tested at an alpha of .05, one-tailed. All other relationships were not predicted and were tested for significance against an alpha of .01, two-tailed.

Table 5

*Incidence of lucid dreams, practice of mental disciplines and having being raised in an environment with a tradition of paranormal abilities, and family members with psi experiences*

Variable	Percentage	N
Lucid dreams	90	96
Practised any form of mental discipline/exercise	69	97
Raised in an environment with a tradition of belief in paranormal ability	24	97
Member of family had paranormal experiences	41	97

Note: The N represents all the participants who answered "yes" or "no" to each question.

### *Other analyses with the Psi Index*

Tables 5 and 6 present descriptive information about the variables related to the Psi Index in this section.

The Psi Index was correlated to the 10-point creativity scale developed by one of us (K.D.), but the outcome was non-significant ( $r[95] = .16$ ,  $p = .13$ , two-tailed). Marginally significant results were obtained between the Psi Index and lucid dreams, which was measured with a "yes" and "no" question (Yes,  $N = 86$ ,  $M = 1.38$ ; No,  $N = 10$ ,  $M = .40$ ;  $t[94] = 2.28$ ,  $p = .02$ , two-tailed,  $d = .77$ ). However, frequency of lucid dreams did not significantly correlate to the index ( $r[86] = .16$ ,  $p = .14$ , two-tailed).

The frequency of dream recall claimed by the participants was not significantly correlated to the Psi Index,  $r[94] = .12$ ,  $p = .25$ , two-tailed.

Another marginally suggestive relationship was obtained in a comparison of mean Psi Index scores for those who practised mental disciplines and those who did not (Yes,  $N = 67$ ,  $M = 1.46$ ; No,  $N = 30$ ,  $M = .93$ ;  $t[95] = 1.84$ ,  $p = .07$ , two-tailed,  $d = .41$ ). Frequency of current practice was suggestively correlated to Psi Index scores ( $r[62] = .27$ ,  $p = .03$ , two-tailed), given our set alpha of .01.

The Psi Index was also suggestively and positively correlated to the practice of spiritual and physical regimes such as Hatha Yoga, Tai Chi, and Aikido

( $r[93] = .24$ ,  $p = .02$ , two-tailed), given our set alpha level of .01.

Finally, a significant difference was found between the Psi Index scores of those who had been raised in an environment in which a tradition of paranormal ability existed and those who had not. Participants who answered "yes" to the environment question obtained a mean Psi Index of 2.00 ( $N = 23$ ), while those who answered "no" obtained a mean of 1.08 ( $N = 74$ ) ( $t[95] = 3.03$ ,  $p = .003$ , two-tailed,  $d = .73$ ).

Similarly, those participants who indicated they had a member in their family who had had paranormal experiences ( $N = 40$ ,  $M = 1.95$ ) obtained a significantly higher Psi Index than those participants who did not have relatives with such experiences ( $N = 11$ ,  $M = .64$ ),  $t[49] = 3.01$ ,  $p = .004$ , two-tailed,  $d = 1.05$ .

### *Exploratory analyses of specific psi experiences and the NEO-PI-R*

One hundred and seventy-five  $t$ -tests were conducted to explore exhaustively any potential relationships with personality variables and the claim of individual psi experiences. The results of 11 comparisons were associated with large effect sizes as measured by Cohen's  $d$  ( $\geq .80$ ). Upon examination, 3 of these were discarded because the group numbers of participants were wildly disparate (38 and 3 respectively) and the associated  $p$  values

Table 6

*Descriptive statistics for ratings of creative ability, frequency of lucid dreams, current practice of mental disciplines, and practice of physical and/or spiritual regimes*

Variable	N	Mean	Range*	SD
Creative artistic ability	97	8.15	1-10	1.28
Lucid dream frequency	88	2.62	1-7	1.58
Dream recall frequency	96	5.08	1-7	1.62
Current frequency of practice of mental disciplines	64	3.22	1-7	1.93
Current frequency of practice of physical and/or spiritual regimens such as hatha yoga, tai chi, and aikido	95	2.19	1-7	1.67

\* This represents both the theoretical range of the scale and the actual range obtained.

were .10 or greater thus leading us to believe that these differences would not replicate. Of the remaining 8 results associated with large effect sizes, 3 were significant differences between persons who claimed to have experienced precognition and those who had not, and 5 were significant differences between persons who claimed to have experienced psychokinesis and those who had not. That is, "precognizers" had significantly higher mean scores than did "non-precognizers" on the Openness factor ( $t[42] = 2.60, p = .01, d = .90$ ), and on the Feelings facet of the Openness factor ( $t[42] = 2.60, p = .01, d = .90$ ) and significantly lower scores on the Order facet of the Conscientiousness factor ( $t[42] = 2.53, p = .02, d = .88$ ). Persons who claimed to have experienced psychokinesis had significant higher mean scores on the Tender-Mindedness facet of the Agreeableness factor ( $t[50] = 2.54, p = .01, d = .95$ ), and significantly lower scores on the Anger/Hostility facet of the Neuroticism factor ( $t[50] = 2.20, p = .03, d = .82$ ), and on the Gregariousness facet ( $t[50] = 2.33, p = .02, d = .87$ ), the Activity facet ( $t[50] = 2.55, p = .01, d = .95$ ), and on the Excitement-Seeking facet ( $t[50] = 2.55, p = .01, d = .95$ ) of the Extroversion factor. Table 7 provides the details of these analyses.

### Discussion

It is clear that our sample cannot be

considered representative because it was selected from a creative population and screened for having experienced parapsychological phenomena and having a positive belief in the existence of ESP and similar phenomena. In addition, those who participated in the study came to the Koestler Parapsychology Unit with the understanding that they were going to be tested for ESP. It is possible that these conditions affected our results. For this reason it would be worthwhile to attempt to replicate our findings using other methods of data gathering and less restrictive criteria. The sample constraints of the initial study should not be considered a flaw in that study, because the hypotheses of that study demanded the narrowing of the population tested to creative individuals (Morris et al., 1995). Our wish to have a wider sample only highlights one of the limitations of reanalysing data collected with other purposes in mind.

It is interesting to see that the incidence of parapsychological experiences is consistent with that of previous studies in the sense that psychokinesis experiences are less frequent than ESP experiences (see Table 1). This pattern has been found in other studies summarised in graphic form by Alvarado (1996, p. 16).

Our predictions regarding the relationship of the Psi Index and the Openness factor ( $r = .20, p = .02$ , one-tailed)

# PSI EXPERIENCES AND THE BIG FIVE

Table 7

*Relationship between psi experiences and non-experiencers on specific facets and factors of the NEO-PI-R*

NEO Factor / Facet & Type of Psi Experience	Yes		No		t	df	p	Cohen's d	Relative Effect Size
<b>Openness Factor Score</b>	N	NEO Mean	N	NEO Mean					
Telepathy	38	143.61	3	149.00	0.65	39	0.52	0.40	Large
Clairvoyance	20	146.30	26	140.46	1.23	44	0.23	0.37	
Precognition	32	146.09	12	134.08	2.60	42	0.01	0.90	
Psychokinesis	9	148.67	43	140.72	1.76	50	0.08	0.66	
Vision	25	145.84	28	142.50	0.80	51	0.43	0.22	
<b>NEO-O3, Feelings</b>									
Telepathy	38	26.21	3	28.33	1.04	39	0.30	0.64	Large
Clairvoyance	20	26.35	26	25.42	0.91	44	0.37	0.28	
Precognition	32	26.78	12	24.00	2.60	42	0.01	0.90	
Psychokinesis	9	26.56	43	25.63	0.76	50	0.45	0.29	
Vision	25	27.00	28	24.89	2.32	51	0.02	0.65	
<b>NEO-A6, Tender-Mindedness</b>									
Telepathy	38	21.71	3	22.67	0.46	39	0.65	0.28	Large
Clairvoyance	20	21.75	26	21.92	0.18	44	0.86	0.06	
Precognition	32	21.88	12	21.92	0.04	42	0.97	0.01	
Psychokinesis	9	24.44	43	21.53	2.54	50	0.01	0.95	
Vision	25	22.44	28	20.96	1.58	51	0.12	0.44	
<b>NEO-C2, Order</b>									
Telepathy	38	13.92	3	15.67	0.53	39	0.60	0.33	Large
Clairvoyance	20	14.65	26	15.69	0.68	44	0.50	0.21	
Precognition	32	13.31	12	17.75	2.53	42	0.02	0.88	
Psychokinesis	9	13.56	43	15.21	0.90	50	0.37	0.34	
Vision	25	13.20	28	15.68	1.73	51	0.09	0.49	

Table 7(continued)

*Relationship between psi experiences and non-experiencers on specific facets and factors of the NEO-PI-R*

<b>NEO-N2, Anger / Hostility</b>								
Telepathy	38	15.50	3	18.67	0.93	39	0.36	0.57
Clairvoyance	20	15.95	26	15.38	0.35	44	0.73	0.11
Precognition	32	15.75	12	14.67	0.61	42	0.55	0.21
Psychokinesis	9	12.22	43	16.26	2.20	50	0.03	0.82
Vision	25	15.44	28	14.64	0.57	51	0.57	0.16
<b>NEO-E2, Gregariousness</b>								
Telepathy	38	16.05	3	17.33	0.33	39	0.74	0.21
Clairvoyance	20	14.45	26	18.69	2.45	44	0.02	0.75
Precognition	32	16.22	12	18.50	1.21	42	0.23	0.42
Psychokinesis	9	12.56	43	17.51	2.33	50	0.02	0.87
Vision	25	22.16	28	17.25	0.79	51	0.43	0.22
<b>NEO-E4, Activity</b>								
Telepathy	38	19.39	3	21.67	0.96	39	0.34	0.56
Clairvoyance	20	19.85	26	19.08	0.67	44	0.50	0.2
Precognition	32	18.88	12	17.00	1.26	42	0.21	0.44
Psychokinesis	9	15.22	43	18.63	2.34	50	0.02	0.88
Vision	25	19.12	28	18.75	0.31	51	0.76	0.09
<b>NEO-E5, Excitement Seeking</b>								
Telepathy	38	18.63	3	21.67	1.08	39	0.29	0.66
Clairvoyance	20	17.95	26	19.62	1.35	44	0.18	0.41
Precognition	32	18.25	12	19.17	0.60	42	0.56	0.21
Psychokinesis	9	15.33	43	19.23	2.55	50	0.01	0.95
Vision	25	18.16	28	18.57	0.33	51	0.75	0.09

*Note:* A total of 175 analyses were conducted. The comparisons not shown here did not yield significant results associated with large effect sizes. The complete table with the rest of the *t*-test analyses is available from the first author.

and the Fantasy facet of the Openness factor ( $r = .22$ ,  $p = .02$ , one-tailed) were confirmed. Although these results are encouraging, it is important to keep in mind the low magnitude of the relationships in question. Nonetheless, the results make conceptual sense when compared to a variety of previous findings. That is, other researchers have suggested that claims of psi phenomena are associated with other measures of cognitive openness or sensitivity such as frequency of dream recall (e.g., Kohr, 1980; Palmer, 1979), fantasy proneness (e.g., Myers & Austrin, 1985; Wilson & Barber, 1983) and absorption (e.g., Irwin, 1985; Nelson, 1989).

One outcome we found that was totally unexpected for us was the correlation between the Psi Index and the Order facet of the Conscientiousness factor ( $r = -.29$ ,  $p = .004$ , two-tailed). This significantly negative correlation suggested to us that incidence of psi experiences may be associated to a low level of Order in the experiencers in this study. According to Costa and McCrae (1992): "High scorers on this scale are neat, tidy, and well-organised. They keep things in their proper places. Low scorers are unable to get organised and describe themselves as unmethodical" (p. 18). According to a table of validation correlations published by the authors of the NEO-PI-R (Costa & McCrae, 1992, p. 47) the Order facet of the NEO-PI-R is significantly correlated to the following subscales of other personality inventories: positively to the Order subscale of the Personality Research Form ( $r = .71$ ); positively to the Orderly and Persistent subscales of the Interpersonal Style Inventory (.68 and .43, respectively); negatively to the Passive-Aggressive subscale of the MMPI (-.40); and negatively to the Judging/Perceiving subscale of the MBTI (-.44) such that high scores on the Order facet of the NEO were negatively correlated to scores indicative of a Perceiving style. This latter finding has appeared in other research as well (Furnham, 1996).

This relationship between lower scores on the Order facet of the NEO-PI-R and

high scores on the Psi Index may mean that persons who are more relaxed in their daily lives have more psi experiences or are willing to report more psi experiences than those persons who are more "neat, tidy and well-organised". Persons who score lower on Order may have a higher tolerance for ambiguity in life or may reject or question authority more often than those who obtain higher scores. We are speculating here, of course, but these results confirmed our suspicions that a great deal of potentially useful and meaningful psychological data may be uncovered by examining data collected in the context of laboratory experiments.

Another support for our suspicions about the fruitfulness of "mining" the Participant Questionnaire and other similar data collected by experimental teams is the relationship of Order to the Judging / Perceiving subscale of the MBTI. In previous studies Perceiving has been positively related to reports of spontaneous psi experiences on the PQ and to ESP scores in the Ganzfeld (Bem & Honorton, 1994, p13). Perceiving has also been found to be negatively correlated to Order and Order is significantly negatively correlated to the Psi Index in this sample. We feel that our unexpected finding on the relationship of this facet to the Psi Index may in fact provide some indirect support for the previously found relationship between Perceiving and psi experiences mentioned above.

Comparison of mean scores on the Order factor was also associated with a large effect size in our exhaustive exploratory analyses of the relationship between the factors and facets of the NEO-PI-R and the specific psi experiences. In this case, as mentioned above, the differences occurred between those who claimed to have experienced precognition and those who did not.

We would like to encourage further research on the effects of being raised in a tradition of parapsychological phenomena and having family members with psi experiences on the frequency of parapsychological experiences. Our results



indicate a relationship between frequency of experiences and the above-mentioned variables but it is not clear what is the nature of this relationship. Further explorations of this issue could follow the recent work conducted by Cohn (1994, 1996) which used survey and interview techniques to study "second sight."

More complex analyses might reveal a group of characteristics that tend to occur in tandem with certain other experiences or certain clusters of experience types in our experimental participants. This, in turn, could lead to a more consistent set of predictors of successful ESP scoring in the laboratory.

Finally, it is not our intention to put forth the exploratory analyses we have done here as "findings" as such, but rather to illustrate how much useful information probably resides in the file cabinets of experimentalists. This information — whether collected through participant information forms, the NEO-PI-R, the MBTI or a variety of other informal and formal questionnaires and psychological instruments — provides a resource not only for more effective screening of experimental participants but also for uncovering the differential psychological characteristics of experiencers.

Clearly the data from one study, given the number of variables encoded by the various questionnaires in use, is not enough to accomplish our task. What is needed to fully examine the relevant variables in more powerful and statistically appropriate ways is a much larger data set with a sufficient ratio of N to variables to perform multiple regressions, factor analyses and other higher order statistical tests. It would be difficult for individual laboratories to conduct a ganzfeld study of the necessary size given the lengthy duration of a single session. However, by aggregating data across series and across laboratories into a large single database containing psi scores, psychological inventory scores and responses on various participant questionnaires, belief and experience scales, we may be able to develop consistent and robust profiles of those who report psi experiences and those who are able to score significantly in the laboratory. At this point it is our hope that active laboratories will follow our lead and analyse their participant-specific data much more fully. If they cannot, then we would like to take this opportunity to offer to conduct the study ourselves provided such data is made available to us.

### Appendix

#### *Questions used in the study*

The following questions were taken from the Participant Questionnaire, a questionnaire used at the Koestler Parapsychology Unit to collect information about individuals who participate in research projects, mainly experiments. Except for the four "yes" and "no" questions, and three others with different response formats, most of these questions used seven point scales. We are presenting here only the middle and the extreme points that had labels. Questions with an asterisk were originally answered in a seven-point scale, but the data was changed to "yes" and "no" answers.

Appendix  
*Participant Questionnaire*

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**Absorption Experiences**

How often do you lose awareness of your surroundings when you get involved in an activity?

(please tick one box)

☐Never      ☐Half the time      ☐Always.

How often do you lose your sense of time when you get involved in an activity?

(please tick one box)

☐Never      ☐Half the time      ☐Always

---

**Parapsychological Experiences**

Have you ever had an experience which is best explained as telepathy?

(please tick one box)

☐Yes      ☐Uncertain      ☐No

Have you ever had an experience which is best explained by clairvoyance?

(please tick one box)

☐Yes      ☐Uncertain      ☐No

Have you ever had an experience which is best explained by precognition?

(please tick one box)

☐Yes      ☐Uncertain      ☐No

Have you ever had an experience which is best explained by psychokinesis?

(please tick one box)

☐Yes      ☐Uncertain      ☐No

Have you ever experienced a vision for which you could find no normal explanation?

☐Yes      ☐Uncertain      ☐No

If you have had an ESP experience(s), was the ESP information conveyed to you primarily (most commonly) by means of: (tick as many boxes as appropriate)

- ☐A sense, feeling, intuition or thought
- ☐Seeing a vision of a figure or an object
- ☐Internal mental imagery

If the experience consisted primarily of internal mental imagery, was the nature of the experience primarily: (tick as many boxes as appropriate)

- ☐Visual
  - ☐Auditory
  - ☐Olfactory (a sense of smell/odour)
  - ☐Kinaesthetic (a physical sensation)
  - ☐Other (please specify)
-

Appendix (*continued*)  
Participant Questionnaire

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**Creativity**

Please rate yourself for level of creative /artistic ability

Not at all = ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10 = Very much

---

**Dream Experiences**

Have you ever had a dream in which you were aware that you were dreaming?  
(only two options)

☐Yes ☐No

If you have had a dream in which you were aware you were dreaming,  
how often does this occur?  
(please tick one box)

☐Rarely ☐Once a week ☐Almost everyday

How often do you clearly recall the content of your dreams?  
(please tick one box)

☐Rarely ☐Once a week ☐Almost everyday

---

**Meditation Practices / Mental Disciplines**

Have you ever practised any form of mental discipline/exercise, e.g., meditation,  
biofeedback, hypnosis, relaxation exercises? (only two options)

☐Yes ☐No

If yes, do you still practice:  
(please tick one box)

☐Never ☐Weekly ☐Daily

Have you ever studied any physical and/or spiritual regimen such as hatha yoga, tai chi,  
aikido, etc.?

☐Never ☐Weekly ☐Daily

---

**Environment Growing Up / Family Members With Psi Experiences**

Were you raised in an environment where there is a tradition of paranormal ability which is  
still believed in to some degree (e.g., second sight in the Highlands)?  
(only two options)

☐Yes ☐No

Has any member of your family had paranormal experiences?  
(only two options)

☐Yes ☐No

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## References

- Alvarado, C.S. (1996). The place of spontaneous cases in parapsychology. *Journal of the American Society for Psychical Research*, 90, 1-34.
- Alvarado, C.S., & Zingrone, N.L. (1994). Individual differences in aura vision: Relationships to visual imagery and imaginative-fantasy experiences. *European Journal of Parapsychology*, 10, 1-30.
- Alvarado, C.S., & Zingrone, N.L. (1997). Relación entre la experiencia fuera del cuerpo y la absorción: Estudios con participantes Puertorriqueños y Norteamericanos. *Revista Argentina de Psicología Paranormal*, 8, 249-261.
- Alvarado, C.S., Zingrone, N.L., & Dalton, K. (in press). Out-of-body experiences, alterations of consciousness and the five-factor model of personality. *Imagination, Cognition and Personality*.
- Bem, D.J., & Honorton, C. (1994). Does psi exist? Replicable evidence for an anomalous process of information transfer. *Psychological Bulletin*, 115, 4-18.
- Cohn, S.A. (1994). A survey of Scottish second sight. *Journal of the Society for Psychical Research*, 59, 385-400.
- Cohn, S.A. (1996). The Scottish tradition of second sight and other psychic experiences in families. Unpublished doctoral dissertation, University of Edinburgh.
- Costa, P.T., & McCrae, R.R. (1992). *Revised NEO Personality Inventory (NEO PI-R) and NEO Five-Factor Inventory (NEO-FFI): Professional manual* (Rev. ed.) Odessa, FL: Psychological Assessment Resources.
- Council, J.R., & Huff, K.D. (1990). Hypnosis, fantasy activity, and reports of paranormal experiences in high, medium and low fantasisers. *British Journal of Experimental and Clinical Hypnosis*, 7, 9-15.
- Dalton, K., Morris, R.L., Delanoy, D.L., Radin, D., Taylor, R., & Wiseman, R. (1996). Security measures in an automated Ganzfeld system. *Journal of Parapsychology*, 60, 129-147.
- Furnham, A. (1996). The big five versus the big four: The relationship between the Myers-Briggs Type Indicator (MBTI) and the NEO-PI five factor model of personality. *Personality and Individual Differences*, 21, 303-307.
- Glicksohn, J. (1990). Belief in the paranormal and subjective paranormal experience. *Personality and Individual Differences*, 11, 675-683.
- Gliski, M.J., Tataryn, D.J., Tobias, B.A., Kihlstrom, J.F., & McConkey, K.M. (1991). Absorption, openness to experience, and hypnotisability. *Journal of Personality and Social Psychology*, 60, 263-272.
- Greiner, R.P. (1964). An investigation into the personality traits of people with so-called spontaneous paranormal phenomena. *Journal of Parapsychology*, 28, 284. (Abstract)
- Haight, J. (1979). Spontaneous psi cases: A survey and preliminary study of ESP, attitude, and personality relationships. *Journal of Parapsychology*, 43, 179-204.
- Haraldsson, E., Gudmundsdottir, A., Ragnarsson, A., Loftsson, & Jonsson, S. (1977). National survey of psychical experiences and attitudes towards the paranormal in Iceland. In J.D. Morris, W.G. Roll, & R.L. Morris (Eds.), *Research in Parapsychology 1976*, 182-186. Metuchen, NJ: Scarecrow Press. (Abstract)
- Hearne, K.M.T. (1984). A survey of reported premonitions and of those who have them. *Journal of the Society for Psychical Research*, 52, 261-270.
- Irwin, H.J. (1985). Parapsychological phenomena and the absorption domain. *Journal of the American Society for Psychical Research*, 79, 1-11.
- Irwin, H.J. (1994). The phenomenology of parapsychological experiences. In S. Krippner (Ed.), *Advances in Parapsychological Research*, 7, 10-76. Jefferson, NC: McFarland.
- Kennedy, J.E., Kanthamani, H., & Palmer, J. (1994). Psychic and spiritual experiences, health, well-being, and meaning of life. *Journal of Parapsychology*, 58, 353-383.
- Kohr, R.L. (1980). A survey of psi experiences among members of a special population. *Journal of the American Society for Psychical Research*, 74, 395-411.
- Lawrence, T., Edwards, C., Barraclough, N., Church, S., & Hetherington, F. (1995). Modelling childhood causes of paranormal belief and experience: Childhood trauma and childhood fantasy. *Personality and Individual Differences*, 19, 209-215.
- Lynn, S.J., & Rhue, J.W. (1988). Fantasy proneness: Hypnosis, developmental antecedents, and psychopathology. *American Psychologist*, 43, 35-44.
- Morris, R.L., Dalton, K.D., Delanoy, D.L., & Watt, C. (August 1995). *Comparison of the*

- sender / no sender condition in the Ganzfeld. Paper presented at the 1995 Annual Convention of the Parapsychological Association, Durham, North Carolina.
- Myers, S.A., & Astrin, H.R. (1985). Distal eidetic technology: Further characteristics of the fantasy-prone personality. *Journal of Mental Imagery*, 9, 57-66.
- Nadon, R., & Kihlstrom, J.F. (1987). Hypnosis, psi, and the psychology of anomalous experience. *Behavioural and Brain Sciences*, 10, 597-599.
- Nelson, P.L. (1989). Personality factors in the frequency of reported spontaneous prae-ternatural experiences. *Journal of Transpersonal Psychology*, 21, 193-209.
- Palmer, J. (1979). A community mail survey of psychic experiences. *Journal of the American Society for Psychical Research*, 73, 221-252.
- Palmer, J. (August 1996). *Individual differences in face-to-face psychic readings*. Paper presented at the 39th Annual Convention of the Parapsychological Association, San Diego, California.
- Rao, P.V.K. (1992). Fantasy proneness, reports of paranormal experiences and ESP test performance. *Journal of Indian Psychology*, 10, 27-34.
- Richards, D.G. (1991). A study of the correlation between subjective psychic experiences and dissociative experiences. *Dissociation*, 4, 83-91.
- Ross, C.A., & Joshi, S. (1992). Paranormal experiences in the general population. *Journal of Nervous and Mental Disease*, 180, 357-361.
- Sandford, J. (1979). Personality and paranormal experience: The relationship between social adjustment, extroversion, neuroticism, and the report of psychic phenomena. *Journal of Parapsychology*, 43, 54-55. (Abstract)
- Sherwood, S. (1997, August). *Relationship between childhood hypnagogic / hypnopompic experiences, childhood fantasy proneness and anomalous experiences and beliefs: An exploratory WWW survey*. Paper presented at the 40th Annual Convention of the Parapsychological Association, Brighton, England.
- Stokes, D. (1997). Spontaneous psi phenomena. In S. Krippner (Ed.), *Advances in Parapsychological Research*, 8, 6-87. Jefferson, NC: McFarland.
- Tellegen, A., & Atkinson, G. (1974). Openness to absorbing and self-altering experiences ("Absorption"), a trait related to hypnotic susceptibility. *Journal of Abnormal Psychology*, 83, 268-277.
- Usha, S., & Pasricha, S. (1989). Claims of paranormal experiences - II: Attitudes toward psychical research and factors associated with psi and psi-related experiences. *NIMHANS Journal*, 7, 151-157.
- Wild, T.C., Kuiken, D., & Schopflocher, D. (1995). The role of absorption in experiential involvement. *Journal of Personality and Social Psychology*, 69, 569-579.
- Wilson, S.C., & Barber, T.X. (1983). The fantasy-prone personality: Implications for understanding imagery, hypnosis, and parapsychological phenomena. In A.A. Sheikh (Ed.), *Imagery: Current Theory, Research, and Application*, 340-387. New York: John Wiley.
- Zingrone, N.L., & Alvarado, C.S. (1994, August). *Psychic and dissociative experiences: A preliminary report*. Paper presented at the 1994 convention of the Parapsychological Association, Amsterdam.

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## Psi-Ervaring en de "Big Five"

### Correlatie tussen de NEO-PI-R en Beweringen over Ervaringen door Proefpersonen

**Samenvatting:** Dit onderzoek was gebaseerd op een analyse van data die werden verzameld voor een Ganzfeld-experiment door de University of Edinburgh (Morris, Dalton, Delanoy & Watt, 1995). In dit onderzoek probeerden we psi-ervaringen te correleren met de vijf factoren en de bijbehorende facetten van de NEO-PI-R en met verschillende droomervaringen, absorptie-ervaringen en andere variabelen. De data waren afkomstig van 97 kunstenaars en musici die waren benaderd voor ESP-onderzoek in een Ganzfeld-setting. We voorspelden een significant positieve correlatie tussen een index van claims over psi-ervaringen en de factor Openness en het facet Fantasy van de NEO-PI-R. Bovendien voorspelden we dat de psi-index positief zou correleren met de antwoorden op twee vragen over spontane bewustzijnsverandering op het informatieformulier dat de proefpersoon had ingevuld. Die vragen gingen over het verliezen van het gevoel voor de omgeving en voor het tijdsverloop tijdens het uitvoeren van een activiteit. Onze voorspellingen over een positieve correlatie tussen de psi-index (een gecombineerde meting van het optreden van verschillende psi-ervaringen) en het openstaan voor ervaringen ( $r = .20$ ,  $p = .02$ , enkelzijdig) en fantasie ( $r = .22$ ,  $p = .02$ , enkelzijdig) werden beide bevestigd. De psi-index toonde een significante correlatie met het verliezen van de tijdsbeleving ( $r = .16$ ,  $p = 0.05$ , enkelzijdig), maar niet met het verlies van het gevoel voor de omgeving ( $r = .13$ ,  $p = 0.10$ , enkelzijdig). De psi-index correleerde significant negatief met het facet Order van de factor Conscientiousness ( $r = -.29$ ,  $p = .004$ , dubbelzijdig). We vonden significant positieve verbanden tussen de psi-index en opgevoed zijn in een omgeving met een traditie van paranormale vaardigheden ( $t = 3.03$ ,  $p = .003$ , dubbelzijdig, Cohen  $d = .73$ ) en gezinsleden met psi-ervaringen ( $t = 3.01$ ,  $p = .004$ , dubbelzijdig,  $d = 1.05$ ). De auteurs zijn voorstander van verder onderzoek gebaseerd op claims over ervaringen van proefpersonen.

## Psi-Upplevelser och "Big Five":

### Förhållande Mellan NEO-PI-R och Uppgifter från Testpersoner

**Sammanfattning:** Denna undersökning byggde på en analys av information avsedd för ett Ganzfeld-experiment vid Edinburghs Universitet (Morris, Dalton, Delanoy & Watt, 1995). I undersökningen har vi försökt att relatera psi-upplevelser till de fem faktorer och de motsvarande aspekterna på NEO-PI-R och till flera sorters drömuupplevelser, absorptionsupplevelser och andra variabler. Vi har använt information från 97 artister och musiker som vi rekryterade för att utföra ESP-tester i en Ganzfeld-miljö. Vi har spått ett signifikant positivt förhållande mellan ett index över uppgifter om psi-upplevelser och faktorn Openness och aspekten Fantasy på NEO-PI-R. Dessutom har vi spått att Psi-indexet skulle relatera positivt till svaren på två frågor om spontan medvetenhetsförändring på blanketten som deltagaren fyllde i. Dessa frågor hade att göra med att tappa känslan för omgivningen och tidens gång i en aktivitet. Våra förutsägelser om ett positivt förhållande mellan psi-indexet (en kombinerad mätning av olika psi-upplevelser) och mottagligheten för upplevelser ( $r = .20$ ,  $p = .02$ , ensidig) och Fantasy ( $r = .22$ ,  $p = .02$ , ensidig) har blivit bekräftade. Psi-indexet visade ett signifikant förhållande med att tappa tidkänslan ( $r = .16$ ,  $p = .05$ , ensidig), men inte med att tappa känslan för omgivningen ( $r = .13$ ,  $p = .10$ , ensidig). Psi-indexet korrelerade signifikant och negativt med aspekten Order på faktorn Medvetenhet ( $r = -.29$ ,  $p = .004$ , tvåsidig). Dessutom fanns det signifikant positiva förhållanden mellan Psi-indexet och att vara uppfostrad i en miljö med en tradition av paranormala kunskaper ( $t = 3.03$ ,  $p = .003$ , tvåsidig, Cohen  $d = .73$ ) och släktingar med psi-upplevelser ( $t = 3.01$ ,  $p = .004$ , tvåsidig,  $d = 1.05$ ). Författaren uppmanar till mer forskning med uppgifterna från testpersoner.

## Psi-Erfahrungen und die "Big Five": Beziehungen zwischen NEO-PI-R und den Behaupteten Erfahrungen von Versuchspersonen

**Zusammenfassung:** Diese Untersuchung stützt sich auf eine Analyse von Daten aus einer Ganzfeld-Studie an der University of Edinburgh (Morris, Dalton, Delanoy & Watt, 1995). Wir

versuchten, Psi-Erfahrungen zu den fünf Faktoren und den entsprechenden Facetten des NEO-PI-R und zu verschiedenen Traumerfahrungen, Absorptionserlebnissen und anderen Variablen in Beziehung zu setzen. Wir verwendeten Daten von 97 bildenden Künstlern und Musikern, die für Ganzfeld-ASW-Tests einbestellt waren. Vorausgesagt wurde, daß ein Index von Psi-Behauptungen signifikant und positiv mit dem Faktor Offenheit und der Facette Fantasie des NEO-PI-R korrelieren würde, ferner, daß der Psi-Index positiv mit zwei Fragen über spontane Bewußtseinsveränderung korrelieren würde, die einem Informationsblatt für Teilnehmer entstammten. Diese Fragen betrafen den Wahrnehmungsverlust für die räumliche Umgebung und für das Verstreichen der Zeit, während der man anderweitig beschäftigt (abgelenkt) ist. Unsere Voraussagen hinsichtlich einer positiven Korrelation zwischen Psi-Index (einem kombinierten Maß für das Auftreten verschiedener Psi-Erfahrungen) und der Offenheit für Erfahrungen ( $r = .20$ ,  $p = .02$ , einseitig) sowie der Fantasie ( $r = .22$ ,  $p = .02$ , einseitig) wurden bestätigt. Der Psi-Index korrelierte signifikant mit der Frage zum Verlust des Zeitgefühls ( $r = .16$ ,  $p = .05$ , einseitig), allerdings nicht mit jener zum Verlust der Umgebungswahrnehmung ( $r = .13$ ,  $p = .10$ , einseitig). Der Psi-Index korrelierte signifikant und negativ mit der Facette Order des Faktors Conscientiousness ( $r = .29$ ,  $p = .004$ , zweiseitig). Zudem fanden sich signifikant positive Beziehungen zwischen dem Psi-Index und dem Aufwachen einer Versuchsperson in einer von paranormalen Fähigkeiten geprägten Umwelt ( $t = 3.03$ ,  $p = .003$ , zweiseitig, Cohen's  $d = .73$ ) und der Existenz von Familienmitgliedern mit Psi-Erfahrungen ( $t = 3.01$ ,  $p = .004$ , zweiseitig,  $d = 1.05$ ). Die Autoren befürworten weitere Untersuchungen unter Verwendung der behaupteten Erfahrungen von Versuchspersonen

#### Esperienze Psi e i "Grandi Cinque"

##### Correlare il NEO-PI-R Alle Affermazioni di Esperienza di Soggetti Sperimentali

**Sommario:** Questo studio consiste nell'analisi dei dati raccolti durante una ricerca con la tecnica del ganzfeld effettuata all'Università di Edimburgo (Morris, Dalton, Delanoy e Zatt, 1995). Nel presente lavoro abbiamo tentato di correlare le esperienze psi ai cinque fattori e corrispondenti aspetti del NEO-PI-R, a una serie di esperienze oniriche, a esperienze di coinvolgimento e ad altre variabili. Abbiamo usato i dati relativi a 97 artisti e musicisti, che erano stati arruolati per condurre prove ESP in condizioni di ganzfeld. Ci aspettavamo che un indice delle dichiarazioni di avere esperienze psi avrebbe correlato positivamente e significativamente con il fattore Apertura e con l'aspetto Fantasia del NEO-PI-R, e che l'Indice Psi avrebbe correlato positivamente con due aspetti dell'alterazione di coscienza rilevati dal questionario completato dai partecipanti, cioè la perdita di senso dell'ambiente circostante e la mancata percezione dello scorrere del tempo mentre si è impegnati in un'attività. La nostra predizione su una correlazione positiva tra Indice Psi (che è una misura cumulativa dell'incidenza di più esperienze psi) e disponibilità all'esperienza ( $r = .20$ ,  $p = .02$ , a 1 coda) e Fantasia ( $r = .22$ ,  $p = .02$ , a 1 coda) è stata confermata. L'Indice Psi correlava significativamente con la perdita di consapevolezza del senso del tempo ( $r = .16$ ,  $p = .05$ , a 1 coda), ma non con il distacco dall'ambiente ( $r = .13$ ,  $p = .10$ , a 1 coda). L'Indice Psi correlava significativamente ma negativamente con la componente Ordine del fattore Coscienziosità ( $r = .29$ ,  $p = .004$ , a 2 code). Abbiamo inoltre trovato significative correlazioni positive tra l'Indice Psi e l'essere cresciuti in un ambiente con tradizione di capacità paranormali ( $t = 3.03$ ,  $p = .003$ , a 2 code,  $d$  di Cohen = .73) e l'avere famigliari con esperienze psi ( $t = 3.01$ ,  $p = .004$ , a 2 code,  $d = 1.05$ ). Gli autori sollecitano ulteriori ricerche basate sulle dichiarazioni dei soggetti sperimentali a proposito delle loro esperienze.

#### Les Experiences Psi et les "Cinq Grand":

##### Relation du NEO-PI-R aux Expériences Spontanées de Sujets Experimentaux

**Résumé:** Cette étude repose sur l'analyse de données collectées à l'occasion d'une expérimentation ganzfeld menée à l'université d'Edimbourg (Morris, Dalton, Delanoy, & Watt, 1995). Dans cette étude, nous avons tenté de corréler les expériences psi aux cinq facteurs du NEO-PI-R et aux facettes correspondantes, ainsi qu'à une variété d'expériences de rêve, expériences d'absorption et autres variables. Nous utilisons des données de 97 artistes et musiciens recrutés dans le but de

conduire des tests PES dans le ganzfeld. Nous prédisions que l'index des expériences psi rapportées serait positivement et significativement corrélé au facteur d'Ouverture (Openness) et à la facette Imaginaire (Fantasy) du NEO-PI-R. Nous prédisions également que l'index Psi serait positivement corrélé aux réponses à deux questions concernant la modification spontanée de l'état de conscience, extraites d'un formulaire d'information rempli par les participants, notamment la perte du sens de l'environnement immédiat et celle du temps lorsque le participant est engagé dans une activité. Nos prédictions quant à une corrélation positive entre l'index Psi (une mesure combinée de l'incidence de plusieurs expériences psi) et l'Ouverture à l'expérience ( $r = .20, p = .02, 1t$ ) et l'Imaginaire ( $r = .22, p = .02, 1t$ ) ont été confirmées. L'index Psi était significativement corrélé à la question de la perte de conscience du sens de temps ( $r = .16, p = .05, 1t$ ), mais pas à la question relative à la perte de vigilance quant à l'environnement immédiat ( $r = .13, p = .10, 1t$ ). L'index Psi était significativement corrélé de manière négative à la facette d'Ordre du facteur de Conscience ( $r = -.29, p = .004, 2t$ ). En outre, des corrélations positives significatives ont été observées entre l'index Psi et le fait d'avoir été élevé dans un environnement avec une tradition d'aptitudes paranormales ( $t = 3.03, p = .003, 2t$ , Cohen's  $d = .73$ ) et d'avoir des membres de la famille ayant vécu des expériences psi ( $t = 3.01, p = .004, 2t, d = 1.05$ ). Les auteurs encouragent les recherches utilisant les récits expérientiels des sujets d'expérimentations.

## Experiencias Psi y los "Cinco Grandes":

### Relacionando al NEO-PI-R a las Experiencias de Sujetos Experimentales

**Resumen:** Este estudio se basó en análisis de datos recopilados para un estudio ganzfeld llevado a cabo en la Universidad de Edimburgo (Morris, Dalton, Delanoy, & Watt, 1995). En este estudio tratamos de relacionar a las experiencias psi a los cinco factores y facetas del NEO-PI-R y a una variedad de experiencias de sueño, experiencias de absorción, y a otras variables. Utilizamos datos de 97 artistas y músicos/as reclutados para participar en un experimento de percepción extrasensorial en el ganzfeld. Nuestras predicciones fueron que un índice de experiencias psi mostraría una correlación significativa y positiva con el factor de Apertura (Openness) y la faceta de Fantasía del NEO-PI-R, y que el Índice Psi (una medida combinada de la incidencia de varias experiencias psi) correlacionaría positivamente con dos preguntas de alteraciones de conciencia espontáneas tomadas del cuestionario de información de los participantes, experiencias de perder la noción de los alrededores y del paso del tiempo mientras se estaba haciendo algo. Nuestras predicciones de una correlación positiva entre el Índice Psi y la Apertura a la Experiencia (Openness to Experience) ( $r = .20, p = .02, 1t$ ) y Fantasía ( $r = .22, p = .02, 1t$ ) fueron confirmadas. El Índice Psi se correlacionó significativamente con la pregunta de perder la noción del tiempo ( $r = .16, p = .05, 1t$ ) pero no a la pregunta de perder la noción de los alrededores ( $r = .13, p = .10, 1t$ ). El Índice Psi se correlacionó significativamente y de forma negativa con al faceta de Orden del factor de Conscientiousness ( $r = -.29, p = .004, 2t$ ). Por añadidura, hubo relaciones significativas y positivas entre el Índice Psi y crecer en un ambiente con una tradición de habilidades paranormales ( $t = 3.03, p = .003, 2t$ , Cohen's  $d = 1.05$ ) y con tener miembros en la familia con experiencias psi ( $t = 3.01, p = .004, 2t, d = 1.05$ ). Las/os autoras/es enfatizan la necesidad de hacer más investigaciones utilizando las experiencias de los/as sujetos experimentales.

## Experiências Psi e os "Cinco Grandes":

### Relacionando o Neo-PI-R às Alegações Sobre as Experiências Vivenciadas por Sujeitos Experimentais

**Resumo:** Este estudo foi baseado em uma análise de dados coletados para um estudo ganzfeld realizado na Universidade de Edimburgo (Morris, Dalton, Delanoy e Watt, 1995). Neste estudo, tentamos relacionar experiências psi aos cinco fatores a facetas correspondentes do NEO-PI-R e a uma variedade de experiências oníricas, experiências de absorção e outras variáveis. Utilizamos dados de 97 artistas e músicos recrutados com o propósito de realizar testes de ESP em ganzfeld. Previmos que um índice de alegações de experiências psi estaria significativa e positivamente correlacionado ao fator de Abertura, e à faceta Fantasia do NEO-PI-R, e que o Índice Psi estaria



positivamente correlacionado a duas questões sobre a alteração espontânea da consciência, tiradas da ficha informativa de um participante, a saber, a perda da noção do espaço à sua volta e da noção de tempo enquanto engajado em uma atividade. Nossas previsões de uma correlação positiva entre o Índice Psi (uma medida combinada da incidência de diversas experiências psi) e da abertura à experiência ( $r = .20$ ;  $p = .02$ ;  $1t$ ) e Fantasia ( $r = .22$ ;  $p = .2$ ;  $1t$ ) foram confirmadas. O Índice Psi foi positivamente correlacionado à questão da perda de consciência e da noção de tempo ( $r = .16$ ;  $p = .05$ ;  $1t$ ), mas não para as questões sobre a perda da consciência dos arredores ( $r = .13$ ;  $p = .10$ ;  $1t$ ). O Índice Psi foi correlacionado significativa e negativamente com a faceta Ordem do fator Consciência ( $r = -.29$ ;  $p = .004$ ;  $2t$ ). Além disso, houve relações positivas significativas entre o Índice Psi a ser elevado em um ambiente com a tradição de habilidades paranormais ( $t = 3.03$ ;  $p = .003$ ;  $2t$ ; Cohen's  $d = .73$ ) e ter membros da família com experiências psi ( $t = 3.01$ ;  $p = .004$ ;  $2t$ ;  $d = 1.05$ ). Encorajamos para que sejam feitas mais pesquisas utilizando as alegações sobre experiências pessoais de sujeitos experimentais.

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## A DMILS Training Study Utilising Two Shielded Environments

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**Abstract:** A thirty-six session DMILS (direct mental interaction with living systems) study was conducted with agents attempting to activate and calm the electrodermal activity (EDA) of a receiver, at pseudo-random intervals. Both participants were housed in special electromagnetically and acoustically shielded environments. Experimenters were drawn from an experimenter training course conducted at the Institut für Grenzgebiete der Psychologie und Psychohygiene. Each experimenter conducted six DMILS sessions acting as the experimenter. To gain experience in all aspects of the DMILS environment, the experimenters took turns acting as agent and receiver for the first half of the study. During the second half, experimenters worked with other friends and colleagues. Overall there was a non-significantly greater level of EDA during the activate periods than the calm (Stouffer  $Z = 0.94$ ; effect size ( $r$ ) = .16). In the 18 sessions conducted among the six trainee experimenters also acting as agent and/or receiver, the results showed slightly greater EDA during calming periods (Stouffer  $Z = -0.082$ ;  $es$  ( $r$ ) = -.02). In the 18 sessions where friends/colleagues participated, greater EDA was found during the activate periods, with the difference between activate and calm approaching significance (Stouffer  $Z = 1.417$ ,  $p = 0.07$ , 1t;  $es$  ( $r$ ) = .33). A significant release-of-effort effect (Stouffer  $Z = 1.826$ ,  $p = 0.03$ , 1t;  $es$  ( $r$ ) = .43) was found for the non-experimenter population, and in both populations the release-of-effort effects were larger than the primary effects. These findings suggest the possible utility of longer interaction periods and advise against the use of shorter rest periods. Local sidereal time (LST) effects were explored for the first time in a DMILS study. Preliminary findings (with very small  $n$ 's) support those obtained from anomalous cognition studies by Spottiswoode (1997), with an approximate 400% increase in mean session  $z$  within  $\pm 2$  hour period of LST 13.5 ( $N = 3$ , mean  $z = 0.629$ ; where the overall  $N = 36$ , mean overall session  $z = 0.157$ ). Similarly,  $z$ 's from sessions conducted within  $\pm 2$  hours of LST 18.5 ( $N = 4$ , mean  $z = 0.076$ ) were lower than the overall mean session  $z$ .

### Introduction

Living systems have been used as targets in psi research for many years (see Morris,

1977 for a summary of early work) and this work is intimately linked with various notions of psychic healing (e.g., Solfvin, 1984). This research has recently grown in popularity due to the successful outcomes of a progressive research program carried

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out by William Braud and his colleagues (for an overview, see Braud & Schlitz, 1991, and Schlitz & Braud, 1997). Braud further developed existing methodologies for working with living systems, and labelled the basic procedure as DMILS (direct mental interaction with living systems) studies (e.g., Braud, 1994). Currently, DMILS protocols are being increasingly used to address process-oriented questions (e.g., Watt, C., Ravenscroft, J. and McDermott (in press); Delanoy & Sah, 1994).

Of special interest are the procedures involving an agent who attempts by mental intentions to selectively activate or calm a sensorially-isolated receiver, as measured by shifts in the receiver's electrodermal activity (EDA). These effects have been obtained both by Braud and associates (Braud & Schlitz, 1991; Braud, Shafer & Andrews, 1993a, 1993b) and by others (e.g., Radin, Taylor & Braud, 1993; Schlitz & La Berge, 1994; Delanoy & Sah, 1994; Watt et al., 1997). Although its potential artefacts require consideration, nonetheless EDA is a non-intrusive, accessible measure and one of the more straightforward physiological indicators of arousal (see, e.g., Dawson, Schell & Fillion, 1990, for a methodological review).

The current study is in part an attempt to obtain evidence of an agent-mediated effect upon a receiver's EDA in a new laboratory, with multiple experimenters and unusually stringent sensory shielding between the agent and receiver. Effects obtained in parapsychology have usefulness in process-oriented research primarily to the extent that they can be conceptually replicated and extended in other laboratories, with different experimenters and experimental facilities. The authors have been involved in the development of a new multi-purpose interpersonal psi testing facility at the Institut für Grenzgebiete der Psychologie und Psychohygiene (IGPP) in Freiburg, Germany, including the training of new researchers via an experimenter training course and hands-on experimental participation. The first study conducted in the new facility, reported herein, utilised an

EDA DMILS procedure. The study involved interested IGPP staff as both experimenters and research participants, to provide them with further training as parapsychological researchers. The experimental setting, described below, incorporates the use of state of the art shielded rooms for both agent and receiver, as well as computer-controlled psychophysiological monitoring and management of experimental conditions. The primary goals of this study were threefold: firstly, to attempt replication of the basic EDA DMILS effect with new experimenters in a new facility; secondly, to provide an opportunity to evaluate the new facility for its appropriateness for DMILS and related research; and, thirdly, to train potential new parapsychological researchers by providing first-hand experience with a challenging research protocol while gaining familiarity with various roles, as experimenter, agent and receiver, and also to provide experimenter experience working with a more usual participant population.

In achieving the first goal, various effects noted in other EDA DMILS studies would be sought. For example, Radin et al. (1993) found a significant release-of-effort effect in the first DMILS study conducted at the Edinburgh University Koestler Parapsychology Unit (KPU), where the activate or calming intentions appeared to be carried over into the following rest periods. As similar effects had been informally noted by the authors in other Edinburgh DMILS studies, it was of interest to see whether these effects would be present in the Freiburg data. Also, as the standard Braud DMILS study has the experimenter also acting as the agent, it was of interest to explore the outcomes of the experimenters' own data (who would be contributing sessions both as experimenter and as agents / receivers), to look for similarities and/or differences between the two data sets. Different agent and receiver populations would be used in this study, with one population comprised solely of the trainee experimenters and the other involving non-trainee receivers and agents. Therefore, the two populations would be explored

for any scoring differences. The sessions contributed by each individual experimenter would also be examined for differences in their overall outcomes, to follow up on the differences between the outcomes obtained by different experimenters found in the Wiseman and Schlitz (1996) EDA DMILS (remote staring detection) study. Finally, the data would be explored for any relationship among local sidereal time (LST) and DMILS session outcome to follow up on the relationship between LST and anomalous cognition session outcomes found by Spottiswoode (1997) wherein sessions conducted within a two hour window of 13.5 LST (+ / - 1 hour of 13.5 LST) showed a general average increase in psi scoring of 400 percent overall increase over the mean session scoring, and a decline in scoring was associated with 18.5 LST.

## Method

The study was designed as a straightforward replication of Braud and colleagues' standard EDA-based DMILS procedure, comparing activating and calming periods within sessions (see Braud & Schlitz, 1991). However, unlike Braud's traditional EDA studies, the experimenter did not also serve as the agent, except in one session. Instead an experimenter worked with two participants, an agent and a receiver, as in some previous Edinburgh DMILS studies (e.g., Delanoy & Sah, 1991). Experimenters would first conduct sessions amongst themselves, trading roles as experimenter, agent and receiver (within-experimenter sessions). When they were confident acting as experimenters, they were to bring other IGPP colleagues and friends to be agents and receivers.

## Participants

Six interested IGPP staff members, who were participating in an experimenter training course (offered by the authors), each agreed to act as experimenters in six sessions. Furthermore, they agreed to serve as agents and receivers in six other sessions

conducted by the other experimenters. They were encouraged to serve three times each as an agent and a receiver. After conducting three sessions as experimenters with their co-workers (within-experimenter sessions), they were to serve as experimenters in three further sessions involving other friends and colleagues as participants. None of the experimenters had previous experience working in a DMILS study; two had prior experience in psi studies, one with RNG-PK studies, and another with an ESP study. The first author participated as an observer / trainer working with the experimenter in the initial within-experimenter sessions (approximately 6 sessions), and participated as an agent or receiver in four other within-experimenter sessions.

## Experimental Facility

All sessions were conducted in an experimental suite of three rooms on the first floor at offices of the Institut für Grenzgebiete der Psychologie und Psychohygiene, located in an office building in downtown Freiburg. Each end room of the three room suite contains a customised acoustically and electromagnetically shielded cabin, purchased from the German branch of the international Industrial Acoustics Company (IAC; Industrial Acoustics Company, GmbH, Sohlweg 17, 41372 Niederkrüchten, Germany). See Appendix 1 for a floor plan of the laboratory facility.

The receiver's cabin is double-walled with a well-padded reclining chair, dimmer lights adjusted to the receiver's preference (a relatively bright level was suggested to help the receiver maintain alertness), and a computer monitor display showing a pleasant abstract screen saver with randomly changing patterns. The agent's cabin is triple-walled with a reclining chair identical to the receiver's, dimmer ceiling lights lit to the agent's preferred degree of brightness, and a computer monitor displaying a graphical representation of the receiver's on-going EDA and agent activity instructions. The central room contains

the experimenter's console and computer equipment, as well as a comfortable meeting area with an upholstered sofa and armchairs. Acoustical attenuation tests have been conducted between the shielded rooms as well as from inside to outside of each room. Between cabins (from the interior of the agent's cabin to that of the receiver) the acoustic shielding ranged from approximately 65dB at 60 Hz to between 90 - 100dB from 100 - 6000Hz. Also, the rooms have partial electro-magnetic shielding (contact the first author for further shielding specifications).

### *Psychophysiological Monitoring System*

The EDA (skin conductance) data were collected using a I-410 General Purpose System (produced by J & J Engineering, Inc.), supplied, with computer and applications, by Physiodata, Inc. (Bainbridge Island, WA, USA). Paul Stevens (of the Koestler Parapsychology Unit, Edinburgh University) created a program to monitor and process the experimental data acquisition and control the presentation of pseudo-randomised instructions to the agent. The data from each session was automatically saved onto the computer's hard disk, onto a Zip file, and hard copy was automatically printed of each session. Psychophysiological monitoring was accomplished by electrodes (10 mm, silver / silver chloride electrodes) attached to the distal phalanges (finger pads) of the non-dominant hand, as recommended by Boucsein (1992), by means of Velcro bands. Electrode paste (i.e., Sigma Creme; Parker Laboratories, Inc. and Femilind Gel, Johnson and Johnson) was used to improve conductivity. EDA was sampled 18 times per second, and activity summed to create an overall activity level for each interaction period.

The receivers' EDA was recorded for 17.7 minutes during each session. During this period there were 40 agent / receiver interactions periods, comprised of 10 activate and 10 calm sending periods, interspersed by 20 rest periods, where each period was of 26.6 seconds duration (e.g.,

rest — activate — rest — calm — rest — calm — ... ). Paired activate and calm periods were presented to the agent in a pseudo-randomised order within each session and from session to session. The randomisation was controlled by an algorithm which was programmed to ensure a counterbalanced ordering of the calm and activate periods. At the end of the study, the pseudo-randomised schedule for each session was checked by DD and no deviations from the counterbalanced ordering was found. No experimental participants (including the experimenter) were aware of the ordering before the session. The agent became aware of the randomised order only as the intentional instructions were presented to them during the session; the experimenter and receiver remained blind to the ordering throughout the data acquisition period.

A monitor display conveyed to the agent a graphical representation of the ongoing EDA of the receiver, providing the agent with nearly simultaneous feedback of the receiver's EDA. The EDA display would restart from the left of the screen, at the start of every 26.6 second period. A written message at the bottom of the monitor display would inform the agent of the intention goal of each period (i.e., calm, activate, or rest).

### *Procedure*

For training purposes, all sessions were handled as if the participants were coming to the lab to take part in a session for the first time, even for the within-experimenter sessions where the agent and receiver were trainee experimenters. Experimenters would greet participants at the IGPP entry door, and then escort them to the lab suite. They would be offered refreshment (i.e., juice, coffee, tea, biscuits, etc.) and would be seated in the sitting room area of the central room of the lab suite. Session description and instructions were interspersed with general conversation about various topics, to enable the experimenter to establish a friendly and trusting rapport with the participants and to help them become

relaxed in the experimental environment.

Descriptions of the session and study aims were tailored to meet the specific interests of the participants when possible (i.e., the medical implications could be stressed to someone involved with health care or interested in healing; interconnectedness issues discussed with someone interested in spiritual matters; teachers and/or counsellors could be told about the findings showing interpersonal helping / assisting effects in dyadic situations, etc.). The task was presented as a joint effort, involving equal contributions from the agent and receiver. The participants were asked to decide who wished to act as the agent and who as the receiver. If the participants were not sure about this, it was suggested that someone who was a good communicator (good at getting their ideas and wishes across to others) might most enjoy the agent's role, whereas the receiver role could put greater emphasis upon being attentive and responsive to the communications of others, and of being open and receptive. It was also suggested that the receiver might wish to share with the agent some suggestions that might help the agent convey the activate and calm instructions, i.e., receivers could tell the agent about situations that they found emotionally exciting and exhilarating, and also about ones they thought would calm them.

Receivers were instructed to be passively open and receptive to the states being conveyed by the agent during the session. They were to make no attempt to become consciously aware of the agent's intentions at any given time during the session, but rather to trust that their body would unconsciously respond appropriately. Receivers were asked to remain alert and to let their mind wander during the session, without dwelling too long on any one topic.

The agent was encouraged to think of things other than the receiver or the study during the rest periods and was given the following strategies to help them convey the appropriate state to the receivers during the calm and activate interaction periods:

1. Achieve the desired state in their own body with the goal of conveying this to or sharing it with the receiver.

2. Imagine the receiver in the appropriate state. This may involve imagining the receiver in a suitable activity, e.g., an exhilarating situation, such as scoring a goal, for the activated condition; and a very quiet, relaxed state, such as sleeping for the calm condition.

3. Interact with the feedback EDA display — "will" it to move a lot in the activate condition and to remain flat and still during calm periods.

Agents were encouraged to use the display of the receiver's on-going EDA as feedback regarding the success of their sending strategies. The three suggested strategies were presented as guidelines to be used as seemed most appropriate and effective, e.g., the strategies could be used alone or in combination with each other. Also, agents were free to devise their own strategies.

To help enhance expectations of and desire for success in the session, the positive outcomes of many other similar studies were mentioned. Also, it was noted how the findings from this study would add Germany to the list of places where such research was being successfully carried out.

When the participants fully understood the session procedures, they were given a tour of the rooms (including, for training purposes, the sessions where all participants were experimenters). First all three visited the shielded cabin in which the agent would be housed. The screen display was briefly described as were other technical aspects concerning the use of the shielded cabins, such as the opening of the doors and the location of the button to contact the experimenter. It was mentioned that the shielded environments provided a beneficially quiet environment for the two participants, free from outside distractions, and also served to deal in advance with later questions about possible non-psychic, sensory ways in which the participants might have been able to communicate with each other.

After being shown the experimenter's area, the participants were taken to the receiver's shielded cabin. The receiver sat in the chair and the experimenter attached the electrodes (always referred to as "sensors") to the receiver, explaining that they should try to keep their hand relatively still during the interaction period. After checking that there were no further questions and that the participants were ready to start the session, the experimenter and agent wished the receiver well, and requested them to make a gentle wish that their body would respond unconsciously to the remote intentions of the agent. The door was then closed.

The agent and experimenter returned to the experimenter area to check that the electrodes were recording properly. Then the agent was escorted to the other shielded cabin. By this time a display showing the actual, on-going EDA of the receiver was on the monitor screen. After answering any final questions, the experimenter left the cabin and closed the door.

The experimenter then returned to the control area and hit a key to start the data collection. Thus the experimenter decided once exactly when to hit the key to start the session, initiate the randomisation of the calm and activate periods, and so on.

The end of the session was signalled to the experimenter via a computerised voice. The experimenter then collected the agent, and both proceeded to the receiver's cabin. The electrodes were removed and all returned to the experimenter's area. The experimenter prompted the computer to display a summary of the findings on a monitor. Thus all three participants received feedback as to the session outcome at the same time. The session data were automatically backed-up on to a Zip drive, in addition to hard disk storage. Another computer prompt produced five copies of the summary analyses of the session. The two participants were each given a print-out; one lodged with the investigator (DD), one kept by the experimenter, and a third put in the session log book.

The participants were then offered further refreshments, and the session

discussed in as much detail as desired. The experimenter ensured the participants had a realistic perspective of their performance during the session before they left the lab, e.g., that the session results should not be taken necessarily as a valid indicator of their ability to perform any such DMILS functions in the course of their daily lives.

### *Hypotheses and Planned Analyses*

1. The primary hypothesis was that significantly greater EDA would be elicited during the activate periods than during the calm periods, over all the sessions. The main, planned method of analysis would be a Wilcoxon matched-pairs sign test for each session's data, with the overall measure for the study being a Stouffer  $Z$  of the combined sessions' Wilcoxon  $z$ 's. Effect size ( $r$ ) would be reported, where effect size ( $es$ ) = Stouffer  $Z$  /  $\sqrt{n}$ . Wilcoxon based analyses have been used in previous Edinburgh DMILS studies and elsewhere.

For comparison purposes, the analysis and effect size measure used by Braud and his colleagues would also be conducted (described in Braud and Schlitz, 1991). Thus for each session a "percentage influence score" (PIS) was calculated where all the activate data from a session would be summed and then divided by the sum of both the activate and calm data (MCE = 50%). A single sample  $t$ -test (testing session PIS against MCE) was used to determine overall, across session outcome (effect size  $r$  =  $\sqrt{t^2 / (t^2 + df)}$ ).

2. Using the primary (Wilcoxon/Stouffer  $Z$ ) method of analysis, the data would be explored for various internal effects. One-tailed tests were used as directional effects (active EDA > calm EDA) were expected, although given the small sample sizes it was not anticipated that outcomes would actually reach significance at the .05 level.

2a. The results from individual trainee experimenters would be examined, both when acting as experimenter and when filling other participant roles.

2b. The results from the different participant populations (i.e., trainee experimenters vs. others) would be explored for differences. (For comparison purpose, PIS-based outcomes will be reported also.)

2c. Wilcoxon/Stouffer Z analyses will be used to look for release-of-effort effects (Radin et al., 1993) in the rest periods following each interaction period.

3. The data would be examined for the local sidereal effects found by Spottiswoode (1997).

## Results

(Note: Probability values will only be given for both primary analyses (i.e., 1. below) and where the outcome is or is nearly significant. While one-tailed tests were used given the hypothesised outcomes, negative outcomes are reported on a post hoc basis.)

1. The primary hypothesis was not supported, with the difference of EDA during activate and calm periods being in the right direction, but not to a significant degree ( $n = 36$ , Stouffer  $Z = 0.942$ ,  $p = 0.174$ , one-tailed). The associated effect size was .16.

The PIS-based analysis showed a similar non-significantly greater degree of EDA in the activate periods ( $df = 35$ ,  $t = 1.176$ ,  $p = 0.124$ , one-tailed), with an effect size = .19.<sup>1</sup>

2a. As anticipated, no individual obtained a significantly greater degree of EDA in activate periods across the six sessions for which they were the

experimenter. Five of the experimenters obtained results in the expected directions (activate EDA > calm EDA), with one experimenter obtaining overall results slightly in the opposite direction. Two experimenters obtained effect sizes larger than the mean EDA DMILS study effect size (Schlitz & Braud, 1997) of .25 (i.e., .36, and .42). See Table 1 for experimenter details.

Looking at the experimenters' performances when acting as agent or receiver, four obtained results relatively consistent with those they obtained when acting as experimenter. One had a considerable improvement in overall effect size (experimenter  $es = .05$ , agent / receiver  $es = .70$ ), whilst another obtained a similarly dramatic decrease in scoring, reversing the scoring direction obtained as an experimenter (experimenter  $es = .36$ , agent / receiver  $es = -.69$ ).

The combined session Stouffer Z of one experimenter, who obtained consistently high effect sizes both as experimenter ( $es = .42$ ) and when acting as agent or receiver ( $es = .55$ ), did reach marginal significance ( $N = 13$ ,  $Z = 1.77$ ,  $p = 0.04$ , one-tailed;  $es = .49$ ).

2b. The comparison between the two kinds of sessions (i.e., the within experimenter sessions and those involving at least one non-experimenter as agent or receiver) showed superior results with non-experimenters. When working only amongst themselves, the experimenters scored in the opposite direction to that hypothesised, eliciting marginally greater EDA during calming than during activate periods ( $N = 18$ , Stouffer  $Z = -0.082$ ,  $es = -.02$ ). When working with at least one non-experimenter participant (as agent or receiver), overall results approached significance (activate EDA > calm EDA), with  $N = 18$ , Stouffer  $Z = 1.417$ ,  $p = 0.07$ ;  $es = .33$ . (Note: in 14 of the 18 sessions, both the agent and receiver were non-experimenters).

For comparison with earlier PIS-based findings, the within-experimenter sessions obtained a marginally positive (activate > calm), nonsignificant outcome ( $df = 17$ ,  $t = 0.392$ ;  $es = .09$ ), and the sessions involving

<sup>1</sup> Three completed sessions were not included in the study analyses for technical and protocol reasons. In one session, the data was not saved onto any source due to an incorrect session entry (with no available data, no  $z$  could be calculated for this session). In the other two sessions, the experimenters did not adhere to the pre-arranged protocol: in one case, an extra session was run by an experimenter ( $z = -0.866$ ); and in the other, the agent received no EDA feedback from the receiver ( $z = -0.663$ ). All three sessions were run by different experimenters; two involved only trainee participants.



non-experimenter agents / receivers obtained a non-significant, positive outcome, with an effect size similar to the mean of previous studies ( $df = 17$ ,  $t = 1.227$ ;  $es = .28$ ).

2c. The analysis looking for release-of-effort effects focused on comparing the rest periods following the activate periods (a-rest), and the rest periods following the calm (c-rest). Overall, the a-rest period showed marginally greater EDA activity than the c-rest (Stouffer  $Z = 0.305$ ;  $es = .05$ ). This represents a lower level effect than the .16 effect size found in the comparison of the actual activate / calm periods.

The data from the two agent / receiver populations showed similar scoring direction to those obtained in the primary activate / calm analyses, but the magnitude of effects increased, substantially so in the experimenter's data. For the experimenter population, non-significantly greater EDA was elicited during the c-rest than during the a-rest periods (Stouffer  $Z = -1.394$ ;  $es = -.33$ ). For the non-experimenter population, there was a significant difference (activate > calm) between the a-rest and c-rest periods (Stouffer  $Z = 1.826$ ,  $p = 0.03$ , one-tailed;  $es = .43$ ). Thus, for the experimenters, the magnitude of the negative activate / calm  $es$  changed from  $-.02$  to  $-.33$  during the rest periods; for the non exper-

imenters, the positive activate / calm  $es$  of  $.33$  increased to  $.43$ .

3. Focusing on the local sidereal times (LST) of 13.5 and 18.5, identified by Spottiswoode (1997) as relating most strongly to the anomalous cognition database, we had too few sessions for more than just a descriptive analysis. Indeed a four-hour window was selected in order to capture even these few data points. As with the earlier results, there was a high mean session  $z$  produced at LST 13.5  $\pm$  2 hours ( $z = 0.629$ ,  $N = 3$ ) and a low mean session  $z$  at LST 18.5  $\pm$  2 hours ( $z = 0.076$ ,  $N = 4$ ). The overall mean session  $z = 0.157$  ( $N = 36$ ).

### Discussion

While the overall measure did not reach significance, the effect size of  $.19$  from the PIS analysis is comparable to the mean study effect size  $.25$  (Schlitz & Braud, 1997; primarily derived from PIS analyses) from other DMILS EDA studies. One question of interest to the authors is whether the PIS or Wilcoxon analyses are best applied to these studies. The PIS would be more sensitive to a large deviation at any time during a session than would the Wilcoxon, while the Wilcoxon could be more sensitive to small but consistent differences between the calm and activate periods. In a previous study

Table 1

Results of six experimenter participants (Pp) when: 1) acting as experimenter; 2) as agent or receiver; and 3) when the two sets of outcomes are combined (all the sessions in which they participated).

Pp	Acting as experimenter			Acting as agt. or rec.			All sessions combined		
	Session N	Stouffer Z	(r) <i>es</i>	Session N (agt/rec)	Stouffer Z	(r) <i>es</i>	Session N	Stouffer Z	(r) <i>es</i>
A	6	0.250	.10	4 (1/3)	0.102	.05	10	0.258	.08
B	6	0.291	.12	5 (1/4)	0.225	.10	11	0.366	.11
C	6	0.125	.05	5 (2/3)	1.573	.70	11	1.153	.35
D	6	1.040	.42	7 (5/2)	1.445	.55	13	1.767	.49
E	6	0.874	.36	5 (3/2)	-1.553	-.69	11	-0.402	-.12
F	6	-0.273	-.11	10 (7/3)	-0.0003	-.0001	16	-0.167	-.04

(Delanoy & Sah, 1991) a significant overall outcome was obtained with the Wilcoxon ( $p = 0.04$  1-t;  $es = .31$ ), but not with the PIS ( $p = 0.08$ ;  $es = .25$ ). In the present study this trend was reversed, with slightly higher scoring obtained by the PIS method. Looking at the successful non-experimenter agent / receiver sessions, the Wilcoxon measure produced a larger effect than the PIS measure. The data from the within experimenter sessions displayed only marginal departures from chance expectancy, with the PIS measure obtaining a slightly positive outcome and the Wilcoxon a slightly negative result. Thus, the question of which measure may be the more sensitive when applied to EDA DMILS is still open. Also, the above effects should be interpreted with caution given the low power of this study.

While the overall results were not significant, those involving the non-experimenter agent and receiver populations were more encouraging. The trials involving the experimenters as agents and receivers were intended as training sessions, to familiarise the experimenters with all aspects of the methodology. Also, it was wished to provide them with the experience of learning how to act as an experimenter, therefore making them comfortable with the role, before they worked with the general public. Whilst it was disappointing that their scores when working with each other were slightly opposite to the hypothesised direction, these sessions were conducted primarily as preparation for their working with other participants. The preparatory nature may have had a variety of psychological effects on the participants; or perhaps we are seeing a learning effect, as the within-experimenter sessions generally preceded the sessions where others acted as agent or receiver (i.e., all of the first 16 sessions of the study involved only experimenters as participants). Additionally (as discussed below), the equipment problems that plagued the earlier sessions may have had a negative impact upon session outcome.

The effect size (.33) from the sessions with non-experimenter participants

compares favourably with the mean DMILS EDA study effect size of .25, and the result approached significance with an  $N$  of only 18. Thus, the hypothesised outcome was obtained in the sessions which most resemble the usual DMILS environment. While undoubtedly there were psychological differences between the purely training sessions and those involving other members of the public, this study was not designed to explore such differences and further speculation about possible causes would be unwarranted. However, there were numerous equipment problems encountered in the earlier stages of the experiment, which were essentially sorted out before non-experimenter participants were involved in the sessions.

As indicated, this study was most useful in helping to further refine the equipment and software controlling the data collection. Problems were encountered in the course of the study, especially during the earlier within-experimenter sessions. Ten sessions were abandoned due to equipment failure. In these 10 sessions, the system would most commonly crash before any data for the trial was collected, but after the pre-session talks had been given and the agent and receiver were located in their respective shielded rooms. These problems could have impacted negatively on the scoring rate, as it was very frustrating for the experimenters to gather for a session, proceed through the initial pre-session chat, advance to the data collection stage, only to have the system crash at the critical moment. These problems were due to a programming error that was eventually identified and remedied. Also, minor modifications of the software program were made to simplify the set-up program entry procedure for the experimenters.

This is the first time that two acoustically and electro-magnetically attenuated rooms were used to house the agent and receiver in a DMILS study. The outcomes suggest that these unusually stringent security measures appear to provide no obstacle in obtaining standard DMILS effects, as demonstrated by the non-experimenter agent / receiver sessions.

Furthermore, we were pleased to discover via post session discussion that participants did not find the use of such imposing structures intimidating or problematic in any noted respect.

The study of Wiseman & Schlitz (1996) indicates that some experimenters may be more likely to obtain significant results from their participants than others in DMILS studies, lending further support to similar "experimenter effect" findings from other areas of psi research. The investigation of individual experimenters was conducted in part to see if any tendencies for especially good or especially poor outcomes were associated with any individual experimenter. We looked at their performance both when acting as experimenter and when acting as agent or receiver, as these roles are difficult to separate in the traditional DMILS design (e.g., in the Wiseman and Schlitz study) as often in these earlier studies the experimenter also acted as the agent. In the present study, one experimenter appeared to excel in both roles, obtaining an unexpected overall significance when combining all their sessions ( $p = .04$ , one-tailed;  $es = .49$ ). Further examination of this individual's data revealed a general tendency, both as experimenter and agent / receiver, to obtain small, above chance deviations from MCE (of 12 sessions, only two were slightly in the wrong direction, and only two obtained  $z$ 's in excess of 1.00). Five of the six experimenters showed similar directional effects in both sets of sessions (experimenter and agent / receiver sessions), with one showing a much greater magnitude of effect in their sessions as agent / receiver. Only one experimenter showed a reversal of effects between their sessions as an experimenter and those as agent and receiver ( $es$  for experimenter sessions = .36;  $es$  for agent / receiver sessions = -.69). Excepting the one instance of reversal of outcome direction, these findings suggest that more data needs to be collected where the role of the experimenter and agent are clearly differentiated before understanding whether the Wiseman & Schlitz findings are best interpreted as

effects stemming from the experimenter, from the agent or from some interaction between the two.

While of potential interest, the role that gender may play in the agent / receiver pairing, or in acting as experimenter with different combinations of agent / receiver gender pairings, could not be addressed due to insufficient sample sizes. Of the six experimenters, only two were female, and they each worked primarily with two different males in the experimenter sessions. The agent / receiver gender pairing was generally mixed in the non-experimenter agent / receiver sessions. Looking just at the data each trainee experimenter produced while serving as experimenter, one male and one female produced effect sizes above the mean study effect size of .25 ( $es = .36$  and  $.42$ , respectively). Considering all the sessions in which the experimenters participated (as experimenter and as agent / receiver), the only independently significant overall results for an individual experimenter were produced by a male; the two overall negative Stouffer  $Z$ 's were produced by a male and a female. It is hoped to explore gender issues more thoroughly in future DMILS studies.

The release-of-effort findings suggests that the intentionality effects may have carried-over into the subsequent rest periods. Within both agent / receiver groups, the magnitude of the apparent DMILS effects were greater in the rest periods, than in the preceding "intentionality" period (non-experimenter group effect size increased from .33 to .43; experimenters changed from -.02 to -.33). Indeed, in the sessions which showed the greatest evidence of a positive DMILS interaction (i.e., the non-experimenter agent / receiver sessions), the release-of-effort effect reached significance in the expected direction ( $p = 0.03$ ). From this it appears that the lack of a release-of-effort effect in the overall session data was due to a cancellation effect from the scoring of the two agent / receiver populations.

These findings lend support to the significant release-of-effort effect reported by Radin et al. (1993), although it should be

noted that Radin's analysis was based on the first 10 seconds of their 30 second rest period, where as in the present study, the whole of the 26.6 second rest period was used, due to problems in isolating just 10 seconds of data given the software program controlling the data collection. The outcomes may suggest that DMILS EDA effects could be increased by lengthening the period of the traditional 30 second interaction periods. Also, it argues in favour of retaining at least a 30 second rest period between each interaction period to ensure there is no carry-over of effects from one intention period (i.e., activate) to another (i.e., calm). Indeed, there may still be a carry-over effect with 30 second rest periods. The apparent release-of-effort effect requires further confirmation and exploration in future studies.

The LST findings are potentially very intriguing. This is the first time that DMILS data has been explored for LST effects, and the results show a similar pattern to those from the anomalous cognition database (Spottiswoode, 1997), including a 400% scoring increase over the mean session scoring in the few sessions falling with +/- 2 hours of 13.5 LST, and a decrease at +/- 2 hours of 18.5 LST. However, the sample sizes in this study are obviously too small to allow any conclusions to be made. Further analyses of existing and new DMILS databases are planned for the near future.

In conclusion, this study fulfilled the primary goals for which it was intended. The effect sizes from the set of sessions most representative of the norm were above that of the mean for existing EDA DMILS studies. Additionally, some interesting internal effects were found, consistent with those from existing studies. Actual and potential equipment short-comings were identified and corrected. And several of the IGPP staff who took part in the study as experimenters will be working in future DMILS studies. We are encouraged by these outcomes, and anticipate fruitful findings in the future DMILS studies which are planned for this facility.

## References

- Boucsein, W. (1992). *Electrodermal Activity*. New York: Plenum Press.
- Braud, W.G. (1994). Can our intentions interact directly with the physical world? *European Journal of Parapsychology*, 10, 78-90.
- Braud, W.G. and Schlitz, M.J. (1991). Consciousness interactions with remote biological systems: Anomalous intentionality effects. *Subtle Energies*, 2:1, 1-46.
- Braud, W., Shafer, D. and Andrews, S. (1993a). Reactions to an unseen gaze (remote attention): A review, with new data on autonomic staring detection. *Journal of Parapsychology*, 57, 373-390.
- Braud, W., Shafer, D. and Andrews, S. (1993b). Further studies of autonomic detection of remote staring: Replication, new control procedures, and personality correlates. *Journal of Parapsychology*, 57, 391-409.
- Dawson, M., Schell, A. and Filion, D. (1990). The electrodermal system. In J.T. Cacioppo and L.G. Tassinary (Eds.) *Principles of Psychophysiology*. Cambridge: Cambridge University Press, 293-324.
- Delanoy, D.L. and Sah, S. (1994). Cognitive and physiological psi responses to remote positive and neutral emotional states. *Proceedings of the 37th Annual Convention of the Parapsychological Association*, Amsterdam, The Netherlands, August, 1994, 128-139.
- Morris, R.L. (1977). Parapsychology, biology, and anpsi. In B. Wolman (Ed.) *Handbook of Parapsychology*. New York: Van Nostrand Reinhold Co., 687-715.
- Radin, D.I., Taylor, R.K. and Braud, W.G. (1993). Remote mental influence of human electrodermal activity: An experimental replication. In M.J. Schlitz (Ed.) *Proceedings of Presented Papers of the Parapsychological Association 36th Annual Convention*. August, 1993, Toronto, Canada, 12-23.
- Schlitz, M. and Braud, W. (1997). Distant intentionality and healing: Assessing the evidence. *Alternative Therapies*, 3:6, 62-73.
- Schlitz, M.J. and LaBerge, S. (1994). Autonomic detection of remote observation: Two conceptual replications. *Proceedings of the 37th Annual Convention of the Parapsychological Association*, Am-

- terdam, The Netherlands, August, 1994, 352-360.
- Solfvin, J. (1984). Mental healing. In S. Kripner (Ed.) *Advances in Parapsychological Research*, 4. Jefferson, N.C: McFarland and Co., 31-63.
- Spottiswoode, S.J.P. (1997). Apparent association between effect size in free response anomalous cognition experiments and local sidereal time. *Journal of Scientific Exploration*, 11:2, 109-122.
- Watt, C., Ravenscroft, J. and McDermott, Z. (in press). Exploring the limits of direct mental influence: Two studies comparing 'blocking' and 'co-operating' strategies. *Journal of Scientific Exploration*.
- Wiseman, R and Schlitz, M. (1996). Experimenter effects and remote detection of staring. In E.C. May (Ed.) *Proceedings of Presented Papers of the Parapsychological Association 39th Annual Convention*, San Diego, CA, August 1996, 149-157.
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### Een DMILS-Experiment met Onderzoekers in Opleiding

**Samenvatting:** In dit DMILS-onderzoek (Direct Mental Interaction with Living Systems) van 36 sessies probeerden "zenders" met pseudo-random intervallen de electrodermal activity (EDA) van een "ontvanger" te verhogen en te verlagen. Beide proefpersonen zaten in elektromagnetisch en akoestisch afgeschermden ruimten. De experimentatoren waren deelnemers aan een opleiding tot onderzoeker aan het Institut für Grenzgebiete der Psychologie und Psychohygiene. Elk van hen fungeerde in 6 DMILS-sessies als experimentator. Om ervaring op te doen met alle aspecten van een DMILS-experiment waren zij de tijdens de eerste helft van het onderzoek beurtelings zender en ontvanger. Tijdens de tweede helft van het experiment werkten de onderzoekers met vrienden en collega's. In totaal was het EDA-niveau hoger tijdens activerings-perioden dan tijdens remmingsperioden, maar het verschil was niet significant (Stouffer  $z = .94$ ; effectgrootte ( $r$ ) = .16). In de 18 sessies waarin de 6 in opleiding zijnde experimentatoren tevens als zender en/of ontvanger werkten, was er een iets hogere EDA tijdens remmingsperioden (Stouffer  $z = -.082$ ; ES ( $r$ ) = -.02). In de 18 sessies met vrienden/collega's was de EDA hoger tijdens activeringsperioden en verschilde die significant met de remmingsperioden (Stouffer  $z = 1.417$ ,  $p = .07$ , enkelzijdig; ES ( $r$ ) = .33). Deze resultaten zijn consistent met die in ander DMILS-onderzoek en de effectgrootte ligt in het betrouwbaarheidsinterval van 95% dat in een recente meta-analyse op DMILS EDA (Schlitz en Braud, 1997) werd afgeleid. Voor de groep die niet tot de cursisten behoorde, werd een significant effect van het stoppen met activeren gevonden (Stouffer  $z = 1.826$ ,  $p = .03$ , enkelzijdig; ES ( $r$ ) = .43). In beide groepen waren die effecten groter dan de primaire effecten. Deze resultaten ondersteunen het mogelijke nut van langere interactieperioden en pleiten tegen het toepassen van korte rustperioden. Voor het eerst werden "Local Sidereal Time"-effecten (LST, methode van tijdmeting op basis van positie van vaste sterren) onderzocht in een DMILS-setup. Voorlopige resultaten (met een zeer klein aantal proefpersonen) ondersteunen de bevindingen van Spottiswoode (1997) in onderzoek naar "anomalous cognition", met een toename van ongeveer 400% van de gemiddelde z-waarde voor de sessies binnen +/-2 uur van LST 13.5 ( $N = 3$  gemiddelde  $z = .629$ ,  $N$  totaal = 36, totale gemiddelde z-waarde sessies = .157). Zo waren ook z-waarden voor sessies binnen +/-2 uur LST van 18.5 ( $N = 4$ , gemiddelde  $z = .076$ ) lager dan de totale gemiddelde z-waarde.

## Ett DMILS-Experiment med Forskarstuderande

**Sammanfattning:** I denna DMILS-undersökning med 36 sessioner (Direct Mental Interaction with Living Systems) försökte "sändare" med pseudo-slumpmässiga intervaller förstora och öka och minska en mottagares elektrodermale aktivitet (EDA). Båda testpersoner befann sig i speciella rum som skyddade mot elektromagnetiska fält och akustik. Experimentatorer var forskarstuderande vid "Institut für Grenzgebiete der Psychologie und Psychohygiene". Varje forskarstuderande fungerade i 6 DMILS-sessioner som experimentator. För att få erfarenhet av alla aspekter i DMILS-omgivningen, var forskarstudenterna både sändare och mottagare i undersökningens första. Del I andra delen jobbade experimentatorerna med vänner och kolleger. Sammanlagt fanns det inte signifikant mer EDA under aktiveringsperioder än under hämmande perioder (Stouffer  $z = .94$ ; effekt ( $r$ ) = .16). I de 18 sessioner i vilka de 6 forskarstuderande fungerade båda som sändare och/eller mottagare, fanns det lite mer EDA under hämmande perioder (Stouffer  $z = -0.082$ ; ES ( $r$ ) = -.02). I de 18 sessionerna med vänner och kolleger, fanns det mer EDA under aktiveringsperioder. Skillnaden mellan aktiveringsperioder och hämmande perioder var nästan signifikant (Stouffer  $z = 1.417$ ,  $p = .07$ , 1t; ES ( $r$ ) = .33). Dessa resultat överensstämmer med de i andra DMILS-undersökningar och effektstorleken befinner sig i det 95 % pålitlighetsintervall härleddes från en nyligen genomförd DMILS EDA meta-analys (Schlitz och Braud, 1997). För gruppen som inte hör till forskarstuderande fanns det en signifikant "release-of-effort"-effekt (Stouffer  $z = 1.826$ ,  $p = .03$ , 1t; ES ( $r$ ) = 0.43) och för varje grupp var denna effekt större än de primära effekterna. Resultaten indikerar att längre interaktionsperioder kan vara bra och avråder från mindre rastperioder. Local sidereal time (LST)-effekter (metod av tidmätning på basis av stjärnornas position) undersöktes för första gången i en DMILS-undersökning. Preliminära resultat (med mycket få testpersoner) stödjer resultaten från "anomalous cognition"-undersökningar av Spottiswoode (1997), med ungefär 400 % ökning i genomsnittligt z-värde i +/- 2 timmars period från LST 13.5 ( $N = 3$ , genomsnittligt  $z = .629$ ;  $N$  totalt = 36, genomsnittligt z-värde sessioner = .157). Z-värden för sessioner i +/- 2 timmars period från LST 18.5 ( $N = 4$ , genomsnittligt z-värde = .076) var mindre än det totala genomsnittliga z-värdet från sessionerna.

## Ein DMILS-Experiment mit Nachwuchs-Experimentatoren

**Zusammenfassung:** In dieser 36 Sitzungen umfassenden DMILS-Studie (Direct Mental Interaction with Living Systems) versuchten "Sender" in pseudo-zufälligen Zeitabständen die elektrodermale Aktivität (EDA) eines "Empfängers" anzuregen bzw. beruhigen. Beide Teilnehmer befanden sich in speziellen elektromagnetisch und akustisch abgeschirmten Räumen. Die Untersucher entstammten einem Ausbildungskurs für Experimentatoren am Institut für Grenzgebiete der Psychologie und Psychohygiene. Jeder von ihnen leitete 6 DMILS-Sitzungen als Untersucher. Um Erfahrungen mit allen Aspekten eines DMILS-Experiments zu erwerben, agierten die angehenden Experimentatoren in der ersten Hälfte der Untersuchung abwechselnd als Sender und Empfänger. Während der zweiten Hälfte der Untersuchung arbeiteten diese Experimentatoren mit anderen Freunden und Kollegen zusammen. Insgesamt ergab sich ein nichtsignifikant höheres EDA-Niveau während der "Anregungs-" als während der "Beruhigungs-Periode" (Stouffer  $z = .94$ ; Effektgröße ( $r$ ) = .16). In den 18 Sitzungen, die von den sechs angehenden Experimentatoren geleitet wurden, während sie selbst als Sender und/oder Empfänger agierten, wiesen die Resultate geringfügig höhere EDA innerhalb der Beruhigungsperioden auf (Stouffer  $z = -.082$ ; Effektgröße ( $r$ ) = -.02). In den 18 weiteren Sitzungen, an denen Freunde/Kollegen beteiligt waren, ergaben sich höheren EDA während der Anregungsperiode, wobei der Unterschied zwischen Anregung und Beruhigung die Signifikanzschwelle erreichte (Stouffer  $z = 1.417$ ,  $p = .07$ , einseitig; Effektgröße ( $r$ ) = .33). Diese Befunde entsprechen denen anderer DMILS-Studien, die Effektgrößen innerhalb des 95%igen Konfidenzintervalls aufwiesen, das sich aus einer kürzlich durchgeführten DMILS-EDA-Meta-Analyse (Schlitz und Braud, 1997) ergeben hat. Ein signifikanter Effekt nachlassender Bemühungen ("release of effort") fand sich (Stouffer  $z = 1.826$ ,  $p = .03$ , einseitig; Effektgröße ( $r$ ) = .43) bei den Teilnehmern, die nicht dem Versuchsleiter-Kurs entstammten, und in beiden Gruppen.

war dieser "Release-of-Effort"-Effekt stärker als der Primäreffekt. Diese Resultate legen die mögliche Nützlichkeit größerer Interaktions-Perioden nahe, und lassen kürzere Ruheperioden nicht ratsam erscheinen. "Local-Sidereal-Time"-Effekte (LST, ein an Fixsternpositionen orientiertes Verfahren der Zeitmessung) wurden hier erstmals in einem DMILS-Experiment untersucht. Erste, vorläufige Ergebnisse (mit sehr kleinen N) unterstützen jene, die sich in Spottiswoodes (1997) Studien zur Untersuchung von "Anomalous Cognition" ergeben haben, bei einer Zunahme von annähernd 400 Prozent der gemittelten z-Werte für Sitzungen binnen +/- 2 Stunden von LST 13.5 (N = 3, z gemittelt = .629; N gesamt = 36, über Sitzungen gemittelt z insgesamt = 0.157). In ähnlicher Weise waren z-Werte in Sitzungen binnen +/- 2 Stunden von LST 18.5 (N = 4, z gemittelt = .076) niedriger als die gemittelten z-Werte insgesamt.

### Uno Studio DMILS con Studenti Sperimentatori

**Sommario:** E' stato effettuato uno studio in 36 sessioni dell'interazione mentale diretta su sistemi viventi (DMILS), con agenti che tentavano di attivare o di placare l'attività elettrodermica (EDA) di un ricevente, ad intervalli pseudocasuali. I due partecipanti si trovavano in stanze particolari, schermate elettromagneticamente e acusticamente. I soggetti erano i partecipanti a un corso di addestramento per sperimentatori tenuto all'Institut für Grenzgebiete der Psychologie und Psychohygiene. Ogni partecipante al corso ha condotto, in qualità di sperimentatore, 6 sessioni DMILS. Per acquisire esperienza su tutti gli aspetti del contesto sperimentale, per la prima metà dello studio i partecipanti hanno assunto il ruolo di agente e poi quello di ricevente; nella seconda metà, gli sperimentatori lavoravano con amici e colleghi. Nel complesso durante i periodi di attività si è ottenuto un livello di EDA non significativamente maggiore rispetto a quello dei periodi di soppressione (z di Stouffer = -.082; ES (r) = -.02). Nelle 18 sessioni alle quali hanno preso parte amici e colleghi, è stata ottenuta un'EDA maggiore durante i periodi di attivazione; la differenza tra il tentativo di placare e quello di aumentare raggiungeva il livello di significatività statistica (z di Stouffer = 1.417, p = .07; ES (r) = .33). Questi riscontri sono consistenti con quelli ottenuti in studi simili e le dimensioni dell'effetto cadono entro gli intervalli di confidenza del 95% calcolati in una recente metanalisi di lavori sull'EDA in DMILS (Schlitz e Braud, 1997). Un significativo effetto alla sospensione del tentativo (z di Stouffer = 1.826, p = .03, a 1 coda; ES (r) = .43) è stato ottenuto nel gruppo dei soggetti non addestrati, mentre in entrambi i gruppi questi effetti erano maggiori dell'effetto primario. Tali dati suggeriscono la possibile utilità di periodi di interazione più lunghi e sconsigliano l'uso di periodi di pausa inferiori. Per la prima volta in uno studio DMILS sono stati presi in considerazione gli effetti del tempo siderale locale (LST). I primi dati preliminari (relativi a pochissimi soggetti) avvalorano quelli ottenuti da Spottiswoode (1997) in studi sulla cognizione anomala, con un incremento di circa il 400% in uno z medio di sessione entro l'intervallo di  $\pm 2$  ore dal LST 13.52 (N = 3, z medio = 0.629; con un numero totale N = 36, z medio complessivo della sessione = .157). Analogamente, i valori z delle sessioni condotte  $\pm 2$  ore dal LST 18.5 (N = 4, z medio = .076) erano inferiori a quello complessivo della sessione.

### Une Étude DMILS Conduite par des Expérimentateurs en Formation

**Résumé:** Nous avons conduit une étude DMILS (Interaction Mentale Directe avec les Systèmes Vivants) dans laquelle l'agent tentait soit d'exciter (période d' "activation") soit de calmer (période d' "apaisement") l'activité électrodermique (EDA) d'un récepteur, selon des décisions pseudo-aléatoires. L'agent et le récepteur était chacun situés dans une chambre électromagnétiquement et acoustiquement isolée. Les expérimentateurs étaient recrutés dans un cours sur la méthodologie expérimentale de l'Institut für Grenzgebiete der Psychologie und Psychohygiene (Freiburg, Allemagne). Chaque stagiaire jouait le rôle d'expérimentateur pendant 6 sessions. Durant la première moitié de l'étude, les stagiaires alternaient également entre le rôle d'agent et celui de récepteur afin d'expérimenter les différents facettes de l'expérimentation DMILS. Durant la seconde moitié de l'étude, d'autres amis et collègues jouaient le rôle de récepteurs et d'agent. Globalement, nous avons trouvé une augmentation non-significative de

l'activité électrodermique pendant les périodes "activation" par rapport aux périodes "apaisement" (Stouffer  $z = .94$ ; taille d'effet ( $r$ ) = .16). Durant les 18 sessions dans lesquelles les 6 stagiaires / expérimentateurs jouai-ent également le rôle d'agent ou de récepteur, l'activité électrodermique était largement supérieure pendant les périodes "apaisement" (Stouffer  $z = -.082$ ; taille d'effet ( $r$ ) = -.02), tandis que pour les 18 sessions impliquant d'autres personnes, le EDA était plus important pendant les périodes d'activation, et ceci à un niveau presque significatif (Stouffer  $z = 1.417$ ,  $p = .07$ , 1t; taille d'effet ( $r$ ) = .33). Ces données sont cohérentes avec les résultats d'autres études DMILS: les taux d'effets obtenus ici sont comparables (avec une confiance de 95%) à ceux trouvés dans une récente méta-analyse d'études impliquant l'EDA. Nous avons aussi trouvé un effet statistiquement significatif de lâcher-prise (Stouffer  $z = 1.826$ ,  $p = .03$ , 1t; Taille d'effet ( $r$ ) = .43) en particulier pour les participants qui n'étaient pas stagiaires. Pour les stagiaires et les non-stagiaires également, les effets lâcher-prise étaient plus importants que les effets primaires (c.à.d., pendant les périodes d'influence), ce qui indique la nécessité de périodes d'influence plus longues, séparées par des périodes-témoins plus importantes. Enfin, pour la première fois dans une étude DMILS, nous avons exploré les effets du Temps Sideral Local (TSL). Les résultats préliminaires (avec très peu d'essais) corroborent les études de Spottiswoode (1997), indiquant une augmentation de 400% pour le score- $z$  moyen, pour chaque session ayant eu lieu 2 heures avant ou après TSL 13.5 ( $N = 3$ ,  $z$  moyen = .629; vs. avec un total de  $N = 36$ , le  $z$  moyen = .157). De même, les scores- $z$  des sessions conduites jusqu'à 2 heures avant ou après TSL 18.5 ont montré des scores au-dessus de la moyenne ( $N = 4$ , moyen  $z = .076$ ).

### Un Estudio de DMILS con Experimentadores/as en Entrenamiento

**Resumen:** Se llevó a cabo un estudio de DMILS (interacción mental directa con sistemas vivos) con agentes que trataban de activar y calmar la actividad electrodermal (EDA) de un receptor en intervalos pseudo-aleatorios. Ambos participantes estaban en habitaciones especiales aisladas en términos electromagnéticos y acústicos. Los/as experimentadores/as fueron obtenidos de un curso para entrenar experimentadores/as presentado en el Institut für Grenzgebiete der Psychologie und Psychohygiene. Cada persona en entrenamiento llevó a cabo 6 sesiones de DMILS como experimentador. Para obtener experiencia en todos los aspectos del ambiente de DMILS, las personas en entrenamiento tomaron turnos actuando como agentes y receptores/as durante la primera mitad del estudio. Durante la segunda mitad, los/as experimentadores/as trabajaron con otros amigos/as y colegas. En general hubo un nivel mayor no-significativo de EDA durante los periodos de activación que en los de calma (Stouffer  $z = 0.94$ ; tamaño del efecto ( $r$ ) = .16). En las 18 sesiones con los 6 experimentadores en entrenamiento que también eran agentes y/o receptores/as los resultados mostraron una leve EDA mayor durante los periodos de calma (Stouffer  $z = -0.082$ ; ES ( $r$ ) = -.02). En las 18 sesiones en las cuales amigos/as y colegas participaron, se encontró un EDA mayor durante los periodos de activación, y la diferencia entre activación y calma fue casi significativa (Stouffer  $z = 1.417$ ,  $p = .07$ , 1t; ES ( $r$ ) = .33). Estos hallazgos son consistentes con los de otros estudios de DMILS, pues se obtuvieron magnitudes de efectos entre el 95% de los "confidence intervals" derivados de un reciente meta-análisis de DMILS EDA (Schlitz & Braud, 1997). Se encontró un efecto significativo de "release-of-effort" (Stouffer  $z = 1.826$ ,  $p = .03$ , 1t; ES ( $r$ ) = .43) para la población de los/as que no estaban siendo entrenados/as, estos efectos fueron mayores que los efectos primarios. Los resultados sugieren la posible utilidad de periodos de interacción más largos y sugieren que no se deben usar periodos cortos de descanso. Se exploraron efectos de tiempo sideral local (LST) por primera vez en un estudio de DMILS. Hallazgos preliminares (con  $N$ s muy pequeñas) apoyan los resultados de Spottiswoode (1997) con estudios de cognición anómala con un aumento aproximado de 400% en el promedio de  $z$  por sesión dentro de un periodo de +/- 2 horas de LST 13.5 ( $N = 3$ , promedio  $z = 0.629$ ; en el cual la  $N$  total era 36, promedio de sesión general  $z = 0.157$ ). De forma similar, las  $z$  de sesiones llevadas a cabo entre +/- 2 horas de LST 18.5 ( $N = 4$ , promedio  $z = 0.076$ ) fueron menores que el promedio de sesión general de las  $z$ .



### Um Estudo de DMILS com Experimentadores em Treinamento

**Resumo:** Um estudo de 36 sessões de DMILS (do inglês *direct mental interaction with living systems*, ou seja, interação mental à distância com sistemas vivos) foi conduzido com agentes tentando ativar e acalmar a atividade eletrodérmica (AED) de um receptor, em intervalos pseudo-aleatórios. Os participantes foram alojados em salas acústica e eletro-magneticamente isoladas. Os experimentadores foram recrutados de um curso de treinamento conduzido no Institut für Grenzgebiete der Psychologie und Psychohygiene. Cada estudante conduziu 6 sessões de DMILS atuando como experimentadores. Para obter experiência em todos os aspectos do ambiente DMILS, os estudantes fizeram turnos agindo como agentes e receptores na primeira metade do estudo. Durante a segunda metade, os experimentadores trabalharam com outros amigos e colegas. Em geral houve maior nível não significativo de AED durante os períodos de atividade do que durante os períodos de calma (Stouffer  $z = -.94$ ; medida de magnitude ( $r$ ) = .16). Nas 18 sessões conduzidas com os seis experimentadores em treinamento também atuando como agentes ou receptores, os resultados demonstraram levemente maior AED durante os períodos de calma (Stouffer  $z = -.082$ ;  $ES = (r) = .02$ ). Nas 18 sessões em que amigos/colegas participaram, uma maior AED foi encontrada durante os períodos ativos, com a diferença entre a significação da abordagem ativa e calma. (Stouffer  $z = 1.417$ ,  $p = .07$ ,  $1t$ ;  $ES (r) = .33$ ). Esses resultados são consistentes com aqueles de outros estudos DMILS, tendo medida de magnitude caindo dentro dos intervalos de confiança de 95% derivados de uma recente meta-análise de DMILS e AED (Schilitz e Braud, 1997). Um efeito de liberdade de esforço (Stouffer  $z = 1.826$ ;  $p = .03$ ;  $1t$ ;  $ES (r) = .43$ ) foi encontrado para a população que não estava em treinamento, e, em ambas as populações, os efeitos de liberdade de esforço foram maiores do que os efeitos primários. Esses resultados sugeriram a possível utilidade de períodos de interação mais longa e advertiu contra o uso de menores períodos de descanso. Os efeitos do tempo sideral local (TSL) foram explorados pela primeira vez em um estudo de DMILS. Resultados preliminares (com  $N$ s muito pequenos) sustentam aqueles obtidos em estudos de cognição anômala por Spottswode (1997), com um aumento aproximado de 400% na sessão  $z$  média dentro do intervalo  $\pm 2$  horas de TSL 13.5 ( $N = 3$ , média  $z = .629$ ; onde o total foi  $N = 36$ , média total da sessão  $z = .157$ ). De modo semelhante, os " $zs$ " das sessões conduzidas dentro do intervalo de  $\pm 2$  horas do TSL 18.5 ( $N = 4$ , média  $z = .076$ ) foram mais baixos do que a média total da sessão  $z$ .

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## Remote Psychokinesis

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**Abstract:** A web-based experiment was constructed wherein remote participants were asked to try and influence the activity of a split-beam laser. On accessing the web page, the computer collected either a short or long, based on a pseudo-random algorithm, run-length data sample while the participant was concentrating on having some sort of influence. A summary of the results (mean absolute deviation and variance) was then presented to the participant as feedback. Significant differences ( $U = 1902$ ,  $p < .001$ , one-tailed) were found between control and experimental data for the laser output, based on the mean absolute deviations from a baseline value. Results were suggestive ( $U = 2696$ ,  $p = 0.08$ , two-tailed) but non-significant for the variance. These results were interpreted as providing evidence for a possible PK effect by a remote influencer. No obvious relationship was found between the laser output and the distance of the influencer. Correlations were found in both control and experimental data suggesting a relationship between geomagnetic field activity and laser output, showing a significantly greater deviation and non-significantly higher variability when geomagnetic field activity was high. No significant differences were found between short and long sample lengths, contrary to what would have been expected under the DAT hypothesis.

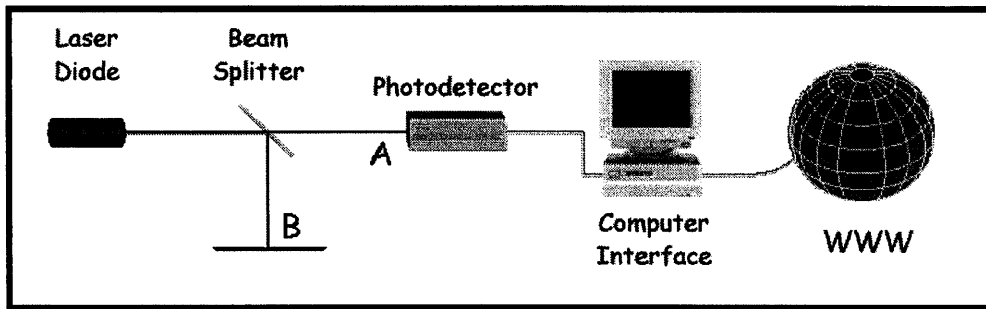
### Introduction

Psi is often said to be independent of space-time, as effects have been found in protocols utilising large distances, some being transcontinental (e.g., Schlitz & Gruber, 1980). However, all we can conclude from such studies is that a psi effect, if due to an energetic signal, depends on the intelligibility of the signal and not necessarily the signal strength — a point made by Rush (Edge et al., 1987). There have been few studies looking specifically at a wide range of differences in distance, probably due more to the popular paradigms in use, which look at psi as being either a goal-oriented effect relating to quantum theoretical observation — the Observational Theories (OTs), such as Walker's (1975, 1984) proposal — or a pre-cognitive selection procedure, such as the Decision Augmentation Theory (DAT) of May et al. (1995). If an OT or DAT better describes the operational mechanism underlying psi effects, then those effects should be independent of distance. If, however, there were an actual psi signal, it

may show some degree of attenuation due to distance.

The primary aim of the experiment was thus to look at whether the influencer's distance from the target system would affect the outcome of a psychokinesis (PK) protocol experiment. To maximise chances of a PK effect being found, a target system was used that would hopefully be sensitive to an energetic psi signal as well as allowing opportunity for the mechanisms of the OTs or DAT to occur. The chosen system consisted of a laser where the beam was split into two parts of approximately equal intensity, using a half silvered mirror. In such a system, the laser light emitted from a laser diode may be seen as being composed of photons — the quanta of light. These photons will each have the same amount of energy, and be emitted in a beam with very little divergence. If they are incident on a half-silvered mirror, they have an equal probability of being reflected from the mirrored surface or being transmitted through it. A light sensitive detector placed in the path of one of the beams would then measure a constant

Figure 1  
Schematic layout of laser target system



number of photons incident per second, this number being roughly half the amount of photons emitted by the laser. The number of emitted photons is normally assumed to be a constant, but will show fluctuations based on the stability of the supplied power and on the amount of noise within the semiconductor (based on the ambient temperature and zero-point field fluctuations). The number of those photons which actually reach the sensor will be determined by the amount of scattering and absorption by air molecules, plus an approximately 50% transmission loss due to the half-silvered mirror. There would also be variations relating to the position of the beam on the photo-detector surface, caused by air currents and physical vibrations.

If PK were the result of an observational 'wave-function collapse' process, then the beam-splitting mirror would represent an area where the wave-function of each individual photon entered a superposition state of photon-transmitted / photon-reflected, the transmission mechanism being a quantum tunnelling effect. If a conscious observation of the system could select, or at least bias, the final measured outcome, then this would allow such an effect to occur with a clear focus point for the observer (Euan Squires, personal communication). If, on the other hand, the PK process was related to actual fluctuations of some physical variable, then, as well as the semiconductor properties of the

laser and photodetector, the mirror represented a further site where quantum noise could enter the system (Youn et al., 1993).

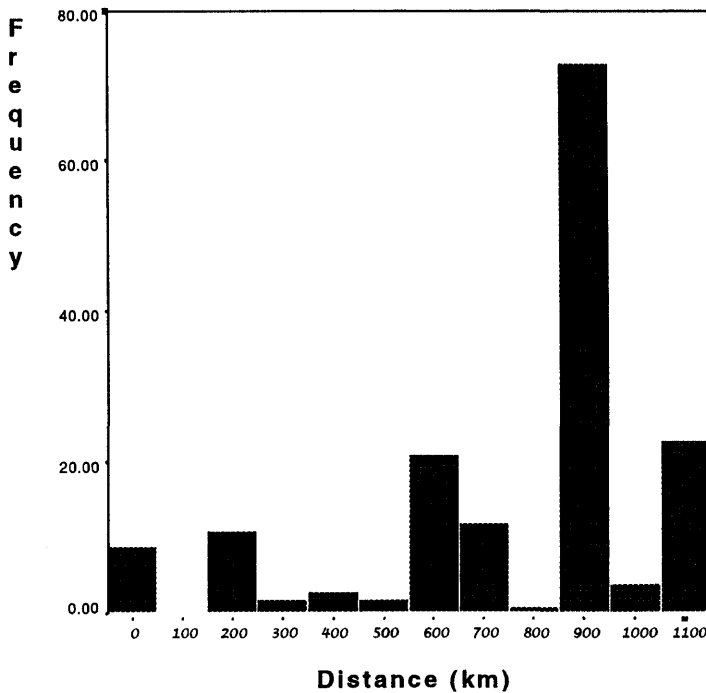
It was decided to look for two possible 'psi effects'. One would be the mean absolute deviation from control levels of the level of laser light measured at the photodetector; the other would be the variance of this light. It was predicted that the mean absolute deviation would decrease with distance (an attenuation effect) whereas the variance would increase with distance (a 'defocusing' or distortion effect). Additionally, a mixture of short and long data sampling periods were used. This would allow a test of some of the predictions of DAT by comparing effects in the different sample length data.

## Method

### *Apparatus*

The laser was a 100 milli-Watt semiconductor-junction diode device, operating at a wavelength of 650 nanometres. The photodetector was also a semiconductor device, giving an electrical output linearly related to the intensity of light (the number of photons) incident upon it, though also having a component due to thermal noise and zero-point field fluctuations. The laser was placed in a light-proof box with the laser beam split into two beams of approximately equal intensity (A and B in Figure 1). Beam B

Figure 2  
*Distribution of results by distance*



was absorbed by the box wall. Beam A was detected by a photodiode connected to an analogue to digital computer interface, which output a value related to the intensity of the incident beam. The whole assembly was seated in a box of polystyrene packaging material, this having been found to be most effective in reducing all but the most localised vibrations. As the system was only running when the room it was in was not otherwise being used, this seemed to be sufficient to avoid contamination due to physical vibration. No data was used from participants who were in the same building as the laser system, to avoid any possibility of manipulation of the system, subconsciously or otherwise. Finally, the laser system was connected to the computer via an analogue to digital interface. Once initiated by the user, the computer would take either one hundred or one thousand contiguous samples, the sample length being based on a pseudo-random decision. The sample rate was 1

kHz for the long 1000-byte sample, and 100Hz for the shorter 100-byte sample, so a complete sample would take 1 second in all cases. Although only one participant (the ostensible influencer) at a time could actually cause data from the laser system to be sampled, the average time a participant would have to wait before they could make their attempt was typically only a few seconds, virtually indistinguishable from the normal delays found with internet connections. Control sessions were taken by automatically initiated sessions. The protocol was identical to the experimental session except for the absence of a participant, allowing for any non-PK effects in the data to be identified. In both experimental and control cases, the absolute deviation from the starting baseline value and the variance of the sample was calculated. When the experiment was on-line, the laser system was continually running. Participants merely caused the data from their influence period

to be analysed and the results saved rather than starting and stopping the operation of the physical system.

The participant interface consisted of a web page written in HyperText Mark-up Language (HTML) and utilising the standard form submission protocol to initiate the data recording program. This program was written in Visual Basic, using freeware common-gateway interface (CGI) Visual Basic code (Denny, 1978), and connected to the web using the win-HTTPD PC server software. All software was run on a 486/66 PC under the Microsoft Windows 3.1 operating system. This made use of the World Wide Web (WWW), a graphical user interface (GUI) system for transferring information over the telephone-linked global network of computers known as the Internet. The web page was located at the University of Nevada's Consciousness Research Laboratory (CRL) website (the URL at the time was <http://eeyore.lv-hrc.nevada.edu/~cogn/cogno.html>). Such a system enabled people from around the world to take part in the experiment at any time of day or night, at their own pace, and needing no more knowledge than the use of a piece of software known as a web browser, readily available to anyone with access to a computer with an Internet connection. It would also allow for a much wider range of distances to be looked at than any more formal experimental arrangement, and was essentially automated, requiring no experimenter input once it had been set up.

### *Procedure*

Upon first accessing the page, the user was presented with a page giving a brief description of the experimental set-up and instructions for the PK task. The instructions told them that they were attempting to alter the output of the laser simply by concentrating on doing so and that they would receive graphical feedback immediately after their attempt showing how well they did. Users were told they could use any strategy they wished. There was also a schematic diagram of the laser for

them to concentrate on. When ready, they entered their approximate latitude and their time-zone by selecting it from a pull-down menu of available options. If they did not know this information, they were asked to enter the name of their location so that the author could later work out the proper co-ordinates. They were then told to use the mouse to click on a button at the bottom of the page, and that this action would immediately initiate the data recording. Once this button had been clicked, the web browser reported it was accessing data, still displaying the schematic diagram for the user to concentrate on. On completion of data recording, a new web page was automatically displayed. This page showed graphical feedback in the form of two schematic bar graphs, similar in appearance to the sound level LED displays seen on some hi-fi systems. The first graph showed the standard deviation of the laser system for the samples taken, the second the deviation in intensity from the initial baseline value. The higher the two values, the more segments of the bar were 'lit up'. Underneath this was a brief explanatory paragraph, explaining the meaning of the graphs and giving some indication of how likely this was to have occurred by chance. If either the standard deviation or the baseline deviation were above a particularly high value, a further input box appeared asking the user to detail what particular mental strategy they used while attempting to influence the system. Finally, the user was thanked and, after a few seconds, returned to the on-line experiments menu. The statistical results were automatically recorded to the computer's hard disk along with the IP address (Internet Protocol Address — a fixed, unique number assigned to every computer connected to an external network) and the location data. Due to the limitations of this particular web server set-up, it was not practical to save the raw data for each user, but only the end statistical results. Had the raw data been saved to hard disk, there would have been opportunity for other users to interrupt a session and for data to be confused

between different trials, as well as significantly increased delay for the web interface user. Instead, data was stored in memory and the statistical analyses performed immediately after data collection. That these analyses were accurate was thoroughly checked during initial testing.

## Hypotheses

Primary predictions were that:

**H1a** The measured laser output would show a greater absolute deviation over time for experimental attempts than for the control data.

**H1b** The measured laser output would show different variances for the experimental attempts when compared to the control data.

**H2** The magnitude of the absolute deviation would be inversely related to the distance of the influencer from the target.

H1a and H1b predict that there will be a PK effect to measure. H2 predicts a distance dependency of any PK effect.

Secondary exploratory predictions:

**H3** The variance would increase with influencer distance.

**H4a** High geomagnetic field activity would correlate with high absolute deviations of the laser output.

**H4b** High geomagnetic field activity would correlate with high variance of the laser output.

**H5** Shorter sample length would show greater absolute baseline deviations.

H3 predicts that the increasing distance of the influencer from the target system would adversely affect any PK effect.

H4a and H4b predict that the often reported (e.g. Dalton & Stevens, 1996) correlation of psi with geomagnetic field conditions would be found.

H5 is predicted by DAT, as a selection model of PK would show a greater effect for shorter sample lengths, the normal operation of the laser system being more likely to contain periods of naturally

occurring, disproportionately high or low activity.

## Analysis of Results

The total number of trials (excluding any accesses from within the laboratory environs) was 194. Of these, 161 were useable, the laser data for the other 33 trials not having been saved to disk due to a brief period of technical problems after the author had returned to the UK.

Date information on the control data was also partially corrupted due to disk failure, resulting in a reduced control-data pool for the geomagnetic analysis. All users had provided sufficient information (latitude and time-zone) for their approximate geographical location to be determined.

Variance was calculated from the squared standard deviation. The absolute baseline deviation was used as the direction of any deviation was unimportant for these analyses. The units of the values quoted are unsure as they represent the raw values output by the A/D converter. The influencer's distance from the target system was roughly calculated from their given time zone and latitude. These were used to give an approximate spherical co-ordinate on the surface of the Earth. The most direct circumferential distance could then be calculated between their co-ordinates and that of the target system.

A summary of the results is given in Table 1. Control data were taken under exactly the same conditions as experimental data but in the absence of any participant, on a number of different dates. Overall, it can be seen that the experimental data was generally greater in magnitude than the control data, indicating that there were differences in the laser system's operation during the participant-influence attempts.

A Mann-Whitney nonparametric test was performed to compare the experimental and control data, this being used as the distribution of the data was not normal. Results are given in Table 2.

Table 1  
*Descriptive statistics of laser output*

	N	Control Data		Experimental Data	
		Mean of Variances	Mean of Absolute Baseline Deviations	Mean of Variances	Mean of Absolute Baseline Deviations
All data samples	161	0.419	0.144	0.466	0.405
100 byte samples	77	0.130	0.020	0.227	0.377
1000 byte samples	84	0.669	0.251	0.684	0.431

Table 2  
*Mann-Whitney nonparametric comparison of control and experimental data*

	Mean for Control	Mean for Experiment	Mann-Whitney U	Equivalent z	P
Abs. Devn	0.144	0.405	1902	4.186	< 0.001 (1-t)
Variance	0.419	0.466	2696	1.809	0.08 (2-t)

As predicted, the mean absolute deviation was significantly greater for the influence sessions than in the control data. H1a is therefore supported. There were differences in the variances of control and experimental data as predicted, but this was not significant. H1b is not supported.

Table 3 shows the linear regression coefficients for the laser output against influencer distance. For this regression, a weighting scheme was employed to try and offset the very uneven distribution of results (as shown in Figure 2). A mean value for the absolute deviation and for the variance was calculated for each distance, weighted by a factor  $w$ , where  $w$  equalled the number of values contributing towards the average and divided by the total number of data-points for all distances. No significant relationships were found for the experimental data, with the laser deviations and variances showing a small tendency to increase with distance rather than decrease. The  $R^2$  value, indicating the amount of variance accounted for by the calculated regression equation, shows a less than 1% and 6% accountability for the laser

deviations and variances respectively. To see whether there might still be a valid but very small effect, the control data set had a distance randomly assigned to each datum. The range of distances used was the same as in the experimental data.

The results of this are also shown in Table 3, labelled 'mock distance data'. In this case, the regression lines were a better fit for the randomly assigned data than for the actual data, though still not significantly. Clearly there was no simple relationship between a PK effect and influencer distance. H2 and H3 were therefore not supported.

Next, the activity of the geomagnetic field (GMF) was looked at in relation to the effects found. Table 4 shows the laser output data correlated against the value of the  $ap$  index (a daily measure of global GMF activity). Analyses were performed for the entire control and experimental data sets. As predicted, the GMF activity did significantly correlate with the absolute deviations for all cases of the experimental data. This could be due to an actual influence effect of the geomagnetic field on

Table 3  
*Regression coefficients of laser output against distance*

	Experimental Data		'Mock Distance' Data	
	R	R <sup>2</sup>	R	R <sup>2</sup>
Abs. Devn	0.091	0.008	0.168	0.028
Variance	0.242	0.059	0.129	0.017

Table 4  
*Spearman r correlations of laser output with geomagnetic activity*

	N	Variance <i>r</i>	Correlation equiv. <i>z</i>	Abs. Deviation <i>r</i>	Correlation equiv. <i>z</i>
Experimental Data	160	0.138	1.740	0.336	4.237
All Control Data	41	0.460	2.910	0.284	1.800

Note: equivalent *z* scores were calculated for ease of comparison between different sample sizes using the approximate method of  $z = r \sqrt{(n-1)}$ . A discrepancy in *N* is seen as only 160 of the experimental and 41 of the control data points being able to be matched with geomagnetic data, due to missing or corrupted data.

the laser system, or a modifying effect on a secondary influence (such as a PK effect), or a combination of both. H4a was therefore supported.

Increased geomagnetic field activity did appear to be associated with an increase in variance. This was not significant for the two-tailed prediction made for the experimental data as a whole, although it was close. For the control data, where it was assumed that there was no PK effect operating, a correlation with the geomagnetic field was again found for both the deviation and the variance, implying that the geomagnetic field might be having a direct effect on the target system rather than a mediating effect on any possible PK influence. Thus H4b was not supported, although the data were suggestive of the predictive effect. Finally, a comparison was made between the NP deviations for the short and long sample lengths, testing some of the ideas of selection versus influence models. The results are given in Table 5. In all cases, whether the run length was 100 or 1000 bytes was not apparent to the participant, and the data

collection was initiated by a single button press.

There was no significant difference between the deviations seen in the 100 byte samples and in the 1000 byte sample, the longer sample lengths actually having a slightly greater mean deviation, opposite to the DAT prediction. H5 was thus not supported. No comparison was made for the variances, as these would always be greater for a longer sample length, irrespective of any possible PK effect.

## Discussion

Significant differences were found between control and experimental data for the laser output, based on the mean absolute deviations from a baseline value. Results were suggestive but non-significant for the variance. These results were interpreted as providing evidence for a PK effect by a remote influencer. Although a few individuals did contribute up to eight repeat attempts, most contributed less than three, suggesting the results were not due to any one person. The largest individual



Table 5

*T-test comparison of different sample lengths for experimental data*

	Mean $z^2$ (100)	Mean $z^2$ (1000)	$t$	$p$ (1- $t$ )
Deviation	0.987	0.988	-0.002	0.499

effects were seen for those distances where most attempts were made, though this did not necessarily indicate repeat attempts by a particular influencer. No linear (or other obvious) relationship was found between the laser output and the distance of the influencer. The lack of any distance relationship may have been partly due to the non-uniform contributions at each distance, although a weighting scheme was used in an attempt to compensate for this. The method of calculating distance from the target was also very approximate, though it seems unlikely this would have completely obscured a distance relationship if such existed. The possibility remains that stronger PK effects might be found at close distances, with the large distances considered contributing only weak, noisy effects. Future studies of this type should use a greater concentration of results for close distances, and attempt to ensure a more uniform contribution of influence attempts over the range of distances used.

Correlations were found suggesting a relationship between geomagnetic field activity and the output of the laser, which showed a significantly greater deviation and non-significantly higher variability when geomagnetic field activity was high. As this effect was also seen in the control data i.e. even in the absence of any participant influence, this might suggest an effect of the geomagnetic field on the laser system directly rather than on any supposed PK mechanism. As the geomagnetic field is electromagnetic in nature (although it is associated with other physical changes in the environment e.g. gravitational), this could mean that there is some currently unrecognised interaction between electromagnetic fields and the types of target systems used in psychokinesis experiments. If this is indeed the case, it has major

implications for some of the supposed relationships between the geomagnetic field and psi. The typical assumption made by psi researchers (e.g. Persinger, 1989; Dalton & Stevens, 1996) that any effect is on the psi agent, or on the psi-target system interaction, rather than directly on the target system itself. More research on such potential interactions needs to be done.

The data from this study did not support a selection model such as DAT. A comparison of laser deviation data between the short and long sample lengths showed no significant differences in the predicted direction, the effect actually being very slightly stronger for longer sample lengths.

In more general terms, the experiment showed that the Web can be a viable medium for PK type experiments, where there is an external interfaced target. Although the experiment had to be terminated earlier than expected, there was a good response both in the number of and the information provided by the participants. The only unusable responses were due to problems at the lab in which the system was situated and not due to omissions on the parts of participants. Any such data collection technique will obviously suffer from a higher level of noise, with some participants not paying particular attention to their attempt to have an influence effect, but this may be offset by the greater number of possible participants and the greater range of locations.

There were however several problems with the set up used. Calculating the deviation as being the difference between initial and final values of the detected laser output was not the best way of detecting variations, with the resulting need to compare the experimental data with control periods. A better solution, unfortunately not possible with the equip-

ment available at the time, would be to take control data while the participant was reading the instruction screen, immediately followed by the influence data. Even so, it is difficult to see how the method used could have given spurious results. The impracticality of saving the raw data was due to the software being used. More recent developments (e.g. use of a multi-tasking web server) would now allow simultaneous, participant-linked files to be saved without significant delays in the displaying of results or possibility of data mixing. It would also have been interesting to have had some form of real time feedback during the influence period, rather than just the end result. This would not necessarily have improved effect sizes, but would, according to some participant feedback, have made the task more absorbing. Again, this was not possible at the time but may be possible in future studies with the recent advances in real time web interfacing techniques. There were also problems with some data files due to problems with disk storage and accessing, causing partial corruption to the control data file. While most of the problems could be overcome, such problems emphasise the need to create frequent backup files when conducting any type of web-based experiment!

## References

- Dalton, K. & Stevens, P. (1996). Geomagnetism and the Edinburgh automated ganzfeld. *European Journal of Parapsychology*, 12, 23-34.
- Denny, R.B. (1978). *Visual Basic CGI routines for the Windows web server*. Freeware from

- <rdenny@netcom.com>.
- Edge, H.L., Morris, R.L., Palmer, J. and Rush, J.H. (1987). *Foundations Of Parapsychology: Exploring The Boundaries Of Human Capability*. Routledge and Kegan Paul.
- May, E.C., Utts, J.M., and Spottiswoode, S.J.P. (1995). Decision Augmentation Theory: towards a model of anomalous mental phenomena. *Journal of Parapsychology*, 59 (3), 195-220.
- Persinger, M.A. (1989). Psi phenomena and temporal lobe activity: The geomagnetic factor. In L.A. Henkel & R.E. Berger (Ed.) *Research in Parapsychology* (1988). Metuchen, NJ: Scarecrow Press, 121-156.
- Schlitz, M. & Gruber, E. (1980). Transcontinental remote viewing. *Journal of Parapsychology*, 44 (4), 305-317.
- Walker, E.H. (1975). Foundations of parapsychical and parapsychological phenomena. In L. Oteri (Ed.) *Quantum Physics and Parapsychology*. NY: Parapsychology Foundation.
- Walker, E.H. (1984). A review of criticisms of the quantum mechanical theory of psi phenomena. *Journal of Parapsychology*, 48, 277-332.
- Youn, S-H., Jhe, W., Lee, J-H. & Chang, J-S. (1993). Measurement of the quantum mechanical fluctuation of a laser and the vacuum field by an effective time-delayed homodyne detector, *Quantum Optics*, 5, 303-310.

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## Psychokinese Op Afstand

**Samenvatting:** In een via het Web uitgevoerd experiment werd deelnemers gevraagd te proberen op afstand de werking van een dubbelstraalslaser te beïnvloeden. Na het oproepen van de web-pagina koos de computer, gestuurd door een pseudo-random algoritme, een dataset voor een lange of voor een korte sessie, terwijl de deelnemer probeerde door middel van concentratie een of andere invloed uit te oefenen. Daarna werd een samenvatting van de resultaten (gemiddelde absolute deviatie en variantie) als feedback naar die deelnemer gestuurd. We vonden significante

verschillen ( $U = 1902$ ,  $p < 0.001$ , enkelzijdig) tussen de controledata en de experimentele data van de laseruitgang, gebaseerd op gemiddelde absolute deviaties ten opzichte van een basiswaarde. De resultaten waren in de voorspelde richting ( $U = 2696$ ,  $p = 0.08$ , dubbelzijdig), maar de variantie was niet significant. Deze resultaten worden beschouwd als bewijs voor een mogelijke PK-beïnvloeding op afstand. We vonden geen duidelijk verband tussen de laseruitgang en de afstand tot de deelnemer die probeerde deze laser te beïnvloeden. Zowel de controledata als de experimentele data van de laseruitgang leken te correleren met de activiteit van geomagnetische velden. Bij een hoge geomagnetische activiteit was de deviatie significant groter en de variabiliteit niet significant groter. Er was geen significant verschil tussen lange en korte sessielengte, wat te verwachten zou zijn op grond van de DAT-hypothese.

### Psykokinesi På Avstånd Psykokinesi på Avstånd

**Sammanfattning:** Man konstruerade ett webb-experiment i vilket deltagare ombads att försöka påverka en "split-beam laser". Genom att hamna på webbsidan, valde datorn, styrd av en pseudo-slumpalgoritm, ett dataset för en lång eller kort session, medan deltagaren genom koncentration försökte påverka det hela. Efter detta presenterades en sammanfattning av resultaten (den genomsnittliga absoluta deviationen och variansen) för deltagaren som feedback. Vi hittade signifikanta skillnader ( $U = 1902$ ,  $p < 0.001$ , ensidig) mellan kontrolldata och försöksdata för laseroutput, baserade på de genomsnittliga avvikelserna i förhållande till basvärden. Resultaten liknade förutsägelsen ( $U = 2696$ ,  $p = 0.08$ , tvåsidig), men variansen var inte signifikant. Dessa resultat betraktas som bevis för möjlig PK-effekt på avstånd. Det fanns inget tydligt förhållande mellan laser-output och deltagaren som försökte påverka lasern. Både kontrolldata och laserutgångens försöksdata verkade korrelera med geomagnetiska fält. Vid stor geomagnetisk aktivitet var avvikelsen signifikant större och variabiliteten inte signifikant större. Det fanns ingen signifikant skillnad mellan lång eller kort sessionlängd, som skulle kunna förväntas enligt DAT-hypotesen.

### Psychokinese auf Abstand (Remote PK)

**Zusammenfassung:** In einem internetgestützten Experiment sollten räumlich entfernte Versuchsteilnehmer versuchen, die Aktivität eines Doppelstrahl-Lasers zu beeinflussen. Beim Zugang zur Web-Seite wählte der Computer, gesteuert von einem Pseudozufalls-Algorithmus, Datensätze für je einen langen oder einen kurzen Run, während sich der Versuchsteilnehmer darauf konzentrierte, auf irgendeine Art einen Einfluß auszuüben. Eine Zusammenfassung der Ergebnisse (mittlere absolute Abweichung und Varianz) wurde dem Teilnehmer anschließend als Feedback angezeigt. Signifikante Unterschiede ( $U = 1902$ ,  $p < .001$ , einseitig) ergaben sich zwischen den Kontroll- und den Versuchs-daten für die Laserleistung, basierend auf mittleren absoluten Abweichungen von einem Grundwert. Ergebnisse für die Varianz gingen in die prognostizierte Richtung ( $U = 2606$ ,  $p = .08$ , zweiseitig) waren aber nicht signifikant. Diese Ergebnisse wurden als Beweis eines möglichen PK-Effekts auf Abstand interpretiert. Kein offensichtlicher Zusammenhang ergab sich zwischen der Laserleistung und dem Abstand der einflußnehmenden Person. Korrelationen, sowohl aus den Kontroll- als auch aus den Versuchsdaten, lassen eine Beziehung zwischen der Aktivität geomagnetischer Felder und der Laserleistung vermuten. Bei höher geomagnetischer Aktivität war die Abweichung signifikant größer, die Variabilität nichtsignifikant größer. Es wurden keine signifikanten Unterschiede zwischen langen und kurzen Runs festgestellt, wie sie unter der DAT-Hypothese zu erwarten gewesen wären.

### Psicocinesi Remota

**Sommario:** Sfruttando la rete Internet è stato condotto un esperimento nel quale i partecipanti lontani dovevano cercare di influenzare l'attività di un raggio laser. Entrando nella pagina web, mentre il partecipante si concentrava per produrre un qualche genere di influenza il computer

raccoglieva un campione di dati, che in base a un algoritmo pseudocasuale poteva essere breve o lungo. Una sintesi sommaria dei risultati (deviazione dalla media assoluta e varianza) veniva poi presentata al partecipante come feedback. Tra le emissioni laser di controllo e quelle sperimentali sono state rinvenute differenze significative ( $U = 1902$ ,  $p < .001$ , a 1 coda) considerando le medie delle deviazioni assolute da un valore di riferimento. Per la varianza i risultati sono stati indicativi ( $U = 2696$ ,  $p = .08$ , a 2 code) ma non significativi. Questi dati sono stati interpretati come indicativi di un possibile effetto PK da parte di un agente lontano. Non è stata rinvenuta alcuna relazione manifesta tra emissione laser e distanza dell'agente. Sono state invece trovate correlazioni sia nei dati sperimentali sia in quelli di controllo che suggerivano un rapporto tra l'attività del campo geomagnetico e le emissioni laser, con deviazioni significativamente maggiori e variabilità non significativamente superiori quando l'attività del campo magnetico terrestre era più intensa. Non è stata rinvenuta alcuna differenza significativa tra campioni di durata breve e quelli di durata lunga, come ci si sarebbe invece aspettato in base all'ipotesi DAT.

## Psychokinèse à Distance

**Résumé:** Nous avons mis en place une expérimentation sur le Web dans laquelle les participants devaient tenter d'influencer, à distance, l'activité d'un laser à rayon divisé. En accédant à la page web, alors que le participant devait se concentrer en tentant d'avoir une influence, l'ordinateur générait un échantillon de données court ou long, issu d'un algorithme pseudo-aléatoire. A la fin, une synthèse des résultats (déviations moyennes absolues et variances) était présentée au participant comme feedback de l'expérience. Des différences significatives ( $U = 1902$ ,  $p < .001$ , 1-t) basées sur la déviation moyenne absolue par rapport aux valeurs de la ligne de base ont été trouvées entre les données expérimentales et les données témoins. Les résultats étaient suggestifs ( $U = 2696$ ,  $p = .08$ , 2-t), mais non significatifs pour la variance. Ces résultats ont été interprétés comme une preuve potentielle d'un effet PK à distance. Nous n'avons trouvé aucune relation entre la distance du sujet et le comportement de l'appareil laser. Par contre, il y a eu une corrélation significative et positive entre la déviation moyenne et l'importance de l'activité géomagnétique, et ceci tant pour les données expérimentales que pour les données témoins. Cette relation tend à montrer une déviation significativement supérieure et une variabilité supérieure mais non pas significative, lorsque l'activité du champ géomagnétique était supérieure. Aucune différence significative n'a été trouvée entre les échantillons courts et longs, en dépit des attentes selon l'hypothèse DAT (Data Augmentation Theory).

## Psicocinesia Remota

**Resumen:** Se llevó a cabo un experimento en la Red en el cual se le solicitó a participantes remotos/as que trataran de influenciar la actividad de un rayo laser dividido. Al tener contacto con la página en la Red, la computadora producía una prueba corta o larga, basada en un algoritmo pseudo-aleatorio, mientras el/la participante se concentraba en tener algún tipo de influencia. Los/as participantes entonces recibían un resumen de los resultados (el promedio de la desviación absoluta y la varianza). Se encontraron diferencias significativas ( $U = 1902$ ,  $p < .001$ , 1t) entre los datos controles y los datos experimentales para el laser, basado en los promedios de las desviaciones absolutas de un valor base. Los resultados fueron sugestivos ( $U = 2696$ ,  $p < .08$ , 2-t) pero no significativos para la varianza. Estos resultados se interpretaron como evidencia de un posible efecto PK por una persona remota. No se encontró una relación entre el laser y la distancia con la persona que trataba de influenciarlo. Se encontraron correlaciones tanto en los datos controles y los experimentales que sugerían que había una relación entre la actividad del campo geomagnético y el comportamiento del laser, el cual mostro mayor desviación a nivel significativo y mayor variabilidad, pero no significativa, cuando la actividad geomagnética era alta. No se encontraron diferencias significativas entre segmentos cortos y largos, según sería esperado con la hipótesis DAT.

## Psicocinesia à Distância

**Resumo:** Um experimento para ser realizado na rede de computadorer (Internet) foi construído. Nele, os participantes, que se encontravam à distância, foram solicitados a influenciar a atividade de um equipamento destinado a dividir a luz do raio laser. Enquanto o participante acessava a página da Internet em que o programa se encontrava, o computador coletava uma amostra de dados de curta ou longa duração, ao mesmo tempo em que o participante se concentrava em exercer algum tipo de influência. Um resumo dos resultados (média absoluta, desvio e variância) foi então apresentado ao participante como *feedback*. Foram encontradas diferenças significativas ( $U = 1902$ ,  $p < .001$ ,  $1t$ ) entre os dados da situação controle e da situação experimental para a saída do laser, relacionada à média de desvios absolutos em relação ao valor da linha média. Os resultados foram sugestivos ( $U = 2696$ ,  $p = .08$ ,  $2t$ ) mas não significativas para a variância. Esses resultados foram interpretados como evidenciadores de um possível efeito PK por um influenciador à distância. Nenhuma relação óbvia foi encontrada entre o a saída do laser e a distância do influenciador. Foram encontradas correlações tanto nos dados experimentais quanto nos dados controle sugerindo uma relação entre a atividade do campo geomagnético e a saída do laser, demonstrando um desvio significativamente maior e uma variabilidade não significativamente mais elevada quando a atividade do campo geomagnético era alta. Nenhuma diferença significativa foi encontrada entre as amostras de curta e de longa duração como teria sido esperado sob a hipótese DAT.

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## The Sheep-Goat Variable and Mystical Experience: Their Relationship and Their Levels in a Special Population

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**Abstract:** The subjects in this study were 24 persons taking an adult education course entitled "Understanding psychic and mystical experiences". At the beginning of the course they were administered the 18-item visual analogue Australian Sheep-Goat Scale and the 25-item Mystical Experience Scale. It was predicted, firstly, that, although the sample contained almost entirely persons who were sheep, there would nevertheless be a significantly positive correlation between scores on the Sheep-Goat Scale and the Mystical Experience Scale. This prediction was confirmed:  $r = .50$ ,  $p = .015$ , two-tailed. The second prediction was that, compared with a student sample, the level of reported belief in, and alleged experience of, paranormal phenomena and of mystical experience in this group would be significantly higher. The evidence confirmed this expectation, and was taken as consistent with the validity of the two scales measuring these dimensions.

Mystical experience is an ecstatic experience in which a person feels themselves to be as one with God, the universe, and/or humanity. Elsewhere I have described and discussed in detail the features associated with mystical experience (Thalbourne, 1991a). Briefly, mystical consciousness tends to be sudden in onset, joyful and difficult to verbalise; it involves a sense of perceiving the purpose of existence; an insight into the harmony of things; a perception of an ultimate unity; ego-transcendence; an utter conviction of immortality; and it tends to be temporary, authoritative and to be attributed supreme value (Thalbourne, 1991b, p. 269).

Mystical experience thus tends to have something of the character of religious experience — indeed it is sometimes thought to be *the* fundamental religious experience (e.g., Hood, 1975, p. 29) — and something of the quality of an extrasensory experience in that there appears to be an influx of intuitively-acquired knowledge. In some sense, it could be thought of as being, in part, an ESP experience on a grand, perhaps cosmic scale. In this paper one of the two major aims is to examine the relationship between reports of mystical experience and the sheep-goat variable,

which in the present case will be defined as a person's degree of belief in, and alleged experience of, the paranormal.

Measures of mystical experience have been correlated with the sheep-goat variable in at least 10 studies, and despite a diversity of measures of both dimensions, significantly positive correlations have been reported in at least 15 analyses. A review of this literature will be given below.

Palmer (1979, p. 237) used a single-item measure: "a profound and deeply moving 'spiritual,' 'mystical,' or transcendental experience." Using a town sample (T:  $N = 354$ ) and a university student sample (S:  $N = 268$ ) in Charlottesville, Virginia, he found that:

Mystical experiences were significantly related to waking ESP in both samples, but to ESP dreams in neither. This item also significantly predicted apparitions and communication with the dead in both samples. In addition, it significantly predicted ESP agency, RSPK and aura vision in the T sample, and OBEs, hauntings, and past-life memories in the S sample.

Unfortunately, no measures of association

were given. Basing his questionnaire on that used by Palmer, Kohr (1980) developed his own scales to measure paranormal experience and mystical experience, and found, in a special group of 406 members of the Association for Research and Enlightenment (A.R.E.) that the most potent predictors of the psi and psi-related variables were, amongst others, number of mystical experiences and his variable MYSTCOM,

...constructed by tallying the number of special characteristics accompanying a mystical experience. These were described as a "profound and deeply moving:" (a) "sense of oneness with all nature," (b) "experience of meeting or seeing God, Jesus, or another spiritual master," and (c) "experience of meeting a God within or a divine self." (Kohr, 1980, pp. 405-406).

Average correlations of .26 and .24 were found for MYSTCOM and number of mystical experiences with psi and psi-related experiences respectively.

Shafer (1982) used the Mysticism Scale constructed by Hood (1975) and a specially devised Spontaneous Experiences Inventory (PsiQ). He administered these measures to two samples, one of student and adult volunteers in Irvine, California ( $N = 48$ ), and the other of adult volunteers in St. Louis, Missouri ( $N = 20$ ), and found Spearman correlations of .42 ( $p < .01$ , two-tailed) in the first group and of .59 ( $p < .01$ , two-tailed) in the second.

The German researchers van Quekelberghe, Altstötter-Gleich and Hertweck (1991) devised the Assessment Schedule for Altered States of Consciousness and applied it to 141 younger persons no more than 20% of whom were students. They found that their positive mystical experience scale (M6) correlated significantly positively with own parapsychological experience (.62) and with own view of parapsychology (.56).

In 1982 Thalbourne (1994) surveyed 402 members of the SPR as part of a "Centenary Census". He used a forced-choice version of the 18-item Australian

Sheep-Goat Scale and, amongst other items, a single-item measure of mystical experience ("Have you ever had a mystical experience?") and obtained a significant Pearson  $r$  of .45.

Thalbourne and Delin (1994) administered the 18-item visual analogue version of the Australian Sheep-Goat Scale (Thalbourne & Delin, 1993) and the 25-item Mystical Experience Scale (Thalbourne, 1991a), and found three significantly positive correlations: .51 for a sample of 241 students, .55 for 86 participants with manic-depression, and .52 for 38 people with schizophrenia.

Kennedy, Kanthamani and Palmer (1994) used a single-item measure of both mystical ("transcendent") and psychic experience and obtained a Pearson correlation of .27 ( $p = .005$ ) in a sample of 105 college students.

In a similar study, Kennedy and Kanthamani (1995) asked about the frequency of psychic and "transcendent" experiences in 120 respondents the great majority of whom "were actively interested in parapsychology and were typical of people who volunteer for parapsychological research" (p. 252). They obtained a correlation of .52 between the two types of experience.

Most recently, Thalbourne, Bartemucci, Delin, Fox and Nofi (1997) pooled five separate studies (combined  $N = 370$ ) and found a correlation of .44 ( $p < .001$ ) between the visual analogue Australian Sheep-Goat Scale and the Mystical Experience Scale.

And finally, Thalbourne and Delin (in press) administered to 116 persons who had participated in the Thalbourne and Delin (1994) study three measures of mystical experience, one of them the Mystical Experience Scale. They found correlations of .45 between the Australian Sheep-Goat Scale and Hood's (1975) Mysticism Scale, and .44 with a method in which passages from mystical literature were rated for similarity to the participant's own experience (cf. Hood, 1970).

There is thus a very consistent and persuasive body of evidence to suggest that

"sheep" are more likely than goats to report mystical (or "transcendent") experience: the range of observed correlations was from .24 to .62, with a median of .45. One of the two major aims of the present study was to see whether this correlation could be found in a group of ostensibly normal mature-age persons taking an adult education course on psychic and mystical experiences.

The second aim of this study was in some sense a methodological one. One of the concerns for psychologists who use questionnaire instruments to measure such constructs as the sheep-goat variable is whether these instruments are able to predict other attitudes and behaviours associated with a given construct. In other words, one wishes to know whether responses to such questionnaires (which are, after all, simply marks on paper) are able to predict relevant attitudes and behaviours in the real world. It is reasonable to expect that persons claiming a high degree of belief in, and experience of, the paranormal might also engage in such behaviour as (perhaps) practising as psychics themselves, consulting psychics and mediums, attending psychic fairs, buying and reading books on the paranormal, believing in and engaging in such divinatory practices as the I Ching, the tarot, and astrology (see, for example, Murphy & Lester, 1976; Thalbourne, 1992; Thalbourne, Delin, Barlow & Steen, 1992-93), volunteering for ESP experiments, and, in the present case, participating in courses advertised as ways of sharing and furthering their understanding of paranormal experiences. (The same might be said of mystical experiences, but perhaps not to quite the same degree, owing to the less standardised usage of the term "mystical".) Therefore, it was predicted that persons attending such a course would prove, upon examination, to score much higher than average on pencil-and-paper measures of belief in and ostensible experience of the paranormal and of mystical experience. Were this to prove to be the case, then it would be evidence consistent with the view that the scales

were measuring not just the person's psychological status but could also be used to predict associated behaviours in the real world. A study which can be construed as relevant to this notion is that by McGarry and Newberry (1981), who found that paranormal belief was highest in a group of psychic readers, followed by those who subscribed to a newsletter on psychic matters, then persons who attended a psychic fair, and lowest among university students.

## Method

### Materials

A questionnaire was collated containing the following two measures:

1. The 18-item visual analogue scale version of the Australian Sheep-Goat Scale (Thalbourne & Delin, 1993), which is a measure of belief in, and alleged experience of, ESP, PK and life after death. The theoretical range of scores on this scale is 1-36. In the present sample, the actual range was 15-36, with a mean of 26.33 and an *SD* of 5.74. The participants could thus be described as comprising just a few people who tended to express neutrality or uncertainty but a majority who expressed more or less strong belief in, and extensive experience of, the paranormal. That is, the majority were sheep, many strongly so, and there were no real goats. Such a truncated range of Sheep-Goat Scale scores makes it more difficult although not impossible to find significant correlations with other variables (cf. Thalbourne, 1984).

2. The 25-item true-false Mystical Experience Scale (Thalbourne, 1991a), concurrent validity data for which can be found in Thalbourne and Delin (in press). The theoretical range of scores is 1-25. In the present sample (*N* = 23: one person had missing data on this variable), the actual range was 6-25, with a mean of 17.00 and an *SD* of 5.74. Comparison with previous samples suggests that the majority of the present sample appeared to have



some mystical experience to a greater or lesser degree, while a small number appeared to have had relatively little of such experience. Actual scores were thus somewhat better distributed across the range of possible scores than in the case of the Sheep-Goat Scale.

#### *Procedure*

The course to be given by the author was entitled "Understanding psychic and mystical experiences", administered by the Workers' Educational Association (WEA) of South Australia. It was advertised in a publicity catalogue with the following course description:

Have you ever had an experience of the kind we call psychic or mystical and been dismissed as deluded or mistaken? This course takes such experiences seriously but carefully, providing a safe environment in which to share those experiences and evaluate their validity and value. Led by a research scientist with a Ph.D. in parapsychology.

Two four-evening sessions were run, one starting in June and the other in October 1993. All persons who attended one or other of these sessions agreed to fill in the above-described questionnaire, under anonymous conditions, and following an introduction in which parapsychological terminology and concepts were defined, with examples given. The instructor was probably perceived as having a broadly accepting view of the existence of ESP and PK, and an open-minded view concerning survival of death. Mystical experience was not described at this stage.

#### *Participants*

There was a total of 24 persons (8 males, 15 females, 1 no information). Ages ranged from 23 to 76, with a mean of 46 and an *SD* of 15. As far as motivation for doing the course was concerned, it was clear from information volunteered right at

the beginning of the course that virtually all subjects were attracted by the opportunity to talk and learn about psychical experiences; mystical experience appeared not to be the primary focus of interest.

#### *Results*

##### *Relationship between the sheep-goat variable and mystical experience*

A Pearson product-moment correlation coefficient was computed between scores on the Australian Sheep-Goat Scale and on the Mystical Experience Scale. As predicted, and despite the truncated range of Sheep-Goat Scale scores (implying that we have mostly mild to strong sheep and no true goats), the correlation was positive and significant:  $r = .50$ ,  $N = 23$ ,  $p = .015$ , two-tailed. Thus, compared with the neutrals and mild sheep, strong sheep were more likely to report a greater number of indicators of mystical experience. The amount of variance in common between the two variables was, as in previous studies using these same instruments, approximately 25%.

##### *Level of the sheep-goat variable*

As has previously been noted, the level of belief in, and alleged experience of, paranormal phenomena in this group was extremely high, which is consistent with the prediction that the adult education course would attract sheep. A statistical indication of this phenomenon can be given by comparing the mean Sheep-Goat Scale score obtained by this group (namely, 26.33; standard error of the mean = 1.17) with the mean observed for a group of 234 students (Thalbourne & Delin, 1993, p. 180), namely, 17.04, (which indicates on average a tendency to express uncertainty with regard to the items of the Sheep-Goat Scale.) Using the student mean as the reference point, the mean of the adult education group was 7.93 standard errors above that mean, which is highly significant ( $t = 7.93$ ,  $df = 23$ ,  $p = .00000005$ ). Compared with students, at least, this

group reported considerably more belief in, and experience of, the paranormal.

### *Level of the mystical experience variable*

Levels of mystical experience in the group were somewhat more widely distributed across the possible scores on the Mystical Experience Scale. Even so, comparison with the student sample (Thalbourne & Delin, 1994), where the mean was 10.23 ( $N = 235$ ), shows that the adult education mean of 17.22 (standard error of the mean being 1.19) was significantly above that for the students ( $t = 5.88$ ,  $df = 22$ ,  $p = .000006$ ). We may conclude that, compared with students, this group reported significantly more indications of the experience we call mystical.

### Discussion

This small study has contributed to psychological knowledge in at least three respects. First of all, it has confirmed earlier findings that sheep are more likely to report more characteristics of mystical experience. This relationship appears to be a moderately strong one, such that it appears even in a relatively small sample, as well as a linear one, inasmuch as the effect appeared here even though the range of Sheep-Goat Scale-scores was rather restricted.

Why should these two variables be related to each other? Apart from the speculative analogies between ESP and mystical experience mentioned in the Introduction, relatively little attention has been directed towards this question. Non-traditional psychologists such as Bragdon (1987) might say that mystical experience and psi each have in common the fact that they are both "transpersonal" phenomena, that is, that they each represent mental functioning in which the usual physical barriers between persons (and perhaps between persons and objects) seem to be transcended. Such transcendence can occur smoothly, in which case it has been described as "spiritual emergence", or traumatically, in which case there can occur

a so-called "spiritual emergency". In either case, the transpersonal approach conceptualises psychic and mystical experience as manifestations of the same evolutionary process, involving a positive transformation of the personality, one which is said to lead to a more desirable state in which functioning is in some sense on a "higher" level, being, for example, less ego-based.

A more traditionally-oriented but nevertheless new explanation has been offered by the present author. This explanation suggests that the mind possesses to a greater or lesser extent a property called "transliminality", or the ability of material (such as is in the subliminal region) to "cross the threshold" into conscious awareness. Assuming that many psychic and mystical experiences have their representation (at least at some stage) in the unconscious, the reason why the two sorts of experiences tend to occur (or not to occur) in one and the same person is that they have the same inhibiting or disinhibiting mechanism, that is, different degrees of transliminality. This model was adumbrated in Thalbourne (1991a, pp. 181-182) and has been elaborated at length in Thalbourne and Delin (1994) and in Thalbourne et al. (1997).

Turning now to a second aspect, that of methodological considerations, this study has also provided evidence consistent with the validity of the Sheep-Goat and Mystical Experience Scales: The group of subjects was expected to score high on both scales, and in fact did so, and to an extremely significant degree. In other words, the scales appear to be working as expected. Nevertheless the evidence would be even more persuasive if the scales had been administered also to a group expected to be distinctly sceptical in attitude and where low scores were obtained.

Moreover, it might be argued that the reasons for the large difference between the two groups — students and adult education attendees — may have to do with other variables, such as age and educational level. That this otherwise plausible hypothesis is unlikely to be true is suggested by some data collected from 52

care-givers of persons who experience panic attacks (Thalbourne et al., 1997: Study V): these care-givers are the most representative sample of the general population thus far surveyed, and yet gave a mean Sheep-Goat Scale-score of 13.3 and a mean Mystical Experience Scale-score of 7.4, both of which are lower than the respective means for the students, and are thus much lower (rather than being comparable to) than the means for the adult education course. The comparison with the students which was reported in the Results section is thus in the conservative direction.

Thirdly the results of this study may have a bearing on the efforts of parapsychologists as well. It is widely accepted that belief in the paranormal is related to scoring in many psi-tests. Could it be the case that variables which are themselves associated with belief in the paranormal might likewise prove to be as predictive or more so of psi-scoring? For example, religiosity has also been found to be associated with belief in the paranormal, and recently Haraldsson (1993) demonstrated that, over a series of studies, religiosity was even more predictive of psi-scoring than was the sheep-goat variable. Might not mystical experience, then, be predictive of psi-scoring? Or perhaps one could predict higher psi-scores in sheep who report mystical experience compared with goats who lack any such experience.

It is in ways such as this that the psychology of belief in the paranormal may prove to provide valuable leads not only concerning the origin and correlates of such belief but also for the study of psi itself.

## References

- Bragdon, E. (1987). *A Sourcebook For Helping People In Spiritual Emergency*. Menlo Park, CA: Institute of Transpersonal Psychology.
- Haraldsson, E. (1993). Are religiosity and belief in an afterlife better predictors of ESP performance than belief in psychic phenomena? *Journal of Parapsychology*, 57, 259-273.
- Hood, R.W. (1970). Religious orientation and the report of religious experience. *Journal for the Scientific Study of Religion*, 9, 285-291.
- Hood, R.W. (1975). The construction and preliminary validation of a measure of reported mystical experience. *Journal for the Scientific Study of Religion*, 14, 29-41.
- Kennedy, J.E., & Kanthamani, H. (1995). An exploratory study of the effects of paranormal and spiritual experiences on people's lives and well-being. *Journal of the American Society for Psychical Research*, 89, 249-264.
- Kennedy, J.E., Kanthamani, H., & Palmer, J. (1994). Psychic and spiritual experiences, health, well-being, and meaning in life. *Journal of Parapsychology*, 58, 353-383.
- Kohr, R.L. (1980). A survey of psi experiences among members of a special population. *Journal of the American Society for Psychical Research*, 74, 395-411.
- McGarry, J.J., & Newberry, B.H. (1981). Beliefs in paranormal phenomena and locus of control: A field study. *Journal of Personality and Social Psychology*, 41, 725-736.
- Murphy, K., & Lester, D. (1976). A search for correlates of belief in ESP. *Psychological Reports*, 38, 82.
- Palmer, J. (1979). A community mail survey of psychic experiences. *Journal of the American Society for Psychical Research*, 73, 221-251.
- Shafer, M.G. (1982). Self-actualisation, mysticism, and psychic experience. Unpublished Ph.D., Department of Psychology, University of California at Irvine.
- Thalbourne, M.A. (1984). Some correlates of belief in psychical phenomena: A partial replication of the Haraldsson findings. *Parapsychology Review*, 15 (2), 13-15.
- Thalbourne, M.A. (1991a). The psychology of mystical experience. *Exceptional Human Experience*, 9, 168-186.
- Thalbourne, M.A. (1991b). The psychology of mystical experience. [Abstract] *Exceptional Human Experience*, 9, 269.
- Thalbourne, M.A. (1992). Belief in the validity of horoscopes as related to the sheep-goat effect. *Journal of Parapsychology*, 56, 163-168.
- Thalbourne, M.A. (1994). The SPR Centenary Census: II. The survey of beliefs and experiences. *Journal of the Society for Psychical Research*, 59, 420-431.
- Thalbourne, M.A., Bartemucci, L., Delin, P.S., Fox, B., & Nofi, O. (1997). Transliminality: Its nature and correlates. *Journal of the*

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- American Society for Psychical Research*, 91, 305-331.
- Thalbourne, M.A., & Delin, P.S. (1993). A new instrument for measuring the sheep-goat variable: Its psychometric properties and factor structure. *Journal of the Society for Psychical Research*, 59, 172-186.
- Thalbourne, M.A., & Delin, P.S. (1994). A common thread underlying belief in the paranormal, creative personality, mystical experience and psychopathology. *Journal of Parapsychology*, 58, 3-38.
- Thalbourne, M.A., & Delin, P.S. (in press). Transliminality: Its relation to dream-life, religiosity and mystical experience. *International Journal for the Psychology of Religion*.
- Thalbourne, M.A., Delin, P.S., Barlow, J.A., & Steen, D.M. (1992-1993). A further attempt to separate the yins from the yangs: A replication of the Rubin-Honorton experiment with the *I Ching*. *European Journal of Parapsychology*, 9, 12-23.
- van Quekelberghe, R., Altstötter-Gleich, C., & Hertweck, E. (1991). Assessment schedule for altered states of consciousness. *Journal of Parapsychology*, 55, 377-390.

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### De Variabele Sheep-Goat en Mystieke Ervaringen: Hun Verband en Sterkte in een Bepaalde Populatie

**Samenvatting:** De proefpersonen in dit onderzoek waren 24 deelnemers aan een cursus in het volwassenenonderwijs: "Inzicht in paranormale en mystieke ervaringen". Bij het begin van deze cursus werden hen de Australian Sheep-Goat Scale (18 vragen) en de Mystical Experience Scale (25 vragen) afgenomen. De voorspelling was dat, hoewel vrijwel alle cursisten gelovers (sheep) waren, er toch een significant positieve correlatie zou zijn tussen de scores op de Sheep-Goat Scale en op de Mystical Experience Scale. Die hypothese werd bevestigd ( $r = .50$ ,  $p = .015$ , dubbelzijdig). De tweede hypothese stelde dat de cursisten een significant sterker geloof in een significant meer ervaringen met paranormale verschijnselen zouden rapporteren dan in een steekproef onder studenten. De resultaten bevestigden deze hypothese en ondersteunden de validiteit van de beide schalen waarmee deze kenmerken werden gemeten.

### Variabeln Sheep-Goat och Mystiska Upplevelser: Deras Förhållande och Mängder i en Bestämd Population

**Sammanfattning:** Testpersonerna i denna undersökning var 24 deltagare i en kurs för vuxna som kallades "Förståelse av paranormala och mystiska erfarenheter". I början av kursen fick dem göra två tester: Australian Sheep-Goat Scale (18 frågor) och Mystical Experience Scale (25 frågor). Antagandet var att, fast nästan alla personer var troende (sheep), det skulle ändå finnas en signifikant positiv korrelation mellan resultaten på Sheep-Goat Scale och Mystical Experience Scale. Detta antagande bekräftades:  $r = .50$ ,  $p = .015$ , tvåsidig. Det andra antagandet var att, jämfört med ett prov med studenter, kursdeltagaren skulle ha en signifikant större tro på och flera erfarenheter med paranormala fenomen och mystiska erfarenheter. Resultaten bekräftade detta antagande och stödjer validiteten av båda skalorna som mäter dessa dimensioner.

### Sheep-Goat-Variable und Mystische Erfahrung: Ihre Beziehung und Ausprägung in einer Besonderen Populationen

**Zusammenfassung:** Als Versuchspersonen dieser Untersuchung dienten 24 Teilnehmer eines im Rahmen der Erwachsenenbildung durchgeführten Kurses mit dem Titel "Paranormale und mystische Erfahrungen verstehen". Zu Beginn des Kurses wurden von ihnen die Australian Sheep-Goat Scale (18 Items) und die Mystical Experience Scale (25 Items) ausgefüllt. Vorhergesagt wurde

erstens, obgleich der Kurs fast ausschließlich aus Sheep bestand, eine signifikant positive Korrelation zwischen den Ergebnissen der Sheep-Goat Scale und der Mystical Experience Scale. Die Vorhersage fand Bestätigung:  $r = .50, p = .015$ , zweiseitig). Die zweite Vorhersage besagte, daß die Ausprägung berichteten Glaubens an — und angebliche Erlebnisse — paranormalen Phänomenen und mystischen Erfahrungen in dieser Gruppe signifikant höher sein würde, als in studentischen Versuchsgruppen. Die Resultate bestätigten diese Erwartung. Man darf darin eine Validierung der beiden Skalen sehen, mit denen diese Merkmale gemessen wurden.

**La Variabile Pecore-Capre e le Esperienze Mistiche:  
Il Loro Rapporto e i Loro Livelli in una Popolazione Particolare**

**Sommario:** I soggetti di questo studio sono stati 24 partecipanti a un corso sulla "comprensione delle esperienze paranormali e mistiche". All'inizio del corso sono state loro somministrate la Scala Australiana Pecore-Capre, a 18 voci ad analogia visiva, e la Scala di Esperienza Mistica, a 25 voci. La prima attesa concerneva il fatto che, sebbene il campione contenesse quasi esclusivamente soggetti pecora, si sarebbe dovuta trovare una correlazione positiva statisticamente significativa tra i punteggi delle due Scale. Questa ipotesi è stata confermata:  $r = .50, p = .015$ , a 2 code. La seconda attesa era che, rispetto a un campione di studenti, il livello di segnalazione di credenza in, e di esperienza di, fenomeni paranormali ed esperienze mistiche sarebbe stato significativamente superiore in questo gruppo. I dati hanno confortato anche questa attesa, il che è stato considerato coerente con la validità delle due Scale che misurano tali dimensioni.

**L'effet Mouton-Chèvre et l'Expérience Mystique:  
Leurs Relation et leurs Niveaux dans une Population Selectionnée**

**Résumé:** Les sujets de cette étude étaient 24 individus participant à un cours pour adultes intitulé "Comprendre les expériences psychiques et mystiques". Au début du cours, ils ont rempli un questionnaire de 18 questions permettant d'évaluer leurs croyances vis à vis du psi (typologie Mouton-Chèvre) ainsi qu'un questionnaire de 25 questions évaluant leurs expériences mystiques. Nous avons prédit qu'il y aurait une corrélation positive entre les scores sur l'échelle Mouton-Chèvre et ceux sur l'échelle d'expériences mystiques. Cette prédiction fut confirmée ( $r = .50, p = .015$ , two-tailed) et ceci malgré le fait que notre population était presque exclusivement composée de "moutons". La deuxième prédiction était que, par comparaison avec une population moyenne d'étudiants, les sujets de cette étude aurent un niveau plus élevé de croyance et d'expériences de phénomènes paranormaux et mystiques. Les résultats confirment cette prédiction, ce que nous interprétons comme une confirmation de la validité de nos deux échelles mesurant ces dimensions.

**La Variable Oveja-Cabra y la Experiencia Mística:  
Relaciones y Niveles en una Población Especial**

**Resumen:** Los sujetos de este estudio fueron 24 personas que tomaron un curso titulado "Entendiendo las Experiencias Psíquicas y Místicas." Al comienzo del curso se administró una escala visual análoga de 18 preguntas, el Australian Sheep-Goat Scale, y la Mystical Experiences Scale de 25 preguntas. La predicción fue que, aunque la muestra contenía casi solo personas que eran ovejas, habría una correlación significativa y positiva entre las puntuaciones de la Sheep-Goat Scale y de la Mystical Experience Scale. Esta predicción fue confirmada:  $r = .50, p = .015$ , two-tailed. La segunda predicción fue que, en comparación con una muestra de estudiantes, la tasa de informes de creencias en este grupo sería significativamente más alta. La evidencia confirmó esta expectativa, y se consideró consistente con la validez de las dos escalas que midieron las dos dimensiones estudiadas.

**A Variável Cabra-Ovelha e a Experiência Mística:  
Suas Relações e seus Níveis em uma População Especial**

**Resumo:** Os sujeitos desta experiência foram 24 pessoas que estão participando de um curso de educação de adultos intitulado "Compreendendo Experiências Paranormais e Místicas". No início do curso, eles foram submetidos à Escala Australiana Análoga e Visual de Cabras-Ovelhas e à Escala de Experiências Místicas de 25 itens. Previu-se, primeira-mente, que, embora a amostra contivesse quase inteiramente pessoas que eram ovelhas, haveria uma correlação significativamente positiva entre os escores da Escala de Cabras-Ovelhas e da Escala de Experiências Místicas. Essa previsão foi confirmada:  $r = .50$ ,  $p = .015$ , bi-caudal. A segunda previsão foi que, comparado com a amostra de estudantes, o nível de crença relatada e de experiências alegadas de fenômenos paranormais e de experiências místicas nesse grupo seria significativamente mais elevado. A evidência confirmou essa expectativa, e foi tomada como consistente com a validade das duas escalas que medem essas dimensões.

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## A Study of the Features of Out-of-Body Experiences in Relation to Sylvan Muldoon's Claims

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**Abstract:** In this paper we will put to test some ideas expressed by "astral projector" Sylvan Muldoon in his 1929 book, *The Projection of the Astral Body* (with H. Carrington). Based on his numerous OBEs Muldoon wrote about OBE patterns he assumed to be universal. These patterns consisted of lack of thought-clarity and motor co-ordination while Muldoon was close to the body (under 8 feet), and the experience of shock to the body on rapid and sudden returns. We collected 88 OBE questionnaires from appeals in newspapers and magazines. Based on Muldoon's experiences and claims it was predicted that we would find a positive and significant correlation between distance from the physical body during the OBE and a measure of thinking and mental clarity, and a similar positive relationship between the distance measure and a measure of control of movements. In addition, we also expected higher levels of thinking and mental clarity and control of movements at specific distances from the body (below and over eight feet from the body). Finally, we predicted a higher frequency of reports of shocks to the body at the end of the experience if the return to the body was sudden and rapid than when returns were slow and gradual. The hypothesis of a positive correlation between rate of control of movements during the OBE and distance from the physical body was confirmed. Similarly, the prediction of a positive relation between clear thinking / mental clarity (one variable) and distance was also confirmed. If the distances were limited to those less than five feet from the body and those over 15 feet from the body, which clearly include those below and above the eight feet range from the body emphasised by Muldoon for control, the difference was significant. The results for thinking and mental clarity and for shocks to the body were not significant. Work such as this has the potential of dispelling myths, and of testing the experiences of individuals who have been very influential in the occult and popular literature against the experience of others. This line of work allows researchers to be responsible to the social needs of people who are interested in these issues by producing research that is relevant to their concerns, and which speaks to the materials they read and believe.

In a recent paper one of us (C.S.A.) justified a research program designed to

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study out-of-body experiences (OBEs) in depth (Alvarado, 1997). This research program pays attention to the features of the experience. These features, consisting of floating sensations, seeing lights, travelling to distant places, seeing the physical body, perceiving oneself in a body similar to the physical or with no body at all, and having feelings of elation, among others, have been documented over the years in surveys and case collections (e.g., Alvarado, 1984; Crookall, 1961, 1964; Giovetti, 1983; Green, 1968; Muldoon,

1936; Muldoon & Carrington, 1951; Osis, 1979; Poynton, 1975; Twemlow, Gabbard, & Jones, 1982). This program of research is based on the assumption that there is much to learn by studying OBE features beyond their incidence. One approach is to see if the frequency of some features of the OBE is affected in some way by their interaction with such variables as the mode of OBE induction, whether the circumstances surrounding the experience were near-death, other OBE features, or demographic circumstances (Alvarado, 1984, 1997; Alvarado & Zingrone, 1997; Gabbard, Twemlow & Jones, 1981; Irwin, 1985).

One way to explore issues of this sort further is by studying the OBE patterns of frequent OBEs, and to test if the experience characteristics of frequent OBEs can be found in other individuals as well. The literature on this subject is rich, as seen in the writings of Fox (1939), Harary (1978), Monroe (1971), Muldoon (Muldoon & Carrington, 1929), Turvey (1911), Vieira (1986), and many others. Some of these writings are very influential in that they shape beliefs about OBEs in the popular culture. As we have argued elsewhere (Alvarado & Zingrone, 1996a, 1996b) we have a responsibility as researchers to explore this popular and occult literature to determine whether the prescriptions and rules promoted in this type of literature can be generalized to other individuals. It is our belief that scientific research into experiences like OBEs is necessary because of the tendency for the general public to initiate practices and form beliefs on the basis of these books, steps which may or may not be warranted, and which may or may not be psychologically adaptive. In this paper we will focus on the writings of "astral projector" Sylvan Muldoon.

Muldoon was a well-known gifted individual who had thousands of OBEs throughout his life (for biographical information see Blackmore, 1982; and Rogo, 1978). His writings are among the most influential in OBE history as they speak to the experience of those who have had many OBEs. Muldoon is best known

for his book, *The Projection of the Astral Body* (Muldoon & Carrington, 1929), co-authored with psychical researcher Hereward Carrington, in which Muldoon described his own OBEs in detail. Even to this day, the book is frequently cited as an exemplar of OBE autobiographical accounts (e.g., Alvarado & Zingrone, 1997; Blackmore, 1982; Irwin, 1985; Mishlove, 1993). In later books Muldoon (1936; Muldoon & Carrington, 1951) compiled other individuals' OBEs and commented on the significance of them.

In *The Projection of the Astral Body* Muldoon derived some "principles" from his many experiences (Muldoon & Carrington, 1929). For example, for Muldoon there was mental confusion and difficulty in controlling the movements of the OBE body when he felt himself to be close (within 8 feet or so) to his physical body. In addition, he claimed that feelings of shock to the physical body on return were more frequent when the return occurred suddenly than when it occurred gradually. (This particular relationship was found in a previous study by the present authors [Alvarado & Zingrone, 1997]).

Because Muldoon described his experiences and derived "principles" from them in a more precise and consistent way than other individuals who have written autobiographical accounts of their OBEs (e.g., Fox, 1939; Harary, 1978; Monroe, 1971; Turvey, 1911; see also the reviews of autobiographical accounts of Blackmore, 1982; Irwin, 1985; and Rogo, 1978), we used some of his descriptions and ideas to generate hypotheses to see if his experiences may be generalised to the experiences of other individuals. Consequently, in the present study we predicted more mental clarity and motor control in experiences in which the reported separation from the physical body was greater than the range specified by Muldoon, as compared to those experiences that occurred close to the body. In addition, we expected a positive and significant correlation between distance from the physical body during the OBE and



a measure of thinking and mental clarity, and a similar positive relationship between the distance measure and a measure of control of movements (two predictions). We also hypothesised a higher frequency of reports of shocks to the body at the end of the experience if the return to the body was sudden and rapid than when returns were slow and gradual.

## Method

### *Participants*

The participants selected themselves on the basis of responses to queries for OBEs published in a variety of sources. Usable replies for the OBE questionnaire were received from 88 individuals. Because not everyone answered all the questions the demographics and other questions are not always based on the whole sample. Of the 87 who provided information about their sex, 62% percent were female and 38% were male. Their ages ranged from 20 to 80 with a mean of 51.76 ( $N = 86$ ,  $SD = 14.67$ ). The mean age at the time of the OBE was 33.12 ( $N = 81$ , Range: 5-78,  $SD = 14.98$ ). Out of 87 respondents to the question about nationality, 88% described themselves as from Great Britain. The rest claimed they were Americans (8%), Italians (2%), Sri Lankans (1%), and New Zealanders (1%). Out of 71 participants who indicated where in Great Britain they were born, 61% said Scotland and 39% said England. Other demographic details will be described in a different article now in preparation.

A second questionnaire was mailed at a later date asking about parapsychological experiences and including some psychological scales, but this part of the study is not relevant for the present analyses and will be reported elsewhere.

### *Procedure*

Several letters were sent to newspapers in Scotland which asked people who have had OBEs, and who were willing to participate in a study involving answering questionnaires, to get in contact with the

researcher. Letters were also published in spiritualist and psychical research periodicals from Great Britain and posted to two on-line discussion groups of parapsychological topics on the Internet. Detailed information about these publications is available from the authors.

All the call for cases included the following question: "Have you ever had an experience in which you felt that 'you' were located 'outside of' or 'away from' your physical body; that is, the feeling that your consciousness, mind, or centre of awareness was at a different place than your physical body?" Potential respondents, if they could answer yes to the question and were willing to complete questionnaires, were instructed to write to C.S.A. at the Department of Psychology of the University of Edinburgh. They were assured that all communications would be kept confidential.

### *Questionnaire*

The OBE questionnaire had 16 pages (a copy may be obtained from the first author). It started with demographic questions (11 items), and with a question about where or how the participant heard about or came in contact with, the project. After this there were two questions about frequency and level of control of OBEs. The participant was asked to describe his or her most recent OBE, or the only one they had experienced. A whole page was provided for this but they were told that additional paper could be used if necessary. After the description, respondents were told that the questions should be answered in terms of the experience described. The rest of the questionnaire consisted of questions about the circumstances surrounding the experience, about visual experiences, auditory experiences, kinaesthetic sensations, cognitive and emotional aspects, and other aspects. Many of the questions had several sections that asked for details about the particular claims.

## FEATURES OF OUT-OF-BODY EXPERIENCES

### *Analyses*

Data was entered into the StatPac Gold 4.5 statistical software program. Frequency-based analyses were assessed using the chi-square test. Analyses based on

scores were analysed with Spearman-Rank Order correlations, and Mann-Whitney *U* Tests. Effect sizes (*r*) for *z* values generated by the Mann-Whitney *U* test were calculated using the equation presented by Rosenthal (1991, p. 19):  $z / \sqrt{N}$ .

Table 1  
*Frequency of OBE variables used in the analyses*

Variable	N	Percent
<b>Distance from the physical body</b>	<b>80</b>	
Less than 1-6 inches	6	7.5
6 inches - 1 foot	1	1.3
1-3 feet	11	13.8
3-5 feet	15	18.8
5-15 feet	23	28.8
15-25 feet	9	11.3
25 feet - several miles	7	8.8
Miles - other countries, or far away	5	6.3
Distance varied	3	3.8
<b>Thinking and mental clarity compared with how you felt before the experience</b>	<b>82</b>	
Worse	6	7.3
Same	50	61.0
Improved	26	31.7
<b>Control of OBE movements</b>	<b>68</b>	
Not at all	38	55.9
Sometimes	5	7.4
Most of the time	11	16.2
Always	14	20.6
<b>Rate of return to the body</b>	<b>69</b>	
Slowly, gradually	4	5.8
Somewhat slowly	14	20.3
Somewhat rapidly	10	14.5
Rapidly, suddenly	41	59.4
<b>Shock felt on return</b>	<b>77</b>	
No	60	77.9
Yes	17	22.1

Table 2

*Ranges, means, medians, and standard deviations of OBE variables*

Variables	N	Range*	Mean	Median	SD
Distance from the physical body	77	1-8	4.66	5.00	1.91
Thinking and mental clarity compared with how you felt before the experience	82	1-3	2.24	2.00	.58
Control of OBE movements	68	0-3	1.01	0	1.24
Rate of return to the body	69	1-4	3.28	4.00	.98

\*The ranges for each variables were as follows: Distance from the physical body (1 [less than 1 to 6 inches away] — 8 [other countries/far away]), thinking and mental clarity (1 [worse] — 3 [improved]), control of OBE movements (0 [not at all] - 3 [always] ), rate of return (1 [slowly, gradually] — 4 [rapidly, suddenly]).

## Results

Tables 1 and 2 present the descriptive statistics relevant to the OBE variables under study.

Previous findings based on Muldoon's experiences (Alvarado & Zingrone, 1997) regarding a higher frequency of shocks to the body on rapid and sudden returns to the body, as compared to slow and gradual returns, were not replicated. Out of four cases with slow and gradual returns, 50% had shocks, as compared to 24% of the 38 cases of rapid and sudden return ( $N = 42$ ,  $\chi^2[1] = .29$ ,  $p = .30$ , one-tailed,  $\phi = .08$ ). Unfortunately, the low number of slow and gradual returns suggests this may not have been a proper test of the hypothesis.

Another of the hypotheses based on Muldoon's experiences was a positive correlation between rate of control of movements during the OBE and distance from the physical body. This was confirmed ( $r_{[65]} = .36$ ,  $p = .002$ , one-tailed). Similarly, the prediction of a positive relation between clear thinking/mental clarity (one variable) and distance was also confirmed ( $r_{[74]} = .21$ ,  $p = .04$ , one-tailed). If the distances were limited to those less than five feet from the body ( $N = 29$ , Mean = .52, Mean Rank = 20.79) and those over 15 feet from the body ( $N = 18$ , Mean =

1.44, mean Rank = 29.17), which clearly include those below and above the eight feet range from the body emphasised by Muldoon for control, the difference was significant,  $z = 1.83$ ,  $p = .03$ , one-tailed,  $r = .27$ . The results for thinking and mental clarity were not significant. They were as follows: Below 5 feet from body ( $N = 17$ , Mean = 2.12, Mean Rank = 13.38), over 15 feet from the body ( $N = 11$ , Mean = 2.36, Mean Rank = 16.23),  $z = .89$ ,  $p = .19$ , one-tailed,  $r = .17$ .

## Discussion

The analyses related to Muldoon's experiences supported his views of the general characteristics of OBEs to some extent. There were significant positive correlations between measures of thinking and mental clarity during the experience, and control of movement as these two variables were related to distance from the physical body. This supports Muldoon's personal experiences in which he experienced better levels of mental clarity and control of movements farther from rather than closer to the body. The contrasts that took the extremes above the 8 feet range postulated by Muldoon to be critical (that is below 5 feet and 15 feet and above) were significant only for control of

movements, however.

The prediction regarding shocks was not confirmed. Nonetheless we combined the significance levels of the present study ( $p = .30$ , one-tailed) with that of the previous study (Alvarado & Zingrone, 1997,  $p = .005$ , one-tailed). This yielded a Stouffer  $z$  of 2.21 ( $p = .01$ , one-tailed). Further work needs to be conducted on this point, because no conclusion can be drawn from only two studies. A problem with this type of analysis is how to explain the findings. This research has not been guided by any particular theoretical model. However, we may speculate that when an individual is aware he or she is close to the body this may affect their mental state and their ability to co-ordinate their movements while having an OBE. Maybe closeness to the body reminds the experiencer of the state they are in and consequently leads to a reaction that interferes in some way with the utilisation of the psychological resources assumed to be behind the manifestation of the OBE. This is only a vague speculation.

Although our study does not contribute to the testing of OBE theoretical models it is important to realise that the type of comparisons conducted here are important in that they allows us to explore the ideographic and nomothetic dimensions of OBE phenomenology. The OBE patterns of a single individual (Muldoon) may not generalise to other persons. After all, individuals like Muldoon seem to be rare. But the challenge of the research is to find out if there are aspects that can be generalised. Consequently, work such as this has the potential of dispelling myths, of testing the experiences of individuals who have been very influential in the astral projection lore for many years. This line of work allows researchers to be responsible to the social needs of people who are interested in these issues by producing research that is relevant to their concerns, and which speaks to the materials they read and believe. As such, we hope that future work will examine further the features experienced by Muldoon, as well as those experienced by other individuals

who have written autobiographical accounts (e.g., Fox, 1939; Harary, 1978; Monroe, 1971; Turvey, 1911).

## References

- Alvarado, C.S. (1984). Phenomenological aspects of out-of-body experiences: A report of three studies. *Journal of the American Society for Psychical Research*, 78, 219-240.
- Alvarado, C.S. (1997). Mapping the characteristics of out-of-body experiences. *Journal of the American Society for Psychical Research*, 91, 15-32.
- Alvarado, C.S., & Zingrone, N.L. (1996a). The forgotten phenomena of parapsychology. *EHE News*, 3, 22-24.
- Alvarado, C.S., & Zingrone, N.L. (1996b). La parapsicología y las tradiciones espiritistas y ocultistas: Ampliando el alcance del estudio de las experiencias humanas. In A. Parra (Ed.), *Segundo Encuentro Psi 1996*, 23-27. Buenos Aires: Instituto Argentino de Psicología Paranormal.
- Alvarado, C.S., & Zingrone, N.L. (1997a). Out-of-body experiences and sensations of "shocks" to the body. *Journal of the Society for Psychical Research*, 61, 304-313.
- Blackmore, S.J. (1982). *Beyond The Body: An Investigation Of Out-Of-The-Body Experiences*. London: Heinemann.
- Crookall, R. (1961). *The Study And Practice Of Astral Projection*. London: Aquarian Press.
- Crookall, R. (1964). *More Astral Projections: Analyses Of Case Histories*. London: Aquarian Press.
- Fox, O. [1939]. *Astral Projection: A Record Of Out-Of-The-Body Experiences*. London: Rider.
- Gabbard, G.O., Twemlow, S.W., & Jones, F.C. (1981). Do near-death experiences occur only near death? *Journal of Nervous and Mental Disease*, 169, 374-377.
- Giovetti, P. (1983). *Viaggi Senza Corpo*. Milano: Armenia.
- Green, C.E. (1968). *Out-Of-The-Body Experiences*. London: Hamish Hamilton.
- Harary, S.B. (1978). A personal perspective on out-of-body experiences. In D.S. Rogo (Ed.), *Mind Beyond The Body: The Mystery Of ESP Projection*, 260-269. Harmondsworth: Penguin Books.
- Irwin, H.J. (1985). *Flight Of Mind: A Psychological Study Of The Out-Of-Body*

- Experience*. Metuchen, N.J.: Scarecrow Press.
- Mishlove, J. (1993). *The Roots Of Consciousness* (2nd ed.). Tulsa: Council Oaks.
- Monroe, R. (1971). *Journeys Out Of The Body*. Garden City, N.Y: Doubleday.
- Muldoon, S.J. (1936). *The Case For Astral Projection*. Chicago Ariel Press.
- Muldoon, S.J., & Carrington, H. (1929). *The Projection Of The Astral Body*. London: Rider.
- Muldoon, S.J., & Carrington, H. (1951). *The Phenomena Of Astral Projection*. London: Rider.
- Osis, K. (1979). Insider's view of the OBE: a questionnaire study. In W.G. Roll (Ed.), *Research In Parapsychology 1978*, 50-52. Metuchen, NJ: Scarecrow Press. (Abstract)
- Poynton, J.C. (1975). Results of an out-of-the-body survey. In J.C. Poynton (Ed.), *Parapsychology in South Africa*, 109-123. Johannesburg: South African Society for Psychical Research.
- Rosenthal, R. (1991). *Meta-Analytic Procedures For Social Research* (revised edition). Newbury Park, CA: Sage.
- Twemlow, S.W., Gabbard, G.O., & Jones, F.C. (1982). The out-of-body experience: A phenomenological typology based on questionnaire responses. *American Journal of Psychiatry*, 139, 450-455.
- Turvey, V.N. [1911]. *The Beginnings Of Seer-ship*. London: Stead's Publishing House.
- Vieira, W. (1986). *Projeciologia: Panorama Das Experiências Da Consciência Fora Do Corpo Humano*. Rio de Janeiro, Author.
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# Onderzoek naar Kenmerken van Uittredingservaringen in Samenhang met Claims van Sylvan Muldoon

**Samenvatting:** In dit artikel testen we enkele ideeën die "astral projector" Sylvan Muldoon beschreef in zijn boek *The Projection of the Astral Body* (met H. Carrington) uit 1929. Puttend uit zijn talrijke OBE's behandelde Muldoon een aantal volgens hem universele OBE-patronen. Die patronen bestonden uit het niet helder kunnen denken en het gebrek gecoördineerde motoriek als Muldoon minder dan 2.5 meter vanaf zijn lichaam was en uit een schok als hij plotseling en snel in zijn lichaam terugkeerde. Na oproepen in kranten en tijdschriften ontvingen we 88 ingevulde OBE-vragenlijsten. Op grond van Muldoons ervaringen en claims voorspelden we een significant positieve correlatie tussen de afstand tot het fysieke lichaam tijdens de OBE en een maat voor denkvermogen en geestelijk helder zijn. We voorspelden een zelfde positief verband tussen die afstand en het vermogen tot gecontroleerde bewegingen. We verwachtten ook een beter denkvermogen en betere helderheid en meer gecontroleerde bewegingen op bepaalde afstanden (onder en boven 2.5 meter) vanaf het fysieke lichaam. Ten slotte voorspelden we een groter aantal meldingen over schokken als aan het einde van de uittredingservaring de terugkeer naar het fysieke lichaam snel en plotseling was, dan wanneer die trager en geleidelijker verliep. De hypothese over een positieve correlatie tussen controle over bewegingen tijdens de OBE en de afstand tot het fysieke lichaam werd bevestigd. Hetzelfde geldt voor het positieve verband tussen goed denken / geestelijke helderheid (één variabele) en die afstand. Bij afstandscategorieën van minder dan 1.5 meter en meer dan 4.5 meter van het fysieke lichaam, die ruim buiten het door Muldoon genoemde omslagpunt van 2.5 meter voor gecontroleerde bewegingen liggen, trad een significant verschil op. De scores voor denken en geestelijk helder zijn en voor schokken waren niet significant. Dit soort onderzoek biedt de mogelijkheid mythen te ontzenuwen en ervaringen van personen met grote invloed in de occulte en sensationele literatuur te vergelijken met de ervaringen van anderen. Deze experimenten stellen onderzoekers in staat verantwoordelijk om te gaan met de sociale behoeften

van mensen die interesse in deze onderwerpen hebben, door onderzoek op te zetten dat met hun behoeften rekening houdt en dat ingaat op de onderwerpen waar zij over lezen en in geloven.

## Undersökning av Kännetecken för Utanför Kroppen-Upplevelser (OBE) i Förhållande med Sylvan Muldoons Uppgifter

**Sammanfattning:** In denna förhandling vill vi testa ett antal idéer uttryckt av "astral projector" Sylvan Muldoon i sin bok, *The Projection of the Astral Body* (tillsammans med H. Carrington) från 1929. Baserade på sina många OBEs har Muldoon skrivit om OBE-mönster vilka han tyckte var universella. Dessa mönster bestod av inte kunna tänka klart och inte ha motorisk koordination medan Muldoon var nära kroppen (mindre än 2.5 meter) och upplevelsen av chocker i kroppen när han återkom snabbt och plötsligt till sin kropp. Vi har fått in 88 frågeformulär om OBE efter vårt vädjan i tidningar och tidskrifter. Baserade på Muldoons erfarenheter och uppgifter spådde vi ett positivt och signifikant förhållande mellan distans från den fysiska kroppen under OBE och ett mått för tankeförmågan och mental klarhet. Dessutom spådde vi ett liknande positivt förhållande mellan distansen och mängden kontrollerade rörelser. Vi förväntade även större tankeförmåga och rörelsekontroll på vissa distanser från kroppen (under och över 2.5 meter från kroppen). Till slut har vi spått flera chocker i kroppen vid upplevelsens slut när återvändandet till kroppen skedde plötsligt och snabbt än när det skedde långsamt och gradvis. Antagandet av ett positivt förhållande mellan rörelsekontroll under OBE och avståndet från kroppen har blivit bekräftat. På liknande sätt har antagandet om ett positivt förhållande mellan en god tankeförmåga/mental klarhet (en variabel) och distansen också blivit bekräftad. Om avstånden begränsades till de under 1.5 meter och de över 4.5 meter från kroppen, vilket definitivt inbegriper de avstånd på under och över 2.5 meter från kroppen som Muldoon betonade för kontrollens skull, var skillnaden signifikant. Resultaten för tankeförmåga och mental klarhet och för chocker i kroppen var inte signifikanta. En sådan undersökning kan avfärda myterna, och kan jämföra erfarenheter av individer som har haft stort inflytande på den ockulta litteraturen och populärlitteraturen med andra personers upplevelser. Med en sådan här undersökning kan forskare vara ansvarsfulla gentemot de sociala behoven hos människor som är intresserade i sådana ämnen genom att producera forskning som är relevant för deras bekymmer och som har att göra med ämnena de läser och tror på.

## Untersuchung der Merkmale Außerkörperlicher Erfahrungen in Zusammenhang mit Sylvan Muldoons Behauptungen

**Zusammenfassung:** In diesem Artikel sollen einige der Gedanken überprüft werden, die der "Astralreisende" Sylvan Muldoon in seinem 1929 erschienenen Buch "The Projection of the Astral Body" (verfaßt mit H. Carrington) zum Ausdruck gebracht hat. Auf der Grundlage seiner zahlreichen außerkörperlichen Erfahrungen (AKEs/OBEs) schrieb Muldoon über Ablaufmuster von AKEs, die er für unverdächtig hielt. Diese Muster bestanden in einem Mangel an gedanklicher Klarheit und motorischer Koordination, während Muldoon sich in der Nähe seines Körpers (unter 2.5 Meter Abstand) befand und aus einer körperlichen Schockerfahrung beim raschen und plötzlichen Wiedereintritt in den Körper. Mittels Aufrufen in Zeitungen und Zeitschriften erhielten wir 88 ausgefüllte AKE-Fragebogen. Aus Muldoons Erfahrungen und Behauptungen wurde die Voraussage einer positiven und signifikanten Beziehung zwischen dem räumlichen Körperabstand während der AKE und dem Maß der gedanklichen und geistigen Klarheit gewonnen, dazu die einer ähnlich positiven Beziehung zwischen dem räumlichen Körperabstand und dem Maß für die Fähigkeit zu motorischer Kontrolle. Zudem erwarteten wir ein höheres Niveau gedanklicher und geistiger Klarheit und motorischer Kontrolle bei bestimmten Abständen (über resp. unter 2.5 Meter) Abstand vom Körper. Schließlich sagten wir häufigere Meldungen körperlicher Schocks am Ende der Erfahrung voraus, sofern die Rückkehr in den Körper rasch und plötzlich statt langsam und allmählich vonstatten ginge. Die Hypothese einer positiven Korrelation zwischen dem Maß der motorischen Kontrolle während der AKE und dem Körperabstand wurde bestätigt. In ähnlicher Weise fand unsere Vorhersage einer positiven Beziehung zwischen klarem Denken / geistiger

Klarheit (eine Variable) und dem Körperabstand Bestätigung. Bei Abständen zum Körper von weniger als 1.5 und von mehr als 4.5 Metern — die auch die von Muldoon betonte Abstandsweite zum Körper von etwa 2.5 Metern unzweideutig einschließt — war der Unterschied signifikant. Keine signifikanten Resultate zeigten sich für gedankliche und geistige Klarheit sowie für Empfindungen des Körperschocks. Arbeiten wie die vorliegende sind dazu angetan, Mythen zu zerschlagen und die Erfahrungen von Individuen, die die okkulte und populäre Literatur nachhaltig beeinflusst haben, mit den Erfahrungen anderer zu vergleichen. Arbeiten dieser Art erlauben es dem Forscher, den sozialen Bedürfnissen jener Menschen gerecht zu werden, die an diesen Dingen interessiert sind, indem sie Untersuchungen durchführen, die sich mit den Belangen der Menschen befassen und die auf die von ihnen gelesenen und für wahr gehaltenen Dinge eingehen.

### Studio delle Caratteristiche delle Esperienze Fuori dal Corpo in Relazione alle Affermazioni di Sylvan Muldoon

Sommario: In questo lavoro vengono valutate analiticamente alcune idee espresse dal "viaggiatore astrale" Sylvan Muldoon nel volume da lui scritto con H. Carrington nel 1929 *The Projection of the Astral Body* (La proiezione del corpo astrale). Basandosi sulle sue numerose OBE, Muldoon discusse alcune modalità dell'esperienza che riteneva universali. Tali modalità consistevano nella mancanza di lucidità di pensiero e di coordinazione motoria mentre Muldoon era vicino al corpo (meno di 2.5 m) e nella sensazione di un contraccolpo nel corpo in caso di ritorno rapido e improvviso. Rivolgendo appelli e inviti pubblici in giornali e riviste, noi abbiamo raccolto 88 questionari sulle OBE e, in base alle esperienze e affermazioni di Muldoon, ci aspettavamo di trovare una correlazione positiva e significativa tra distanza dal corpo fisico durante l'OBE e chiarezza mentale e di pensiero, nonché una relazione altrettanto positiva tra le misure di distanza e di padronanza dei movimenti. Ci aspettavamo inoltre livelli superiori di controllo del movimento e di lucidità mentale e di pensiero a particolari distanze dal corpo (entro o oltre il limite dei 2.5 m). Inoltre pensavamo di trovare una maggior frequenza di segnalazioni di contraccolpi fisici al termine dell'esperienza quando il ritorno al corpo era improvviso e rapido, rispetto a quando era lento e graduale. L'ipotesi di una correlazione positiva tra tasso di controllo dei movimenti durante l'esperienza e distanza dal corpo fisico è stata confermata. Altrettanto è accaduto con l'attesa di una correlazione positiva tra lucidità mentale/di pensiero (1 variabile) e distanza. Circoscrivendo le distanze a valori inferiori a 1.75 m e superiori a 4.5 dal corpo, che chiaramente comprendono quelle inferiori e superiori al limite dei 2.5 m indicato da Muldoon, la differenza era significativa. I risultati relativi alla chiarezza mentale e di pensiero e ai contraccolpi non erano significativi. Lavori come questo, basati sul confronto tra le esperienze di singoli individui che hanno influenzato la letteratura occultistica popolare e quelle di altre persone, possono potenzialmente dissipare le leggende. Una tale linea di lavoro consente ai ricercatori di sensibilizzarsi ai bisogni sociali di chi è interessato a simili questioni, operando studi di rilievo per quelle preoccupazioni e producendo dati che possono confluire in ciò che viene letto e creduto.

### Une Étude de Certaines Facettes des Expériences Hors Du Corps Dérivées D'écrits du Sylvan Muldoon

Résumé: Dans ce papier nous mettrons à l'épreuve certaines idées exprimées par le "voyageur astral" Sylvan Muldoon dans son livre de 1929, *La Projection du Corps Astral* (avec H. Carrington). Se basant sur ses nombreuses expériences, Muldoon décrivait des caractéristiques des OBEs qu'il supposait universelles. Ces caractéristiques concernaient le manque de clarté de la pensée et de coordination motrice lorsqu'il était proche de son corps physique (à moins de 2,5 m), et la sensation de choc sur le corps lors des retours soudains et rapides. Nous avons recueilli 88 questionnaires liés aux OBE provenant d'appels dans des journaux et magazines. Selon les expériences et propos de Muldoon, il était prédit que nous trouverions une corrélation significative et positive entre la distance du corps physique pendant l'OBE et une mesure de la clarté mentale et de pensée, ainsi qu'une corrélation positive similaire entre la mesure de la distance et une mesure du contrôle de

mouvements. De plus, nous attendions également des niveaux de clarté de pensée et de contrôle des mouvements supérieurs à certaines distances du corps (en dessous et au-dessus de 2,5 m du corps). Enfin, nous prédisions que la fréquence des rapports relatant un choc au corps serait plus importante en fin d'expérience si le retour était soudain et rapide par opposition aux retours lents et graduels. L'hypothèse d'une corrélation positive entre le taux de contrôle des mouvements pendant l'OBE et la distance au corps physique a été confirmée. Parallèlement, la prédiction d'une corrélation positive entre pensée claire / clarté mentale (une variable) et la distance a également été confirmée. La différence était significative lorsque les distances étaient limitées à moins de 1,5 m du corps et à plus de 4,5 m du corps, ce qui inclut clairement les cas en dessous et au-dessus de 2,5 m du corps soulignés par Muldoon. Les résultats concernant la clarté mentale et les chocs au corps n'étaient pas significatifs. De tels travaux ont la capacité de dissiper les mythes et de distinguer des autres les expériences d'individus influencés par la littérature populaire de l'occultisme. Cette ligne de recherche permet aux chercheurs de répondre aux besoins sociaux des gens intéressés à ces problèmes, en produisant des recherches pertinentes à leurs préoccupations, et parlant des références qu'ils lisent et croient.

### Un Estudio de las Características de las Experiencias Fuera del Cuerpo en Relación a los Alegatos de Sylvan Muldoon

**Resumen:** En este trabajo ponemos a prueba algunas ideas expresadas por el "proyector astral" Sylvan Muldoon en su libro de 1929, *The Projection of the Astral Body* (con H. Carrington). Basado en sus numerosas experiencias fuera del cuerpo (EFC) Muldoon escribió sobre patrones en las EFC que el asumió eran universales. Estos patrones consisten en una falta de claridad mental y de coordinación motora mientras Muldoon se encontraba cerca de su cuerpo (menos de 8 pies de distancia), y la experiencia de un choque al cuerpo al regresar rápidamente y súbitamente. Recopilamos 88 cuestionarios de EFC de pedidos en diarios y revistas. Basado en las experiencias y alegatos de Muldoon esperamos encontrar una correlación positiva y significativa entre la distancia del cuerpo físico durante la EFC y una medida de claridad de pensamiento y contenido mental, y una relación positiva similar entre la distancia y el control de los movimientos. Por añadidura, también esperamos encontrar mayores niveles de claridad de pensamiento y contenido mental y control de movimientos a distancias específicas del cuerpo (menos y más de 8 pies del cuerpo). Finalmente, esperábamos una mayor frecuencia de informes de choques al cuerpo al final de la experiencia si el regreso al cuerpo era súbito y rápido en contraste con regresos lentos y graduales. La hipótesis de una correlación positiva entre la tasa de control de movimientos durante la EFC y la distancia del cuerpo físico fue confirmada. De forma similar, la predicción de una relación positiva entre claridad mental y de pensamiento (una variable) y la distancia también fue confirmada. Si las distancias se limitan a menos de 5 pies del cuerpo y a sobre 15 pies del cuerpo, las cuales claramente incluyen a aquellas menores y mayores de los 8 pies enfatizados por Muldoon, la diferencia es significativa. Los resultados para pensamiento y claridad mental y para los choques no fueron significativos. Trabajos como este tienen el potencial de disipar mitos, de poner a prueba las experiencias de individuos que han sido muy influyentes en la literatura oculta y popular en relación a las experiencias de otras personas. Este tipo de investigación le permite a los/as investigadores/as ser responsables en términos de las necesidades sociales de las personas que se interesan en estas materias produciendo investigaciones que son relevantes a sus preocupaciones y que están relacionadas a los materiales que ellas leen y creen.

### Um Estudo das Características das Experiências Fora-Do-Corpo em Relação às Alegações de Sylvan Muldoon

**Resumo:** Neste trabalho, colocaremos em teste algumas idéias expressas pelo "projeto astral" Sylvan Muldoon em seu livro de 1929, *"A Projeção do Corpo Astral"* (*The Projection of the Astral Body*, escrito com H. Carrington). Com base em suas numerosas OBEs (sigla do inglês *out-of-the-body experiences*), Muldoon escreveu sobre padrões de OBE, que ele presumia serem universais. Esses padrões consistiam em falta de clareza de idéias e de coordenação motora enquanto Muldoon



estava próximo de seu corpo (há menos de 2.5 metros), e a experiência do choque para o corpo em retornos rápidos e repentinos. Coletamos 88 questionários sobre OBEs através de apelos em jornais e revistas. Com base nas experiências e alegações de Muldoon, previmos que poderíamos encontrar uma correlação positiva e significativa entre a distância do corpo físico durante a OBE e a medida de clareza mental e de raciocínio, e uma correlação positiva semelhante entre a medida da distância e a medida de controle de movimentos. Além disso, esperávamos níveis mais elevados de clareza mental e de raciocínio e controle de movimentos a distâncias específicas do corpo (abaixo e acima de 2.5 metros do corpo). Finalmente, previmos uma frequência mais alta de relatos de choques para o corpo no final da experiência se o retorno para o corpo fosse repentino e rápido do que quando os retornos eram lentos e graduais. A hipótese de uma correlação positiva entre a taxa de controle dos movimentos durante a OBE e a distância do corpo físico foi confirmada. De modo semelhante, a previsão de uma relação positiva entre clareza de raciocínio/clareza mental (uma variável) e a distância foi também confirmada. Se as distâncias eram limitadas para aqueles a menos de 1 metro e meio do corpo e para aqueles acima de 4.5 metros do corpo, em que, claramente incluiu aquelas abaixo e acima da faixa de 2.5 metros do corpo enfatizada por Muldoon para controle, a diferença era significativa. Os resultados para clareza mental e de raciocínio e para os choques no corpo não foram significativos. Um trabalho como este tem o potencial de esclarecer mitos, testar experiências de indivíduos que têm sido muito influentes na literatura ocultista e popular contra as experiências dos outros. Esta linha de trabalho permite aos pesquisadores serem responsáveis pelas necessidades sociais das pessoas que estão interessadas neste tópico através da produção de pesquisas relevantes às suas preocupações e sobre os temas tratados nos material que tais pessoas lêem e acreditam.

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## The Transliminal Connection Between Paranormal Effects and Personality in an Experiment with the *I Ching*

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**Abstract:** Transliminality is currently defined as "the hypothesised tendency for psychological material to cross thresholds into or out of consciousness" (Thalbourne & Houran, 1999). It was hypothesised that transliminality represented a psychological process that might function as a connecting principle between paranormal effects and other personality variables. Ninety-three participants (mostly University of Adelaide psychology students) undertook a paranormal task with the *I Ching* — an ancient Chinese form of divination — involving the attempt to achieve a designated hexagram (six-line symbol) outcome. Each participant threw three coins, six times, to generate six lines, which were converted to a hexagram. The hexagram was then compared with 16 hexagram/descriptor-pairs pre-selected by the participant from a total of 64 hexagram/descriptor-pairs, in accordance with the statement: "Lately, or right now, I feel ...". If the outcome hexagram matched one of the 16 designated hexagram/descriptor-pairs it was deemed a 'Hit'. Participants then completed the Transliminality Scale (Form B), and Cattell's Sixteen Personality Factor (16PF) Questionnaire. Hitting rates for the whole sample and previous users of the *I Ching*, were both marginally significant. Hitting correlated significantly with Transliminality, and a number of 16PF factors, such as social boldness and extraversion. Transliminality correlated significantly with a number of personality factors and sheep-goat questions. Multiple regression analysis and path analysis were applied. Number of changing lines (generated by coin throws of three-of-a-kind) was another measure of psi-performance, and correlated significantly with a number of 16PF factors. It was suggested that two 'psi-able' types (persons with ostensible paranormal ability) were present in the sample — one was socially bold (with a 50% hitting rate), the other was highly transliminal (with a 40% hitting rate), where MCE = 25%.

### The Concept of Transliminality

Since Thalbourne (1991; pp. 181-182) first suggested the concept of transliminality the definition has evolved through three versions as research progressed (Sanders, 1997; Thalbourne, 1996; Thalbourne, in press; Thalbourne, Bartemucci, Delin, Fox & Nofi, 1997; Thalbourne & Delin, 1994; Thalbourne & Delin, 1995;

Thalbourne & Delin, in press; Thalbourne & Houran, 1999). Transliminality is currently defined as "a hypothesised tendency for psychological material to cross (*trans*) thresholds (*limines*) into or out of consciousness" (Thalbourne & Houran, 1999, p. 1). Material from the subliminal mind, from the supraliminal mind and from the external environment is seen as passing "across thresholds" to bring about experiences in consciousness. Using factor analysis, Thalbourne (in press) found nine constituents of this new variable, namely, belief in (and alleged experience of) the paranormal (ESP, PK and life after death), creative personality, mystical experience, magical ideation, history of manic-like

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experience, attitude to dream interpretation, fantasy-proneness, absorption, and hyperaesthesia (hypersensitivity to environmental stimulation). In the same study Thalbourne also devised what turned out to be a 29-item true-false scale to measure transliminality, its items derived from the variables listed above.

### *Transliminality and Paranormal Performance*

Thalbourne and Delin (1994) suggested that highly transliminal individuals may be prone to paranormal experience: for example, extrasensory perceptions may originate in subliminal regions and, under appropriate conditions, be transmitted across the threshold into consciousness.

Thalbourne (1996) tested 99 participants to see if scores on a 10-trial precognition task would correlate with transliminality, but no significant correlation was found.

A second study was more successful. Sanders, Thalbourne and Delin (1998), based on Sanders (1997), found scores in a task involving telepathic transmission of emotional states correlated significantly with transliminality: the senders' transliminality scores correlated significantly with the hit-rate of the receivers.

Apart from a paranormal experiment underway in Sweden, no other parapsychological experiments have used transliminality to predict psi functioning. The present study was an attempt to explore this area further.

### *Personality and Paranormal Performance*

Since the early 1930s, variability in performance on ESP tests has been thought to involve differences in personality and attitude (Rhine, 1937/1950, pp. 65, 84-85; Rhine, 1948/1954, pp. 54, 119). Often, early research in this area examined just one or two psychological variables at a time (e.g., Humphrey's [1949] research with expansion-compression, Schmeidler's [1950, 1960] work with the sheep-goat effect, and the various studies on the influence of extroversion, such as Åström [1965],

Eysenck [1967], Green [1966a, 1966b], and Irwin [1986]).

More sophisticated measuring instruments and techniques were being developed during those early years. In the late 1930s, Raymond Cattell factor analysed all English-language adjectives that describe human behaviour. He identified the 16 primary personality factors now used in the personality questionnaire the 16PF (five global factors are derived from various primary factors) (Russell & Karol, 1994). The latest version of the 16PF has a total of 21 factors, covering a range of personality traits. The 16 Primary Factors are (A) Warmth, (B) Reasoning, (C) Emotional Stability, (E) Dominance, (F) Liveliness, (G) Rule-Consciousness, (H) Social Boldness, (I) Sensitivity, (L) Vigilance, (M) Abstractedness, (N) Privateness, (O) Apprehension, (Q1) Openness to Change, (Q2) Self-Reliance, (Q3) Perfectionism, and (Q4) Tension. The five Global Factors are (EX) Extraversion, (AX) Anxiety, (TM) Tough-Mindedness, (IN) Independence, and (SC) Self-Control.

Various parapsychologists have used the 16PF (or the version for adolescents, the High School Personality Questionnaire), often obtaining significant correlations between the factors and ESP scoring (Nicol & Humphrey [1953, 1955], Kanthamani & Rao [1971, 1972, 1973], Rao [1974], Scopp [1974]). Given their results, we expected that global factors such as extroversion and anxiety (and some primary components) might correlate significantly with ESP scoring.

### *The I Ching*

The paranormal component of the present experiment involved the use of a divinatory system — the *I Ching*. The *I Ching* consists of 64 hexagrams (six-line diagrams), each with its own unique reading, and it is the 64 readings that form the basic text. The *I Ching* was first introduced into the English-speaking world through Legge's (1899, cited in Jung, 1989, p. xxi) translation of the original Chinese text. The "emblematic representations" (the

## EXPERIMENT WITH THE I-CHING

Figure 1

T'ai-chi t'u ('diagram of the supreme ultimate'): The yin/yang symbol of opposites

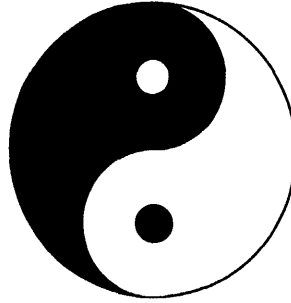


Figure 2

The yang and yin lines



Yang



Yin

Figure 3

The four duograms



Old yin   Young yin   Young yang   Old yang

hexagrams) were a puzzle to Legge, and his scepticism is evident throughout the text. The Wilhelm-Baynes (1989) translation is the most in depth work to date. This work, and Hazel's (1990) 'new age' interpretation, form the basis of a so-called *I Ching* Hexagram Descriptor Form used in this study, and which will be described later.

Capra (1988, pp. 308-309) describes the dynamic interplay of the "archetypal" opposites of yin and yang, traditionally represented in the East as the T'ai Chi T'u (see Figure 1).

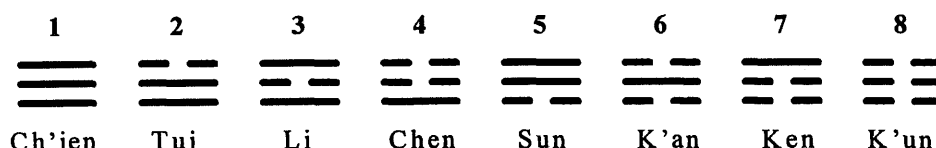
The yin is traditionally said to represent the principles of Earth, passivity, the 'feminine', the negative and darkness, while the yang is said to represent the principles of Heaven, activity, the 'masculine', the positive, and light. The two elements of the yin/yang binary system are represented as

'broken' and 'unbroken' lines in the *I Ching* (see Figure 2).

By various combinations of yin and yang interacting with one another (yin/yin, yin/young, young/yin, and young/young) the four "duograms" are formed (see Figure 3). The duograms represent a four-step continuum, moving from old yin to old yang — a gradual shift from one polar opposite to the other.

By the addition of a yin or a yang line to each of the duograms, eight trigrams are formed (see Figure 4). The trigrams also represent a continuum, but in eight steps, from "Heaven" through to "Earth". The individual trigrams ostensibly carry more meaning than the duograms or individual yin or yang lines. The 64 hexagrams represent all possible combinations of any two of the eight trigrams, each of which can

Figure 4  
The eight trigrams



be used twice. The trigrams, therefore, are at the core of all 64 hexagram interpretations, and supposedly symbolise all the factors of existence — changes in the environment (the seasons), location in space (direction), the constructed, social world, and the natural world (Capra, 1983). As a form of divination, it is claimed that the *I Ching* gives a description of past and present life situations and a forecast of likely events or outcomes.

Covello (1977) found that the yin/yang substructure underlying the hexagrams was meaningfully operative in the hexagram symbols and their corresponding readings. That is, the derivation of the hexagram symbols was not arbitrary, but was arrived at rationally and systematically over many centuries.

In 1949, C. G. Jung (1989, p. xxviii) claimed:

The method of the *I Ching* does indeed take into account the hidden individual quality in things and men [sic], and in one's own unconscious as well.

Jung made this claim from the standpoint of an ancient Chinese philosophical way of thinking, rather than a Western causal approach, where "natural laws are merely statistical truths and must necessarily allow for exceptions" (Jung, 1989, p. xxii). Jung, therefore, and others (Barrett, 1992; Hazel, 1990; Wilhelm, 1989; Wing, 1982) see the processes of the *I Ching* as one such exception to natural law as "statistical truth," in the sense that the random element (chance) is essential to the functioning of the *I Ching*.

The *I Ching* has survived for over 5000 years, and Brier (1974) offers three reasons which might help explain the survival of the *I Ching*:

- (i) It is conducive to psi performance in individuals who may be psychic.
- (ii) There is ample opportunity for ESP/PK to have effects in the *I Ching* process.
- (iii) Results are difficult to disprove.

However, it must be conceded that these points may be true of other divinatory systems as well.

The history of the *I Ching* suggests a worthy and compelling subject of psychological investigation, because its 'wisdom' has been derived from empirical experience and repeated observation over many thousands of years. Its continued use over these millenia has imbued the *I Ching* with a mystique that may spur the interest of the participant and the experimenter alike, somewhat more so than the apparatus used in traditional paranormal experimentation (for example, dice, Zener cards, etc.).

#### *Previous Experiments with the I Ching*

Rubin and Honorton (1971, 1972) conducted an experiment to test the efficacy of the *I Ching*. Hexagrams were generated in answer to a participant's question, and the cast hexagram reading and a control reading were presented to the participant, who rated the two readings from 1 to 10 (the difference score between the two ratings being the dependent variable). There was no significant difference between the mean rating for the correct passage and the mean rating for the control passage. However, in a planned analysis,

those who believed in ESP scored significantly higher than did those who did not believe.

Thalbourne, Delin, Barlow, and Steen (1992-1993) replicated the experiment by Rubin and Honorton (1971, 1972), where participants were required to cast a hexagram and read two readings (the correct one, and a control). Again in a planned analysis (one of three), it was found that believers in the *I Ching* obtained difference-scores that were significantly higher than non-believers' difference-scores.

There was also post hoc evidence that novices with a positive attitude did significantly better than those subjects who had used the *I Ching* before the experiment. However, Thalbourne et al. (1992-1993) did not significantly confirm the Rubin and Honorton result (that scores on the sheep-goat measure would correlate with difference-scores), although Lawrence (1994) showed statistically (using the criterion of effect size estimates) that the result of Thalbourne et al. was not significantly different from that of Rubin and Honorton.

Thalbourne (1994) examined, in a large personal collection of hexagrams, the number of changing lines (lines formed from a coin throw of three-of-a-kind, where yin lines change to yang lines and yang lines change to yin lines). Using an approach that can probably best be described as post hoc, he found that there was, firstly, in an initial set of observations, a number of changing lines that was significantly higher than mean chance expectation (MCE = 1.5 changing lines out of six coin-throws). But then the score rate dropped to below MCE in a second set of observations. The conclusion was that a 'need-to-know' basis (i.e., "information hunger") might be influencing the *I Ching* process positively, through an increased number of changing lines, while later, interest in only 'static' hexagrams (no changing lines) reduced the output of changing lines.

## The *I Ching* Experiment

The experimental component of this study involved the use of the *I Ching* to determine the ability of participants to achieve a designated outcome hexagram. Participants selected sixteen hexagram/descriptor pairs (as targets) according to their feelings or thoughts, and then threw three coins, six times, to generate the outcome hexagram. Participants were also required to complete the Transliminality Scale (Form B), and Cattell's 16PF, in order to determine correlates, if any, between paranormal ability, transliminality scores, and 16PF personality factors.

### Hypotheses

The following hypotheses were proposed:

1. There is a significant relationship between transliminality and hexagram scores.
2. The number of times that the outcome hexagram arises, which is one of the set of 16 chosen descriptors, will be significantly greater than MCE ( $P_{\text{test}} = .25$ ). That is, there is a significant achievement of a designated hexagram outcome.
3. The number of changing lines deviates significantly from chance (MCE = 1.50 changing lines out of six coin-throws).
4. Transliminality is related to the number of changing lines.
5. Answers to Question 1 on the *I Ching* Hexagram Descriptor Form ("Have you ever used the *I Ching*?") are significantly related to hexagram scores.
6. Answers to Question 2 on the *I Ching* Hexagram Descriptor Form ("Do you believe in the possibility, in general, of casting coins for a hexagram, which matches one of your sixteen choices?") are significantly related to hexagram scores.
7. Answers to Question 3 on the *I Ching*

Hexagram Descriptor Form ("Do you believe in your own abilities to cast coins for a hexagram, which matches one of your sixteen choices?") are significantly related to hexagram scores.

8. Hexagram scores are related to Primary and Global Factors of the 16PF.
9. Transliminality is related to Primary and Global Factors of the 16PF.
10. The number of changing lines is related to Primary and Global Factors of the 16PF.
11. There is a significant difference in the achievement of a desired outcome (Hitting) between Group A ('naïve' participants, who have never used the *I Ching*) and Group B ('sophisticated' participants, who have used the *I Ching*, or know how to score the coin throws).

All tests were two-tailed, except for Binomial tests, which were conducted to test Hypothesis 2 and Hypothesis 11. Since  $P_{test} = .25$  in this component of the experiment, the distribution of scores was not symmetrical, and therefore, a one-tailed test was necessary.

## Method

### Participants

A total of 93 people participated in the experiment from a variety of sources. The sample included 54 University of Adelaide Psychology students from all levels (undergraduate and Honours). Twenty-five were students from other departments, including Asian Studies and Computer Science. Fourteen were found through friends and colleagues by word-of-mouth. The total sample consisted of 67 females and 26 males. Age ranged from 17 to 64, the mean being 26 years ( $SD = 9.50$ ).

### Measures

Three measures were used in the experiment:

1. The Transliminality Scale (Form B: Thalbourne, in press), which measures transliminality. It contains 29 items taken from various scales (14% of items refer to the paranormal).
2. The *I Ching* Hexagram Descriptor Form, which asks three questions of the participant concerning previous use, and belief in the *I Ching* process, and contains 64 two-word descriptors for each of the hexagrams and the corresponding hexagram (see Appendix A).
3. Cattle's 16PF Personality Factor Questionnaire, designed to measure and "identify the primary components of personality," including five global factors (Russell & Karol, 1994, p.7).

### Apparatus

Ten sets of material were used in the experiment:

1. Invitation to Volunteers
2. Information Sheet
3. Consent Form
4. A Hexagram File, containing an introductory page, a how-to-score page, and the 64 *I Ching* hexagram readings (one reading per page, totalling 64 pages, with the changing line readings on the back of each page) all pages from Wing (1982)
5. Three coins (10 cent pieces), a coin cup (for shaking the coins), and a felt-lined box (as a receptacle for the falling coins)
6. Score Record Sheet for recording coin throws
7. "How to Score" Sheet
8. Eight by eight (8 x 8) Trigram Matrix for calculating hexagrams
9. Debriefing Sheet (for participants who got a 'Hit')
10. Debriefing Sheet (for participants who got a 'Miss')

## EXPERIMENT WITH THE I-CHING

### Procedure

Approval for the experiment was sought from the Departmental Ethics Committee. Once ethics approval was granted, students were approached to participate through written invitations, which were lodged in students' pigeon-holes.

At the experimental sessions, participants first read the Information Sheet, then signed the Consent Form. The Information Sheet outlined the general nature of the experiment, describing it in three stages. Participants were instructed to take their time, and start when they felt ready, since there was no time limit.<sup>2</sup>

The three stages were as follows:

#### Stage 1

The first stage of the experiment involved the completion of an *I Ching* Hexagram Descriptor Form. The first page of this Form gives three yes/no introductory questions, as follows:

1. Have you ever used the *I Ching*?
2. Do you believe in the possibility, in general, of casting coins for a hexagram, which matches one of your sixteen choices?
3. Do you believe in your own abilities to cast coins for a hexagram, which matches one of your sixteen choices?

Question 1 separates the naïve from the sophisticated participants. Question 2 and Question 3 were intended to measure the participants' belief about the ostensible paranormal process involved in the *I Ching*. (However, it should be pointed out that it was later realised that Question 2 is ambiguous: only a 'yes' answer makes any sense, since a 'no' answer precludes the statistical reality of a positive outcome by chance alone.)

Participants were then required to peruse the second page of the Descriptor Form and choose 16 two-word descriptors

(as depicted in Appendix A where the Descriptor-pairs were given, along with the corresponding hexagram), which they felt to be relevant to their feelings "lately, or right now." These choices were not ranked. The experimenter was blind to the choices made on the Descriptor Form. The participant then threw three coins six times, recording the number of heads and tails of each throw on the Score Record Sheet, from the bottom up, according to the conventions of the *I Ching*. Participants knew that they were casting coins for one of the 16 hexagrams, which they had selected. It was emphasised that three coins of the same kind were especially significant (this situation producing a so-called "changing line," which has an additional reading, and generates a second hexagram). Throughout this entire process the participant was observed at close quarters by the experimenter, and the participant was not allowed to discard any throws. No attempt at cheating was detected.

As stated, the selection process of the 16 descriptor-pairs was operationalised by a single statement: "Lately, or right now, I feel ..." Traditionally, the *I Ching* process requires a "general question" (Hazel, 1990, p. 7), or a question "preferably of great personal relevance" (Thalbourne et al., 1992-1993, p. 13). The approach adopted in this study is, therefore, somewhat unorthodox, but is based on the following assumption.

Questions create a state of apprehension and anticipation, in that they urge a response. Some degree of emotional involvement, therefore, is inevitable, or highly likely, in such a situation. Researchers in parapsychology have noted that the participant's emotional input (usually positive), such as enthusiasm, and personal involvement, facilitates a good psi result (Broughton, 1991, p. 135; Palmer, 1978, pp. 83-84; Rhine, 1937/1950, p. 84).

The underlying assumption, then, in using a feeling-toned statement, rather than a question, is that it essentially produces the same thing — an emotional response. Whereas the one is anticipatory of a solution, the other speaks of a condition

<sup>2</sup> Palmer (1978, pp. 89-90) points out the suggestive evidence that rushing a response inhibits psi-hitting.



that might beg clarification. Although the difference is qualitative, for the purposes of this study, the mental state of the participant (activated by the prompt "lately, or right now, I feel...") would be quantitatively (i.e., in magnitude) similar, but still aligned with the essential ingredient (emotional commitment) considered necessary for a 'good' psi-result. The single statement, however, serves two functions, which have an advantage over the more formal technique of posing a question:

(i) The statement unifies participants' pre-occupations with the same single factor — their mental / emotional states.

(ii) The statement thereby relieves participants of the task of 'dreaming up' questions, which may, likely as not, lack the necessary emotional input that is alleged to be conducive to psi.

It was anticipated that this approach would prompt the participant into a mental state where an accurate 'answer' (response) from the *I Ching* would be more than merely "somewhat important" (Thalbourne et al., 1992-1993, p. 16).

"How to Score" sheets were issued to 10 participants only, who constituted Group B. The original intention of issuing this sheet was to augment the small number of participants who had used the *I Ching* prior to the experiment so that a sizable 'sophisticated' group (that is, a group that had knowledge of the scoring procedure) could be contrasted with a 'naïve' group (Group A). Group B included 11 other participants who had previously used the *I Ching*, taking the Group B total to 21. The remaining 72 participants constituted Group A.

The size of Group B was originally meant to approximate that of Group A, but, during the experiment, it was decided that it was theoretically possible for participants to cheat (in some way that we admittedly cannot specify) and, despite being observed, thereby 'cast' a hexagram that matched one of their 16 pre-selected hexagram / descriptor-pairs. Though in fact we considered this possibility unlikely in the extreme, as a safeguard the "How to Score"

sheet was not issued to later participants. As it happened, and to anticipate somewhat, the results are, in general, not consistent with the hypothesis of cheating.

Each of the six 'heads-and-tails' counts was then converted by the experimenter to its respective hexagram lines, as instructed on the how-to-score page of the Hexagram File. (A second hexagram was also generated if changing lines were produced from throws of three-of-a-kind, since changing lines change from broken to unbroken, or unbroken to broken, so that the second hexagram is constructed with different lines).

Hexagrams were decoded by the experimenter, using the 8 x 8 Trigram Matrix. The bottom three lines, and the top three lines, each form trigrams, which are collated with each other with the aid of the Matrix. When the participant was satisfied that the hexagram(s) had been calculated correctly, he or she signed and dated the bottom of the score sheet. A 'hit' was a match of the participant's outcome hexagram with one of his or her sixteen selections, as marked on the Hexagram Descriptor Form (a 'miss' meant there was no such match). Approximately 40-50% of participants did not ask for, or receive feedback as to whether they achieved a hit or a miss, until they had completed the remaining two components of the experiment (see below).

### Stage 2

After the *I Ching* component of the experiment, participants completed the Transliminality Scale (Form B). There are 29 statements in the Scale, and participants answered 'true' or 'false' to each. The total number of 'true' answers out of 29 is the Transliminality score.

### Stage 3

The 16PF component was the last stage of the experiment. Participants completed Cattell's 16PF Personality Factor Questionnaire, and their tasks were thus completed.

Some time after testing, once scores were calculated on both the Transliminality

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Scale, and the 16PF, Debriefing Sheets (stating 'Hit' or 'Miss', transliminality score, and instructions on how to interpret the 16PF results) were issued to all participants. Also included with the Debriefing Sheet were copies of the participants' Consent Forms, copies of the hexagram readings, and changing line readings (if any, and, therefore, the second hexagram readings).

### Results

#### *Initial Findings*

The average time taken to complete the three components of the experiment was 50 minutes (although a few participants took as long as 2 1/2 hours).

Neither Group, nor age, nor sex correlated with Hitting. Of the three, only age correlated with Transliminality ( $r = .24$ ,  $p = .02$ ). None of these demographic variables were involved in the hypotheses of this study.

A reliability test of the Transliminality Scale gave a Cronbach's alpha of .86. The theoretical range for Transliminality is 0 to 29. The range of scores for the sample was 3 to 28 ( $N = 93$ ). The mean for Transliminality was 16.38 ( $SD = 6.08$ ).

Standardised scores of the 16PF (STEN scores) have a theoretical range of 1 to 10. The STEN-score means of nineteen of the twenty-one 16PF factors were on or between, the norm-range of 4 to 7 (Russell & Karol, 1994, p.19). Factor G (Rule-Consciousness) had a sample mean of 3.71, and Factor B (Reasoning) had a sample mean of 7.24, both of which were not significantly outside their ranges.

#### Planned Analyses

**Hypothesis 1** *There is a significant relationship between Transliminality and hexagram scores (Hitting).*

This hypothesis was tested using Pearson's  $r$ . Table 1 shows that there was a significant positive correlation between

Transliminality and Hitting ( $r = .27$ ,  $p = .010$ ). The hypothesis was thus confirmed. It appears that there was a tendency in the sample to achieve designated hexagrams as transliminality scores increased. The highly transliminal participant seems to have an advantage when it comes to achieving a designated outcome.

However, a referee suggested that if participants had received immediate feedback about Hitting (before answering the Transliminality Scale and the 16PF) the correspondence between Transliminality and hitting may simply be due to participants feeling more optimistic about the paranormal after having achieved good results, and more pessimistic after bad ones. For example, one of the Transliminality Scale items is "I am convinced that I am psychic." A person who achieved a hit might be more inclined to say 'true' to this item, and a person who failed to achieve a hit might be more inclined to say 'false', producing an artefactual correlation.

Our first response to this suggestion is to point out that 40-50% of participants did not receive feedback until after filling in the questionnaires. Our second response is that we tested the suggestion by removing the four sheep-goat items from the Transliminality Scale and re-computing its correlation with Hitting. Far from disappearing, the correlation with the 25 item Transliminality Scale actually increased to  $r = .28$  ( $p = .007$ ). There thus appears to be no artefact (or "knock-on" effects), at least with the sheep-goat items. Nevertheless, we concede that it is advisable to have withheld feedback about the paranormal task in the case of all participants. (However, withholding feedback may create motivational problems, as would conducting the *I Ching* component after the questionnaires.)

**Hypothesis 2** *The number of times that the outcome hexagram arises, which is one of the set of 16 chosen descriptor-pairs, will be significantly greater than MCE ( $P_{test} = .25$ ).*

Table 1

*Correlations between hitting, and transliminality, and 16PF factors*

Variable	<i>r</i>	<i>p</i>
Transliminality	.27	.010
Factor F (Liveliness)	.26	.013
Factor H (Social Boldness)	.41	< .001
Factor Q2 (Self-Reliance)	-.22	.031
Factor Q4 (Tension)	-.23	.029
Factor EX (Extroversion)	.28	.007
Factor IN (Independence)	.23	.030

Note:  $N = 93$ ;  $p$  values are two-tailed.

That is, there is a significant achievement of a designated hexagram outcome.

This hypothesis was tested using the binomial test. Choosing 16 out of 64 hexagrams gives a one-in-four chance of getting a hit ( $P_{test} = .25$ , which is the test proportion). The observed proportion was  $P_{obs.} = .32$  (32% hitting rate: 30 hits out of 93 trials). The binomial test gives  $p = .067$ , which might be interpreted as marginally significant. In support of this interpretation, the observed proportion for 'second-hexagram-hitters' (those 24 out of 79 participants who got a hit on their second hexagram) was  $P_{obs.} = .30$  (30% 'hitting rate'), where  $P_{MCE} = .254$  (that is,  $P_{MCE}$  is 16 out of 63 possible hexagrams, since the first hexagram cannot be regenerated). The binomial test on this statistic gave  $p = .187$  (n.s.).

The second hexagram is not a default of the first hexagram, nor were the participants instructed to regard it as a target. All first hexagram lines are potentially free to change, so that any one of the remaining 63 hexagrams can be generated from the changing lines of the first hexagram, if the appropriate number of changing lines is present in the first hexagram. Up until the time the coins are thrown, generation of a second hexagram is an independent process in itself, not dependent upon the first hexagram. There is no restriction in variability of outcome, except in so far as the first hexagram cannot be regenerated. Consequently, the 30% so-called 'hitting rate' on the second hexagram cannot be considered an artefact produced by the

processes involved in generating the first hexagram.

The effect size of the first hexagram Hitting rate was calculated from the Rosenthal and Rubin (1989) formula.<sup>3</sup> The effect size,  $\pi_{obs.}$  (for  $P_{obs.} = .32$ , and  $k = 4$ ) was .59 — a fair to medium effect size ( $\pi_{MCE} = .50$ , i.e., no effect). Bem and Honorton (1994) note the "straightforward intuitive interpretation" that  $\pi$  offers when ascertaining a descriptive measure of effect size (p. 8).

**Hypothesis 3** *The number of changing lines deviates significantly from chance (MCE = 1.50 changing lines out of six coin-throws).*

A majority of participants (79 subjects, or 85%) threw three-of-a-kind at least once, and, therefore, generated changing lines. No participant scored higher than four changing lines, out of a theoretical maximum of six (formed from six throws). It was hypothesised that there would be a deviation from chance because participants were informed that throwing three-of-a-kind was particularly informative, in the sense that extra readings were generated both from the changing lines and through a second hexagram.

Hypothesis 3 was tested using a  $t$ -test for a single sample ( $MCE = 1.5$ , which is the test value). With a mean of 1.5 changing lines, we could intuit that the outcome of

<sup>3</sup> Rosenthal & Rubin (1989, p. 333): "The value of  $\pi$  ... depends simply on  $k$ , the number of alternative choices available, and  $P$ , the raw proportion of hits":  $\pi = P(k - 1)/1 + P(k - 2)$ .

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the test would not be significant, and this intuition was confirmed by the *t*-test, which gave  $p = .96$  (n.s.). The hypothesis was not confirmed. It may be that the "need for knowledge" put forward by Thalbourne (1994) was not sufficiently present in this sample (generally speaking) to yield a significant result. On the positive side, the lack of significant results is consistent with the notion that participants did not cheat, at least in respect to their attempts at throwing three-of-a-kind.

**Hypothesis 4** *Transliminality is related to the number of changing lines.*

This hypothesis was tested using Pearson's *r*. There was a weak correlation between Transliminality and Changing Lines, and it was only marginally significant ( $r = .19$ ,  $p = .062$ ). Therefore, the hypothesis was not significantly confirmed, but the possibility that highly transliminal participants might have been "information hungry" is suggested by this finding.

**Hypothesis 5** *Answers to Question 1 on the I Ching Hexagram Descriptor Form ("Have you ever used the I Ching?") are significantly related to hexagram scores.*

This hypothesis was tested using Pearson's *r*. There was no significant correlation ( $r = .15$ ,  $p = .162$ ). The hypothesis was not confirmed. (But see Hypothesis 11 for a discussion concerning Group B, the 'sophisticated' group.)

**Hypothesis 6** *Answers to Question 2 on the I Ching Hexagram Descriptor Form ("Do you believe in the possibility, in general, of casting coins for a hexagram, which matches one of your sixteen choices?") are significantly related to hexagram scores.*

Pearson's *r* was used. There was no significant correlation ( $r = .14$ ,  $p = .189$ ). The hypothesis was not confirmed.

**Hypothesis 7** *Answers to Question 3 on the I Ching Hexagram Descriptor Form ("Do you believe in your own abilities to cast coins for a hexagram, which matches one of your sixteen*

*choices?") are significantly related to hexagram scores.*

Pearson's *r* did not show a significant correlation ( $r = .07$ ,  $p = .506$ ), so the hypothesis was not confirmed (but see the subsection Path Analysis, below, for an alternative interpretation).

**Hypothesis 8** *Hexagram scores (Hitting) are related to Primary and Global Factors of the 16PF.*

This hypothesis was tested using Pearson's *r*. Table 1 gives the significant correlations of Hitting with various 16PF factors. There were a total of six correlations of Hitting with 16PF factors — Factor F (Liveliness), Factor H (Social Boldness), Factor Q2 (Self-Reliance) (a negative correlation), Factor Q4 (Tension) (also a negative correlation), Factor EX (Extroversion), and Factor IN (Independence). The hypothesis was considered confirmed.

As a control test, and parallel with this hypothesis, the corresponding correlations were computed for the second hexagram. There was only one significant correlate: Factor G (Rule-Consciousness) ( $r = -.28$ ,  $p = .006$ ). One correlation could be the result of chance due to multiple analysis (5% of 21 correlations relevant to the hypothesis is just over one correlation).

**Hypothesis 9** *Transliminality is related to Primary and Global Factors of the 16PF.*

Pearson's *r* was used, and Transliminality was shown to correlate significantly with various 16PF factors. Table 2 shows that there were a total of five such correlations — Factor A (Warmth), Factor G (Rule-Consciousness) (a negative correlation), Factor M (Abstractedness), Factor TM (Tough-Mindedness) (a negative correlation), and Factor SC (Self-Control) (a negative correlation).

The hypothesis was considered confirmed. Transliminality also correlated with Question 2 ("Possibility") and Question 3 ("Ability") of the Descriptor Form, which might be expected, since the Transliminality

Table 2

*Correlations between transliminality, and question 2, question 3, and 16PF factors*

Variable	<i>r</i>	<i>p</i>
Question 2 ("Possibility")	.32	.002
Question 3 ("Ability")	.29	.005
Factor A (Warmth)	.21	.040
Factor G (Rule-Consciousness)	-.26	.013
Factor M (Abstractedness)	.41	<.001
Factor TM (Tough-Mindedness)	-.33	.001
Factor SC (Self-Control)	-.29	.005

N = 93; *p* values are two-tailed.

Table 3

*Correlations between changing lines, question 2 ("Possibility") and 16PF factors*

Variable	<i>r</i>	<i>p</i>
Question 2 ("Possibility")	.21	.047
Factor A (Warmth)	-.21	.040
Factor C (Emotional Stability)	-.25	.014
Factor M (Abstractedness)	.31	.003
Factor Q2 (Self-Reliance)	.30	.004
Factor EX (Extroversion)	-.23	.028

N = 93; *p* values are two-tailed.

Scale measures, amongst other things, belief in paranormal processes.

**Hypothesis 10** *The number of changing lines is related to Primary and Global Factors of the 16PF.*

Pearson's *r* was used, and Table 3 shows the significant correlations of Changing Lines with 16PF factors. There were five significant correlations: Factor A (Warmth) (a negative correlation), Factor C (Emotional Stability) (a negative correlation), Factor M (Abstractedness), Factor Q2 (Self-Reliance), and Factor EX (Extroversion) (a negative correlation). The hypothesis was considered confirmed.

**Hypothesis 11** *There will be a significant difference in the achievement of a desired outcome (Hitting) between Group A ('naïve' subjects) and Group B ('sophisticated' subjects).*

Pearson's *r* was used, and there was no significant correlation between Group-

membership and Hitting ( $r = .12$ ,  $p = .242$ ). However, separate binomial tests on the two groups revealed some interesting results. Group A ('naïve' subjects) obtained 21 hits ( $n = 72$ ;  $P_{obs.} = .29$ , effect size  $\pi_{obs.} = .55$ ), which was not significant ( $p = .248$ ) (Note:  $P_{test} = .25$ , chance effect size  $\pi_{MCE} = .50$ ), yet Group B ('sophisticated' subjects) got 9 hits ( $n = 21$ ;  $P_{obs.} = .43$ ,  $\pi_{obs.} = .69$ ), which was marginally significant ( $p = .056$ ). In fact, the level of significance was better for Group B than for the whole sample ( $P_{obs.} = .067$ ).

It would appear that those participants with prior experience of the *I Ching* (or who knew how to score the coin throws) did better than the naïve participants. This finding raises doubt about any claim that superior psi performance is more likely in the 'naïve' subject. We should mention that it is this 'sophisticated' group which is most open to the charge of cheating (see Method section, p. 15). However, we note that if

any such behaviour occurred it did not lead to significant results.

### Post Hoc Analyses

#### *Multiple Regression Analysis (MRA1) — Hitting*

A multiple regression (forward selection method) was performed with the correlates of Hitting: Transliminality, Factor F (Liveliness), Factor H (Social Boldness), Factor Q2 (Self-Reliance), Factor Q4 (Tension), Factor EX (Extroversion), and Factor IN (Independence).

Only Factor H and Transliminality appeared in the model summary. The other five did not appear, although Factor Q4 was almost significant ( $p = .051$ ). Factor H (Social Boldness) made a moderate contribution as a predictor ( $R = .41$ ,  $R^2 = .17$ ), followed by Transliminality, which raised the  $R$  to  $.47$  ( $R^2 = .22$ ). The value of  $R^2$  in the second model indicates that 22% of the variance of the dependent variable (Hitting) was accounted for by the two predictor variables. The ANOVA was significant:  $F(2, 90) = 12.69$ ,  $p < .001$ . The Beta coefficients provide an indication of the importance of these two variables in the regression equation, given the six variables tested: Factor H (Beta = .39), and Transliminality (Beta = .23). Of the two independent variables, Factor H made the greater contribution (almost twice that of Transliminality).

#### *Multiple Regression Analysis (MRA2) — Transliminality*

An MRA (forward selection) was performed on Transliminality, with its correlates Factor A (Warmth), Factor G (Rule-Consciousness), Factor M (Abstractedness), Factor TM (Tough-Mindedness), Factor SC (Self-Control), "Possibility," and "Ability."

Factor M, Factor A, and "Ability" all entered the model summary. The other four variables did not appear. Factor M (Abstractedness) made a moderate con-

tribution as a predictor ( $R = .41$ ,  $R^2 = .17$ ), followed by Factor A ( $R$  to  $.48$ ,  $R^2 = .23$ ), and finally, "Ability," which raised the  $R$  value to  $.52$  ( $R^2 = .27$ ). The value of  $R^2$  indicates 27% of the variance of the dependent variable (Transliminality) was accounted for by the three predictor variables. The ANOVA was significant:  $F(3, 89) = 10.97$ ,  $p < .001$ . The Beta coefficients were: Factor M, Beta = .38; Factor A, Beta = .25; and "Ability," Beta = .21. Of the three independent variables, Factor M made the greatest contribution, but only a little more than Factor A, and "Ability."

#### *Multiple Regression Analysis (MRA3) — Changing Lines*

An MRA (forward selection) was performed on Changing Lines, with its correlates "Possibility," Factor A (Warmth), Factor C (Emotional Stability), Factor M (Abstractedness), Factor Q2 (Self-Reliance), and Factor EX (Extroversion).

Factor M and Factor Q2 entered the model summary. The other four variables were excluded. Factor M (Abstractedness) made a small-to-moderate contribution as a predictor ( $R = .31$ ,  $R^2 = .10$ ), as did Factor Q2 ( $R$  to  $.38$ ,  $R^2 = .15$ ). The value of  $R^2$  indicates 15% of the variance of the dependent variable (Changing Lines) was accounted for by the two predictor variables. The ANOVA was significant:  $F(2, 90) = 7.74$ ,  $p = .001$ . The Beta coefficients were: Factor M, Beta = .25; Factor Q2, Beta = .23. Of the two independent variables, Factor M made the greatest contribution, but only a little more than Factor Q2.

#### *Path Analysis*

One advantage of path analysis is that direct and indirect effects of the predictor variables can be shown in one model. A path analysis was deemed possible because both regression models included Transliminality (in MRA1, Transliminality was a predictor variable, but in MRA2, Transliminality was the dependent variable).

A Path Analysis using AMOS (Analysis of Moment Structures) was performed, by

combining the predictor variables of Hitting, and the predictor variables of Transliminality. Figure 5 shows the path coefficients. Transliminality and Hitting are both endogenous variables. On the top-right corners of the Transliminality variable ('transcor') and the Hitting variable ('hitmiss1') is shown the proportion of the variance accounted for (which is the same as the  $R^2$  value) for each of these dependent variables;  $e1$  and  $e2$  are unobserved variables, not accounted for in the study, which contribute unexplained error variance to the model. Curved paths in the figure are covariances between the four exogenous variables. (The variance-covariance matrix is given in Appendix B.)

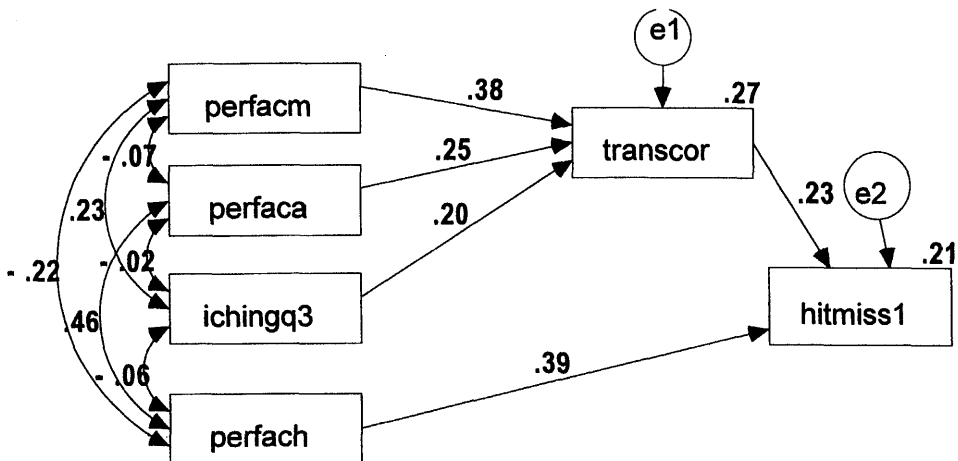
The chi-square test, used to assess the efficiency of the model, gave  $\chi^2 = 2.24$ ,  $df = 4$ ,  $p = .693$  (n.s.), meaning that the model is a plausible one. A 'good fitting' relationship exists if the  $\chi^2/df$  ratio is less than 2 (the AMOS output gave a  $\chi^2/df$  ratio of .56). The

RMSEA (root-mean-square-error-of-approximation), which indicates the closeness of fit of the model in relation to the degrees of freedom, was  $< .001$ , and since  $\leq .05$  is preferred, the model is deemed to be accurate, given the variables presented (Arbuckle, 1997, pp. 557-558).

Figure 5 shows that Factor H — Social Boldness ('perfach') and Transliminality have direct effects on Hitting. Figure 6 shows that Factor M ('perfachm'), Factor A ('perfaca'), and "Ability" ('ichingq3') have virtually no direct effect on Hitting — they function as predictors of Transliminality only. It can be seen that Transliminality has a mediatory role in the path analysis, which confirms the underlying theme of the present study, that there is a transliminal connection between personality and paranormal effects.

Figure 5

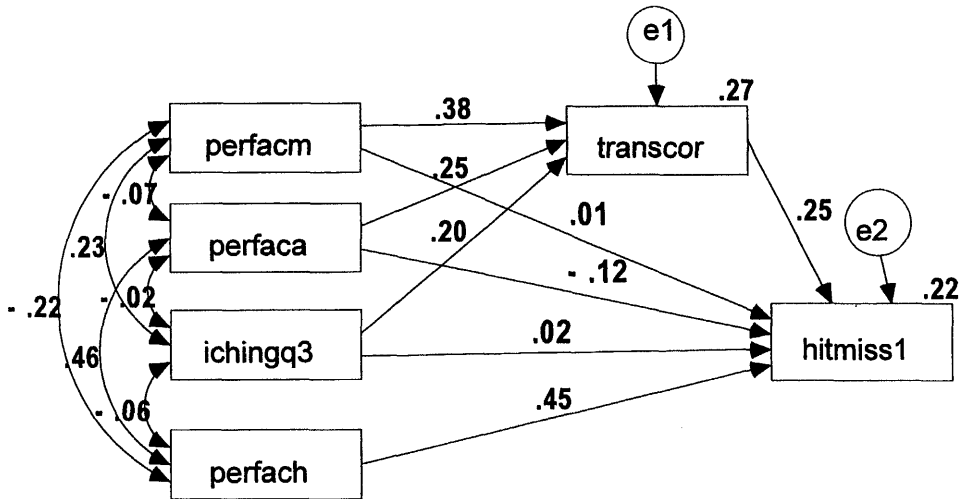
Path analysis showing indirect effects (standardised) of correlates of transliminality ('transcor') on hitting ('hitmiss1'), and the direct effect (standardised) of social boldness ('perfach') on hitting



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Figure 6

Path analysis showing direct and indirect effects (standardised) of correlates of transliminality on hitting, and the direct effect (standardised) of social boldness ('perfach') on hitting



### Median Split Analyses

In order to ascertain the locus and form of the psi effect (psi-hitting or psi-missing) a 'median split' on transliminality scores was performed, followed by a binomial test to determine the hitting rates of low and high scorers. Since the median was 16, low scorers were those participants who scored  $\leq 15$ , and high scorers were those participants who scored  $\geq 17$ . For low scorers ( $n = 43$ ),  $P_{obs.} = .23$ ,  $p = .47$ ,  $\pi_{obs.} = .47$ , and for high scorers ( $n = 45$ ),  $P_{obs.} = .40$ ,  $p = .016$ ,  $\pi_{obs.} = .67$ . Highly transliminal participants scored significantly above MCE, which suggests that they psi hit during the *I Ching* task.

Scores on the second predictor variable Factor H (Social Boldness) were also split into low and high scorers (since the median was 5.5, low scorers scored  $\leq 5$ , and high scorers scored  $\geq 6$ ). For the 'low' scorers ( $N = 49$ ),  $P_{obs.} = .16$ ,  $p = .108$ ,  $\pi_{obs.} = .36$ , and for high scorers ( $n = 44$ ),  $P_{obs.} = .50$ ,  $p < .001$ ,  $\pi_{obs.} = .75$ . Participants high on Social Boldness

scored significantly above MCE. High Factor H was a good predictor of psi hitting.

### Decline Effect

It is worth mentioning that a decline effect in the correlation of Translinality with Hitting was suggested throughout the running of the experiment. Pearson correlation analysis was performed on five sub-samples (for  $N = 93$ , four sub-samples of  $n = 20$  consecutive subjects, and a fifth of  $n = 13$ ). Ranks were assigned to each of the five Pearson correlations, 1 to 5, from the first to the fifth sub-sample. The correlation was not significant ( $r = -.75$ ,  $p = .142$ , two-tailed). There appeared not to be a statistically significant decline effect after all.

### The 'Possibility' of Psi and Psi 'Ability'

Question 2 ("Possibility") and Question 3 ("Ability") of the Hexagram Descriptor Form concern belief — whether or not each participant attributed the achievement of a



designated hexagram outcome to external 'forces', or to his or her innate predisposition (basic character, personality, or other mental, or physiological constituents), or both.

These two questions correlated positively and significantly with each other, and to a moderately high degree ( $r = .47, p < .001$ ). The tendency was to answer 'yes' to both questions (47% did so, only 25% answered 'no' to both and the remainder — 28% — gave mixed responses). Recalling the indirect relationship between "Ability" and Hitting in the path analysis it appears that belief had a part to play in Hitting success, but not a direct one.

### Discussion

In general, the experiment has been fairly successful, in the sense that four of the eleven hypotheses were significantly confirmed, though, in addition, Hypothesis 2 (overall hitting) and Hypothesis 4 (a correlation between Transliminality and Changing Lines) were marginally significant. Two hypotheses which were not confirmed related to the novel exercise of seeking a deviation from MCE in the number of Changing Lines (Hypothesis 3), and a significant difference in Hitting between Groups A and B (which was based on Question 1 — prior experience of the *I Ching*) (Hypothesis 11). However, these two hypotheses (as well as Hypothesis 4) were in fact rather secondary to the major findings regarding Transliminality and Hitting, as were hypotheses 5, 6 and 7, which concerned prior use of the *I Ching* and belief ("Possibility" and "Ability").

The majority of the seventeen significant correlations obtained can probably be taken as meaningfully significant, in the sense that they are not artefacts of multiple analysis. That is, it might be expected that 5% of the total number of correlations relevant to the hypotheses would be significant by chance alone, but this percentage was exceeded in all cases. Thus, there was a total of 69 correlations, and 17 of these were significant, whereas 5% of 69 is 3.45 significant correlations by chance: of 48

correlations relevant to the hypotheses of Hitting with Transliminality, 16PF factors, Changing Lines, and the three *I Ching* questions, 12 were significant, where 2.4 correlations would be significant by chance; and of 21 purely psychological correlations computed for Transliminality with 16PF factors, 5 were significant, where 1.1 correlations would be significant by chance.

### Two 'Psi-able' Types

Given the data from one of the Multiple Regression Analyses (MRA1) and the path analysis (Figure 5), Factor H (Social Boldness) was found to be a good predictor of the Hitting variable (50% of high scorers on Factor H obtained a hit). Thus, if we take hitting success at face value, it might be possible to identify one 'psi-able' type in the sample, who could be described as socially bold and adventurous.

The MRA2 data and the path analysis (Figure 5) also suggested a number of characteristics that typified the highly transliminal type. The highly transliminal individual, was more likely to be warm and outgoing (Factor A), idea-oriented and imaginative (Factor M), and to believe in his or her own ability ("Ability") to achieve a successful outcome in a psi task, a belief which was vindicated in part by the fact that 40% of the highly transliminal participants obtained a hit, suggesting that they too might be 'psi-able'.

However, such personalities are somewhat idealised. A psychopathological dimension to at least one of these types is possible, given some of the constituents of transliminality — namely, manic-like experience, fantasy-proneness, and hyperaesthesia. Further to the list of potentially adverse features are transliminality's correlates of dissociation, hallucination, and schizotypy, etc. As Thalbourne and Houran (1999, p. 11) have stated: "something more abundant (but not necessarily positively toned) is going on in the minds of persons high in transliminality."

## Limitations

There were two major limitations to this study, which were largely unavoidable.

Firstly, inferences cannot be made to the population from the sample, since the sample was not random, for the following reasons:

(i) Females outnumbered males more than 2:1 (72% and 28%, respectively).

(ii) The sample was comprised mainly of young people with an average age of 26 years.

(iii) The majority of the sample (85%) consisted of university students.

(iv) It is highly likely that the sample was over-represented by enthusiastic and motivated volunteers, many of whom may have been 'psi-able', and interested in the experiment for its paranormal component.

Secondly, response bias to some, if not all, hexagram/descriptor pairs became a consideration at the mid-stage of the experiment. A cursory analysis of the response rate on selected descriptor pairs was undertaken to ascertain whether or not the Hexagram Descriptor Form had demand characteristics, thereby fostering biases in selection of descriptor pairs. It could be argued that some descriptor pairs, for example, hexagram #12: 'Stagnant, Unassisted', by its negative tone, might be avoided to some degree by participants. Other descriptor pairs, such as hexagram #14: 'Supreme, Successful', by its positive tone, might prompt a higher response rate.<sup>4</sup> In fact, "Stagnant, Unassisted" was selected nine times by the whole sample, while 'Supreme, Successful' was selected only eight times. Although anecdotal, this example suggests that participants were honest with their choices, as requested in the instructions on the Descriptor Form. Only an analysis of the distribution of hexagram choices could confirm this

assumption, but a sample of at least 300 participants would be necessary for this task (Thalbourne et al., 1992-1993, p. 20).

## Future Research

Notwithstanding the foregoing caveats and limitations of this study, the findings that suggest a paranormal dimension to personality in the sample might still be considered, not only from within the context of this study, but from the perspective of the possible implications they may have for our understanding of personality in the population, and for future ESP personality research in general. However, it is a sobering thought to note that Nicol and Humphrey's (1953) ESP/16PF results did not replicate in their second study (Nicol & Humphrey, 1955). Nicol and Humphrey's (1955) example indicates the often mercurial nature of results in parapsychology, and is a caveat to other researchers — it is often impossible to "argue from the sample to the population" (Nicol & Humphrey, 1955, p. 150).

It is clear by the methods used in this study for testing the hypothesis that transliminality may have a connection with psychic ability that only a limited distance has been covered. It might be of interest to investigate the possibility of a significant relationship between transliminality and success at other tasks, such as the ganzfeld.

Nevertheless, the encouraging psi results obtained through the use of the *I Ching* in this study and three previous studies suggest its continued use in psi research. Both hitting and changing lines should be examined further.

Notwithstanding the fact that replicability of results must come before research findings can be reliably and generally applied to practical situations in the population, it may eventuate that certain personality factors (such as transliminality) can be used as predictors of psi ability, as was found in this study. If a certain type in the population is good at psi 'guessing' tasks, it may follow that there is a type who is the antithesis of the 'psi hitter' — the 'psi misser'. In gambling tasks, for

<sup>4</sup> Recall that these Descriptor-pairs are taken directly from the texts of Wilhelm (1989), *I Ching, or Book of Changes*, and Hazel (1990), *Consulting the Coins: A New Age Interpretation of the I Ching*.

example, attempting to achieve a designated outcome (the fall of dice, or coins, or the outcome of cards, etc.) may involve paranormal effects, and not just chance alone. If a certain type of compulsive gambler happens to be a 'psi-misser', and habitually so, there is every reason to suggest that such a person should be persuaded to avoid the indulgence. It might be possible to identify such a person by establishing their personality type, so that appropriate advice could be given, to the benefit of the individual and the wider community. Future research would involve further study of the psi-missing type in the context of personality theory.

## Conclusion
































































The main requirement of a good personality theory is that it describe the nature of the human subject as he or she is, while still maintaining a degree of flexibility that will take into account our developing awareness of the nature of human behaviour. The definition of transliminality, which has changed when inconsistent or unexpected findings arose, is a demonstration of this flexibility.

It is suggested that personality theories might perhaps broaden their compass, particularly when the need arises for a theory to explain ostensible paranormal phenomena associated with certain personality types. Transliminality, as a personality factor in itself, may in part serve this need, and even perhaps fill the gap between personality as it is understood thus far, and personality theory as it continues to unfold and develop.

## EXPERIMENT WITH THE I CHING

### Appendix A

*"Lately or right now, I feel ..."*

 [ ] Creative, Motivated	 [ ] Adaptable, Helpful	 [ ] Retroactive, Concerned	 [ ] Changeable, Transformed
 [ ] Receptive, Accepting	 [ ] Negligent, Habituated	 [ ] Empowered, Tested	 [ ] Spiritual, Fulfilled
 [ ] Troubled, Disorganised	 [ ] Rejuvenated, Generous	 [ ] Progressed, Open	 [ ] Shocked, Aware
 [ ] Inexperienced, Uneducated	 [ ] Contemplative, Cautious	 [ ] Censored, Compromised	 [ ] Meditative, Peaceful
 [ ] Expectant, Apprehensive	 [ ] Hindered, Provoked	 [ ] Loyal, Dedicated	 [ ] Developed, Awakened
 [ ] Conflicted, Tense	 [ ] Gracious, Idealistic	 [ ] Opposed, Contradicted	 [ ] Subordinate, Disadvantaged
 [ ] United, Organised	 [ ] Crest-fallen, Disabled	 [ ] Obstructed, Threatened	 [ ] Abundant, Accomplished
 [ ] Sociable, Cooperative	 [ ] Renewed, Optimistic	 [ ] Liberated, Delivered	 [ ] Mobile, Seeking
 [ ] Restrained, Disappointed	 [ ] Innocent, Truthful	 [ ] Reduced, Impoverished	 [ ] Gentle, Influential
 [ ] Behaviour-oriented, Self-aware	 [ ] Strong, Vital	 [ ] Advantaged, Beneficent	 [ ] Joyous, Generous
 [ ] Prosperous, Fruitful	 [ ] Nurturant, Reappraising	 [ ] Resolute, Intentional	 [ ] Fragmented, Ego-aware
 [ ] Stagnant, Unassisted	 [ ] Stressed, Challenged	 [ ] Tempted, Seduced	 [ ] Limited, Thrifty
 [ ] Unselfish, Caring	 [ ] Endangered, Unlucky	 [ ] Community-oriented	 [ ] Insightful, Unbiased
 [ ] Supreme, Successful	 [ ] Obligated, Dependent	 [ ] Advanced, Fortunate	 [ ] Conscientious, Conservative
 [ ] Modest, Inhibited	 [ ] Attractive, Liked	 [ ] Oppressed, Exhausted	 [ ] Balanced, Prospective
 [ ] Enthusiastic, Harmonious	 [ ] Steadfast, Matured	 [ ] Wise, Hospitable	 [ ] Hopeful, Reserved

## Appendix B

Variance-covariance Matrix for Path Analysis (see Fig. 5)

	perfacm	perfach	ichingq3	perfaca
perfacm	2.831	-	-	-
perfach	-.740	4.124	-	-
ichingq3	.191	-.060	.250	-
perfaca	-.231	1.704	-.015	3.384

## References

- Arbuckle, J.L. (1997). *AMOS User's Guide*. Chicago: Small Waters Corporation.
- Åström, J. (1965). GESP and the MPI measures (Paper read at eighth annual Convention of the Parapsychological Association, New York, 1965). *Journal of Parapsychology*, 29, 292-293 (Abstract).
- Barrett, D. (1992). *Destiny and Your Dreams*. Leicestershire, U.K: Treasure Press.
- Bem, D.J., & Honorton, C. (1994). Does psi exist? replicable evidence for an anomalous process of information transfer. *Psychological Bulletin*, 115, 4-18.
- Brier, B. (1974). Parapsychological principles from anthropological studies. *Parapsychology Review*, 5, 3-8.
- Broughton, R.S. (1991). *Parapsychology: The Controversial Science*. New York: Ballantine.
- Capra, F. (1983). *The Tao of Physics*. Glasgow: Flamingo/Fontana.
- Covello, E.M. (1977). Symbolization of conscious states in the *I Ching*: a quantitative study. *Journal of Altered States of Consciousness*, 3, 111-129.
- Eysenck, H.J. (1967). Personality and extrasensory perception. *Journal of the Society for Psychical Research*, 44, 55-71.
- Green, C.E. (1966a). Extrasensory perception and the Maudsley personality inventory. *Journal of the Society for Psychical Research*, 43, 285-286 (Abstract).
- Green, C.E. (1966b). Extra-sensory perception and the extroversion scale of the Maudsley personality inventory. *Journal of the Society for Psychical Research*, 43, 337 (Abstract).
- Hazel, R. (1990). *Consulting the Coins: A New Age Interpretation of the I Ching*. Port Melbourne: Lothian.
- Humphrey, B.M. (1949). The relation of esp to mode of drawing. *Journal of Parapsychology*, 19, 31-46.
- Irwin, H. (1986). Personality and psi performance: directions of current research. *Parapsychology Review*, 17, 1-4.
- Jung, C.G. (1989). Foreword to *The I Ching or Book of Changes*. In R. Wilhelm, *The I Ching Or Book Of Changes* (pp. xxi-xxxix). C.F. Baynes (trans.). Princeton, NJ: Princeton University Press.
- Kanthamani, B.K., & Rao, K.R. (1971). Personality characteristics of ESP subjects: 1. primary personality characteristics and ESP. *Journal of Parapsychology*, 35, 189-207.
- Kanthamani, B.K., & Rao, K.R. (1972). Personality characteristics of ESP subjects: 3. extroversion and ESP. *Journal of Parapsychology*, 36, 198-212.
- Kanthamani, B.K., & Rao, K.R. (1973). Personality characteristics of ESP subjects: 4. neuroticism and ESP. *Journal of Parapsychology*, 37, 37-50.
- Lawrence, T. (1994). Comment: Tony Lawrence comments on the article by Thalbourne, Delin, Barlow, & Steen (1992-1993). *European Journal of Parapsychology*, 10, 144-145.
- Nicol, J.F., & Humphrey, B.M. (1953). The exploration of ESP and human personality. *Journal of the American Society for Psychical Research*, 47, 133-178.
- Nicol, J.F., & Humphrey, B.M. (1955). The repeatability problem in ESP-personality research. *Journal of the American Society for Psychical Research*, 49, 125-156.
- Palmer, J. (1978). Extrasensory perception: Research findings. In S. Krippner (Ed.), *Advances in Parapsychological Research: 2 Extrasensory perception*. (pp. 59-243). New York: Plenum Press.
- Rao, K.R. (1974). Psi and personality. In J. Beloff (Ed.) *New Directions in Para-*

# EXPERIMENT WITH THE I-CHING

- psychology. (pp 60-76). London: Elek Science.
- Rhine, J.B (1950). *New Frontiers of the Mind*. Harmondsworth, England: Penguin. (Original published 1937).
- Rhine, J.B. (1954). *The Reach of the Mind*. Harmondsworth, England: Penguin. (Original published 1948).
- Rosenthal, R., & Rubin, D.B. (1989). Effect size estimation for one-sample multiple-choice-type data: design, analysis and meta-analysis. *Psychological Bulletin*, 106, 332-337.
- Rubin, L., & Honorton, C. (1971). Separating the yins from the yangs: An experiment with the *I Ching*. *Journal of Parapsychology*, 35, 313-314.
- Rubin, L., & Honorton, C. (1972). Separating the yins from the yangs: An experiment with the *I Ching*. In W.G. Roll, R.L. Morris, & J.D. Morris (Eds.), *Proceedings of the Parapsychological Association 1971*, No. 8 (pp. 6-7). Durham, NC: Parapsychological Association.
- Russell, M.T., & Karol, D.L. (1994). *The 16PF Fifth Edition Administrator's Manual*. Champaign, IL: Institute for Personality and Ability Testing, Inc.
- Sanders, R.E. (1997). The role of transliminality, emotional states as targets, and participant interaction in an ESP task. Unpublished B.A. (Honours) thesis, Department of Psychology, Adelaide, South Australia.
- Sanders, R.E., Thalbourne, M.A., & Delin, P.S. (1998). Transliminality and the telepathic transmission of emotional states: A pilot study. Paper submitted for publication.
- Schmeidler, G.R. (1950). Some relations between picture-frustration ratings and ESP scores. *Journal of Personality*, 18, 331-344.
- Schmeidler, G.R. (1960). ESP in relation to Rorschach test evaluation. *Parapsychological Monographs* No. 2. New York: Parapsychology Foundation.
- Scopp, A. (1974). Self-actualisation and psi: prediction of performance using stepwise discriminant function analysis. In J.D. Morris, W.G. Roll, & R.L. Morris (Eds.), *Research in Parapsychology 1974* (pp. 35-37). Metuchen, NJ: Scarecrow.
- Thalbourne, M.A. (1991). The psychology of mystical experience. *Exceptional Human Experience*, 9, 168-186.
- Thalbourne, M.A. (1994). Postscript to an experiment with the *I Ching*: how many changing lines? *European Journal of Parapsychology*, 10, 130-145.
- Thalbourne, M.A. (1996). An attempt to predict precognition scores using transliminality-relevant variables. *Journal of the Society for Psychical Research*, 61, 129-140.
- Thalbourne, M.A. (in press) Transliminality: correlates and a short measure. *Journal of the American Society for Psychical Research*.
- Thalbourne, M.A., Bartemucci, L., Delin, P.S., Fox, B., & Nofi, O. (1997). Transliminality: Its nature and correlates. *Journal of the American Society for Psychical Research*, 91, 305-331.
- Thalbourne, M.A., & Delin, P.S. (1994). A common thread underlying belief in the paranormal, creative personality, mystical experience and psychopathology. *Journal of Parapsychology*, 58, 3-38.
- Thalbourne, M.A., & Delin, P.S. (1995). Correlates of belief in the paranormal: A partial replication. Unpublished manuscript.
- Thalbourne, M.A., & Delin, P.S. (in press) Transliminality: its relation to dream-life, religiosity and mystical experience. *International Journal for the Psychology of Religion*.
- Thalbourne, M.A., Delin, P.S., Barlow, J.A., & Steen, D.M. (1992-1993). A further attempt to separate the yins from the yangs: a replication of the Rubin-Honorton experiment with the *I Ching*. *Journal of Parapsychology*, 9, 12-23.
- Thalbourne, M.A., & Houran, J. (1999). Transliminality, the Mental Experience Inventory, and tolerance of ambiguity. Submitted for publication.
- Wilhelm, R. (1989). *The I Ching or Book of Changes*. C.F. Baynes (trans.). Princeton, NJ: Princeton University Press.
- Wing, R.L. (1982). *The Illustrated I Ching*. Wellingborough, Northamptonshire: Aquarian Press.

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## Transliminale Samenhang Tussen Paranormale Effecten en Persoonlijkheid in een Experiment met de *I-Ching*

**Samenvatting:** Transliminality is momenteel gedefinieerd als "een hypothetische tendens van psychologisch materiaal om de drempel naar of vanuit het bewustzijn te overschrijden" (Thalbourne, 1998a). We stelden de hypothese dat transliminality een psychologisch proces vertegenwoordigt dat zou kunnen fungeren als een verbindend principe tussen paranormale effecten en andere persoonlijkheidskenmerken. De 93 deelnemers (de meesten waren psychologiestudenten aan de University of Adelaide) voerden een paranormale taak uit met de *I-Ching* (een vorm van klassiek Chinese divinatie). Daartoe behoorde onder meer een poging een vooraf aangegeven hexagram (zeslijng symbool) te realiseren. Elke deelnemer gooide zes keer met drie munten om zes lijnen te verkrijgen. Die werden in een hexagram omgezet. Daarna werd dit hexagram vergeleken met 16 paren hexagrambeschrijvingen die de deelnemer vooraf uit in totaal 64 mogelijke hexagrammen had gekozen op basis van de uitspraak "De laatste tijd of nu voel ik ..." Als het gevormde hexagram bij een van de 16 gekozen beschrijvende paren paste, dan werd dit als een "treffer" beschouwd. Vervolgens vulden de deelnemers de Transliminality Scale (Form B) in en ook de Sixteen Personality Factor (16PF) Questionnaire van Cattell. De trefferpercentages voor de hele steekproef en voor eerdere gebruikers van de *I-Ching* waren slechts marginaal significant. Treffers vertoonden een significante correlatie met transliminality en een aantal 16PF-factoren, waaronder assertiviteit en extraversie. Transliminality correleerde significant met persoonlijkheidskenmerken en met vragen over sheep-goat-factoren. Multiple regressieanalyse en padanalyse werden uitgevoerd en het aantal veranderende lijnen (door three-of-a-kind gooien met de munten) was een andere maat voor paranormale vaardigheid, die significant correleerde met een aantal 16PF-factoren. De gegevens suggereren dat de steekproef twee typen personen met veronderstelde paranormale vaardigheden bevatte. Het eerste type was assertief (met een trefferpercentage van 50%) en het tweede transliminaal (met 40% treffers), terwijl op grond van toeval 25% treffers werden verwacht.

## Transliminalt Förhållande Mellan Paranormala Effekter och Personlighet i ett Experiment med *I-Ching*

**Sammanfattning:** Transliminalitet definieras nu som "en tendens (vilken man antar) att psykologiskt material kan gå över tröskeln till och från medvetandet" (Thalbourne, 1998a). Vi ställde upp hypotesen att transliminaliteten representerar en psykologisk process som skulle kunna fungera som en länk mellan paranormala effekter och andra karaktärsdrag. Deltagarna (93 personer av vilka de flesta var psykologistudenten vid Adelaides Universitet) utförde ett paranormalt uppdrag med *I-Ching* (en klassiskt kinesisk form av spådom). Deltagarna skulle försöka att åstadkomma ett visst hexagram (symbol med sex linjer). Varje deltagare singlarde slant, 6 gånger med 3 mynt, för att få sex linjer som omvandlades till ett hexagram. Hexagrammet jämfördes med 16 par hexagramdeskriptorer som deltagaren selekterade i förväg genom att svara på frågan "På senaste tiden eller nu känner jag att ...". Om resultatet överensstämde med en av de 16 hexagramdeskriptorerparen, betraktades det som "träff". Efter uppgiften kompletterade deltagarna Transliminality Scale (Form B) och även Cattells Sixteen Personality Factor (16 PF) Questionnaire. Procentandelen träffar som gäller för stickprovet och tidigare användare av *I-Ching* var båda marginellt signifikanta. Träffarna korrelerade signifikant med transliminalitet och några 16PF-faktorer, liksom självsäkerhet och att vara extrovert. Transliminaliteten korrelerade signifikant med några personlighetsfaktorer och sheep-goat-frågor. Det genomförde en flerfaldig regressionsanalys och steganalys. Antalet förändrade linjer (genom att singla slant, three-of-a-kind) användes också för att mäta paranormala kunskaper och det korrelerade signifikant med några 16PF-faktorer. Resultaten tyder på att två sorters personer med paranormala kunskaper skulle befinna sig bland deltagarna - en person var självsäker (50 % fullträffar) och den andra transliminal (40% fullträffar), medan fullträffar på grund av tillfällighet beräknades till 25 %.

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### Transliminale Verbindung zwischen Paranormalen Effekten und Persönlichkeit in einem Experiment mit dem I-Ging

**Zusammenfassung:** Transliminalität wird derzeit als die "angenommene Tendenz psychologischen Materials zur Schwellenüberschreitung in das Bewußtsein oder aus diesem heraus" (Thalbourne, 1998a) definiert. Es wurde die Hypothese aufgestellt, daß Transliminalität einen psychologischen Prozeß darstelle, der möglicherweise als ein verbindendes Prinzip zwischen paranormalen Effekten und anderen Persönlichkeitsvariablen fungieren könnte. 93 Teilnehmer (überwiegend Psychologiestudenten der Universität von Adelaide) unterzogen sich einer paranormalen Aufgabe mit dem I-Ging – einem klassischen chinesischen Divinationsmittel. Diese Aufgabe schloß den Versuch ein, ein vorbezeichnetes Hexagramm (sechsliniges Symbol) zu erzielen. Jeder Teilnehmer warf drei Münzen insgesamt sechs Mal, und erzeugte so sechs Linien, die in ein Hexagramm überführt wurden. Dieses Hexagramm wurde dann mit 16 Deskriptorenpaaren für ein Hexagramm verglichen, die die Versuchsperson zuvor aus 64 möglichen Hexagrammen ausgewählt hatte, und zwar in Übereinstimmung mit der Aussage: "In letzter Zeit oder gerade im Moment fühle ich ...". Falls das entstehende Hexagramm einem der 16 designierten Deskriptorenpaaren entsprach, wurde es als "Treffer" eingestuft. Anschließend füllten die Versuchsteilnehmer die Transliminality Scale (Form B) sowie Cattells Sixteen Personality Factor (16 PF) Questionnaire aus. Die Trefferraten für die Gesamtstichprobe wie auch für vorherige Benutzer des I-Ging waren beide nur marginal signifikant. Treffer korrelierten signifikant mit Transliminalität und einigen der 16 PF-Faktoren wie beispielsweise Zivilcourage und Extraversion. Transliminalität korrelierte signifikant mit einigen der Persönlichkeitsfaktoren und Sheep-Goat-Fragen. Multiple Regressions- und Pfadanalysen wurden durchgeführt. Die Anzahl sich verändernder Linien (erzeugt durch Dreierpaschs beim Münzenwurf) war ein weiteres Maß für Psi-Fähigkeit. Sie korrelierte signifikant mit einigen der 16PF-Faktoren. Die Daten legen die Vermutung nahe, daß die Stichprobe möglicherweise zwei Typen von "Psi-Befähigten" (Personen mit mutmaßlichen paranormalen Fähigkeiten) enthalten hat: eine von ihnen mit Zivilcourage (mit einer Trefferrate von 50%), die andere hochtransliminal (mit einer Trefferrate von 40%) bei einer mittleren Zufallserwartung von 25%.

### Connessione Transiliminale tra Effetti Paranormali e Personalità in Esperimenti con l' I-Ching

**Sommario:** La transiliminalità è attualmente definita come "supposta tendenza del materiale psicologico ad attraversare la soglia della coscienza" (Thalbourne, 1998a). E' stato ipotizzato che la transiliminalità rappresenti un processo psicologico che potrebbe agire quale principio di connessione tra effetti paranormali e altre variabili di personalità. Un totale di 93 partecipanti (per lo più studenti di psicologia dell'Università di Adelaide) ha svolto un test paranormale con l' I-Ching, l'antica forma di divinazione cinese, consistente nel tentare di ottenere un particolare esagramma (simbolo formato da 6 linee). Ogni partecipante ha gettato per 6 volte tre monete, per generare le 6 linee costitutive dell'esagramma, che veniva poi confrontato con 16 paia di definizioni di esagrammi preselezionate dal partecipante da un totale di 64 esagrammi, secondo l'affermazione "E infine, o proprio ora, sento ...". Se l'esagramma risultante corrispondeva a una delle 16 paia di descrizioni designate, veniva calcolato un punto positivo (un "centro"). I partecipanti completavano poi la Scala di Transiliminalità (Forma B) e il Questionario dei 16 fattori di personalità di Cattell (16PF). Sia il tasso di successo dell'intero gruppo di soggetti che quello dei soli soggetti che già avevano consultato l' I-Ching erano marginalmente significativi. Il successo correlava in maniera significativa con la transiliminalità e con diversi fattori del 16PF, quali la temerarietà sociale e l'estraversione. La transiliminalità correlava significativamente con un certo numero di fattori di personalità e con le domande pecore-capre. Sono state applicate l'analisi della regressioni multiple e la path analisi. Il numero delle linee "mobili" (generate dalle tre monete che cadevano sulla stessa faccia) era un'altra misura di capacità psi e correlava significativamente con svariati fattori del 16PF. In base ai dati raccolti è stato ipotizzato che nel campione fossero presenti due tipi "abili alla psi" (persone con apparenti capacità paranormali):



uno socialmente intraprendente (con un tasso del 50% di successi), l'altro altamente transiliminale (con un tasso del 40% di successo), con una MCE=25%.

### La Conexión Transliminal entre Efectos Paranormales y la Personalidad en un Experimento con el *I-Ching*

**Resumen:** La transliminalidad se define actualmente como la "posible tendencia de material psicológico a cruzar barreras dentro o fuera de la conciencia" (Thalbourne, 1998a). Nuestra predicción fue que la transliminalidad representa un proceso psicológico que puede funcionar como un principio de conexión entre efectos paranormales y otras variables de personalidad. Noventa y tres participantes (mayormente estudiantes de psicología de la Universidad de Adelaide) tomaron una tarea paranormal con el *I-Ching* -- una forma de adivinación china antigua -- incluyendo un intento de adquirir un hexagrama (símbolo de seis líneas) designado. Cada participante arrojó tres monedas seis veces para generar seis líneas, las cuales eran convertidas en un hexagrama. El hexagrama era comparado con 16 hexagramas preseleccionados por el/la participante de un total de 64 hexagramas, de acuerdo con la afirmación: "Después, o ahora, yo siento ..." Si el hexagrama obtenido se pareaba con uno de los 16 pares designados se consideraba un acierto. Los/as participantes llenaron la Transliminality Scale (Forma B) y el Cattell's Sixteen Personality Factor (16PF) Questionnaire. Las tasas de acierto para toda la muestra y los/as que usaron el *I-Ching* con anterioridad fueron marginalmente significativas. Los aciertos correlacionaron significativamente con la transliminalidad y con varios factores de el 16PF tal como atrevimiento social (social boldness) y extraversión. La transliminalidad se correlacionó significativamente con varios factores de personalidad y con las preguntas de oveja-cabra. Se utilizaron análisis de regresión múltiple y de "path analysis". El número de líneas que cambiaron (generadas arrojando monedas) fue otra medida de la habilidad psi y se correlacionó significativamente con varios factores del 16PF. Se sugiere que dos personas con talento psi estaban presentes en la muestra -- una era sociable (con una tasa de acierto de 50%) y la otra era altamente transliminal (con un 40% de aciertos), cuando la expectativa al azar era de 25%.

### A Conexão Transliminar entre os Efeitos Paranormais e a Personalidade em um Experimento com o *I-Ching*

**Resumo:** A transliminaridade é atualmente definida como "a tendência hipotetizada para material psicológico para cruzar os limiares para dentro ou para fora da consciência" (Thalbourne, 1998a). Hipotetizou-se que a transliminaridade representava um processo psicológico que poderia funcionar como um princípio de conexão entre efeitos paranormais e outras variáveis de personalidade. Noventa e três participantes (principalmente estudantes de Psicologia da Universidade de Adelaide) realizaram uma tarefa paranormal com o *I Ching* -- uma antiga forma chinesa de adivinhação -- envolvendo a tentativa de conseguir um determinado hexagrama (símbolo de seis linhas) como resultado. Cada participante atirou três moedas seis vezes para gerar seis linhas, que foram convertidas em um hexagrama. O hexagrama era então comparado a 16 pares discriminadores de hexagramas pré-selecionados pelos participantes dentre um total de 64 hexagramas, de acordo com a afirmação: "Sinto, ou, justamente agora estou sentindo que ..." Se o resultado do hexagrama correspondesse a um dos 16 pares designados que serviam como modelo, seria considerado um "acerto". Os participantes, então, completavam a Escala de Transliminalidade (Formulário B) e o Questionário de Dezesesseis Fatores de Personalidade de Cattell (16PF). As taxas de acerto para toda a amostra e para usuários anteriores do *I Ching* foram ambas marginalmente significativas. Os acertos se correlacionaram significativamente com a transliminaridade e vários dos fatores 16PF, tais como arrojo social e extroversão. A transliminaridade correlacionou-se significativamente com vários fatores de personalidade e questões cabra-ovelha. A análise de regressão múltipla e a análise do procedimento foram aplicadas. O número de linhas que mudavam (geradas por moedas atiradas de três em três) foi uma outra medida da habilidade-psi, e correlacionada significativamente com

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vários dos fatores 16PF. Sugeriu-se que dois tipos de “pessoas psi” (pessoas com habilidades paranormais ostensivas) estavam presentes na amostra de acordo com os dados — um era socialmente arrojado (com uma taxa de acerto de 50%) e o outro era altamente transliminar (com uma taxa de acerto de 40%), considerando-se que a média esperada pelo acaso era igual a 25%.

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## Research Note: *In Search of Psi in the I Ching Meta-Hexagram*

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**Abstract:** The *I Ching* is an ancient book of divination deriving from China. Using it and (in modern times) three coins, the user poses a question to the Book and enters one (usually changing to two) of the 64 six-line structures (called hexagrams) for an answer to the question. In the present exploratory exercise, a tabulation was made of how many times each hexagram came up in a personal collection gathered over a period of nine years' consecutive use, in the hope of demonstrating deviation from chance according to a number of measures. (It should be emphasised that no claims are traditionally made for the characteristics of the "meta-hexagram" so derived.) A meta-hexagram was derived for first hexagrams ( $N = 696$ ) but the chi-square goodness-of-fit test did not yield significant deviations from chance. The same outcome was found for the second hexagram ( $N = 575$ ). The number of static hexagrams (no changing lines, giving a single unchanging hexagram) was very close to the theoretical percentage. Moreover, mean number of changing lines did not differ significantly from MCE. There were thus no signs of psi in these ways of looking at the hexagrams. Other collections may prove more fruitful.

The *I Ching* is a Chinese book of great antiquity. To use it as a method of divination the user poses a question (yes/no questions are not permitted), and, in modern times, throws three coins six times. Each coin throw yields a "broken" or "unbroken" line, and with six throws there are 64 possible combinations of lines — called hexagrams. A reading is attached to each hexagram, and this is supposed to be the answer to the question. If the user throws three coins of a kind then a so-called "changing line" is generated which reverses its polarity to give an additional reading and a second hexagram, also with its own reading.<sup>1</sup>

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**Acknowledgements:** I wish to thank Dr. Peter Delin, Lance Storm, Bob Willson and Professor Robert Morris for their helpful comments during the preparation of this paper

<sup>1</sup> Questions are sometimes raised concerning the randomness of such coin-tossing and whether it could be biased, purposely or in some other way. A note is appropriate here as to how I performed the coin-tossing for the data in this paper. I cast the coins by having them in a small cup with my

A number of parapsychological studies have been carried out to test the efficacy of the *I Ching*. Apparently the first was by Rubin and Honorton (1971, 1972). They found that control readings were given as high ratings as actual readings overall, but (in a planned analysis) there was a sheep-goat effect inasmuch as subjects who believed in ESP scored significantly higher than those who did not. So perhaps the *I Ching* works, but only for certain types of people.

This conclusion was reached in the second experiment of this kind, conducted by Thalbourne, Delin, Barlow and Steen (1992-1993), where it was found that, though actual and control readings did not differ in rating (the first of three prespecified analyses), those who believed

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hand covering the opening, and shaking the cup vigorously about two dozen times before throwing the coins onto a flat surface such as the floor. Until presented with evidence to the contrary, I believe that this method of randomization is adequate. All future experiments with the *I Ching* should clearly state the method of coin-tossing.

in the *I Ching* scored significantly higher than those who disbelieved (the third planned analysis). The Rubin-Honorton sheep-goat effect (the second pre-specified analysis) was not significantly replicated, but Lawrence (1994) showed statistically, using the criterion of effect size estimates, that the sheep-goat correlation obtained by Thalbourne et al. was not significantly different from the Rubin-Honorton correlation.

Thalbourne (1994), upon noticing runs of changing and unchanging hexagrams in his large personal collection, found that the number of changing lines deviated significantly from chance in certain sections of that collection. This, however, can probably best be described as a post hoc finding in need of replication.

Storm and Thalbourne (1998-1999) also found success in some subjects but not in others: subjects scoring high on the variable known as "transliminality" (psychological material crossing the threshold of consciousness) and on certain other personality factors (such as social boldness) were more likely to obtain a "hit": in this experiment subjects had to designate in advance 16 named hexagrams to describe their recent feelings, one of which hexagrams they thought would come up in the coin toss. In this slightly unorthodox method of using the *I Ching* it was found that, though overall hitting was only marginally significant, some personality types (such as the highly transliminal) were predicted and found to be significantly better at the task than were others. The *I Ching* does not appear to work for everybody.

In an even more unorthodox approach to the *I Ching*, the present exploratory exercise had as its aim the tabulation of all hexagrams privately obtained by the author, which cover a period of some nine years, to form what can be called a "meta-hexagram" (actually two meta-hexagrams, one for first hexagrams [including static, or unchanging hexagrams], and one for second hexagrams, which theoretically arise on 82.2% of occasions.) This procedure was suggested in a passage from Thalbourne et al. (1992-1993, p. 20), where it

was noted that "at least 300 readings would be required before it was really feasible to look at the distribution as a whole." The author's private collection more than adequately fulfilled this requirement. Hexagrams whose total in the meta-hexagram differed greatly from chance might constitute a "reading" in their own right, i.e., a message based on the *I Ching* process over a large number of individual readings, or a general theme in the user's life.

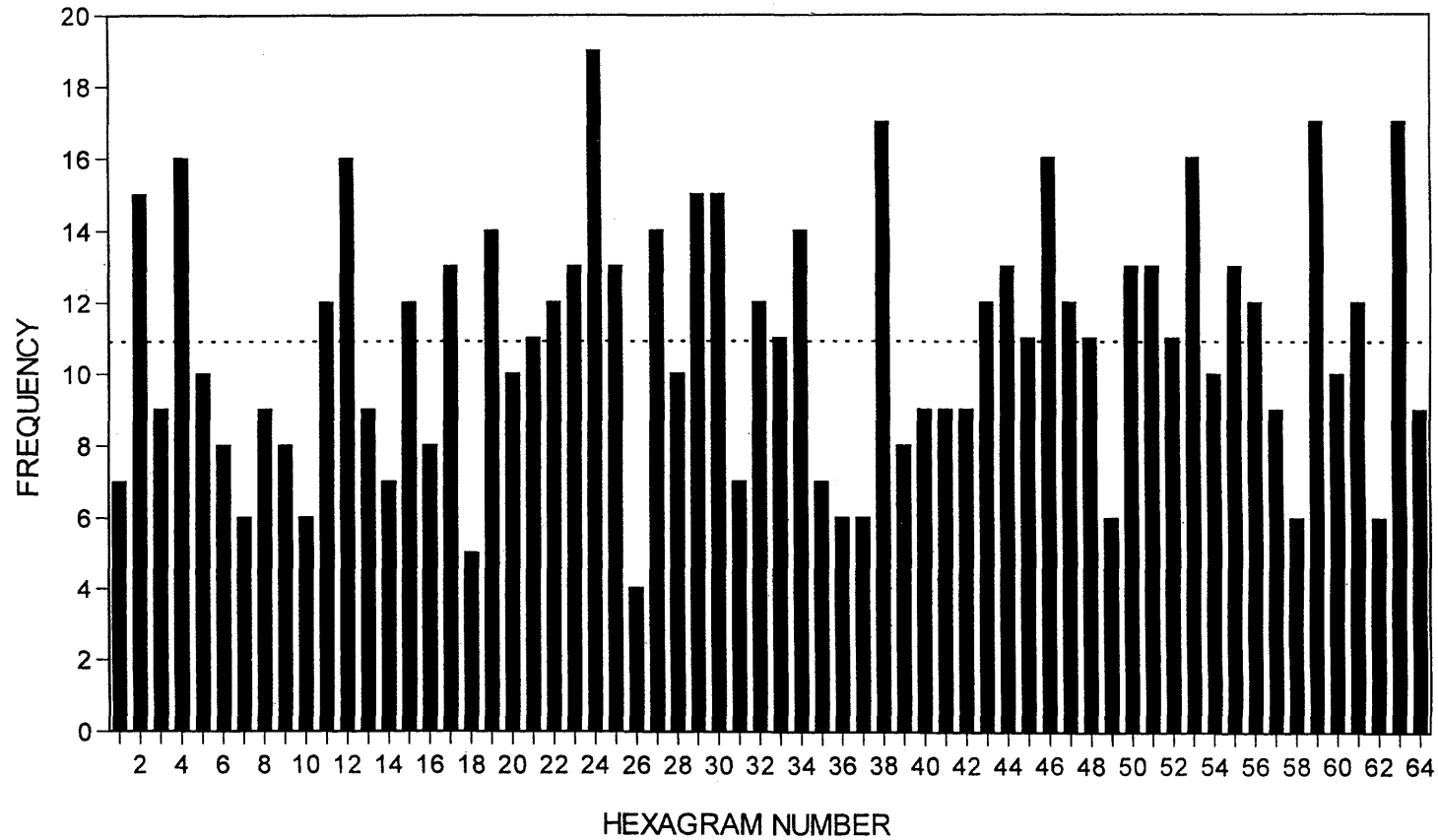
## Method

### *Materials and Procedure*

The *I Ching* used was generally one or other of those published by Wing (1979, 1982) or, occasionally, the version by Richard Wilhelm (1967). Also necessary were recording notebooks, in which were recorded the date and time of each reading, the question, the out-comes of the six coin throws (specifying in particular three coins of a kind) and their conversion to hexagrams, and the number and name of the hexagram(s) so selected. (The recording process was not checked for errors in this series, and it is assumed that if any errors occurred they did so randomly; future series of this kind might usefully incorporate error-checks.) Records for this experiment began at reading #42 (prior readings being poorly recorded) on January 12th 1990 and proceeded through reading #738 given on October 15th 1998 (the last before it was decided to construct the meta-hexagrams), yielding a total of 696 readings, obtained under ecologically valid conditions, and constituting all the readings obtained between those dates with no omissions. It should be pointed out that the data of Thalbourne (1994) are included in this dataset.

Readings were tabulated separately for first (and static) hexagrams and for second hexagrams, ranging from hexagram #1 to hexagram #64. Total number of each hexagram selected was obtained, and the data subjected to a chi-square goodness-of-fit test to see whether the obtained

Figure 1  
*Metahexagram of first hexagrams*



distribution of hexagrams deviated significantly from the rectangular distribution given by chance. Number of changing lines was similarly tabulated for the categories zero through six.

## Results

The distribution of hexagrams for the first hexagram ( $N = 696$ : see Figure 1) gave an expected frequency of 10.875. As can be seen from the Figure, there were various peaks and troughs, but the Chi-square for the overall distribution was  $\chi^2(63) = 71.63$  and non-significant ( $p = .21$ ). The *I Ching* does not, in this sample, appear to be producing specific hexagrams to a degree greater or lesser than chance. (Note that, given a non-significant overall Chi-square, it is not appropriate to proceed to analyse specific peaks and troughs further.)

The distribution of second hexagrams ( $N = 575$ : figure not shown) gave a similar non-significant outcome: expected frequency was 8.98;  $\chi^2(63) = 52.97$ ,  $p = .81$ .

An analysis was performed to examine whether the number of static (unchanging) hexagrams differed from the chance percentage of 17.8%. The figure obtained was 17.4%, clearly in conformity with chance. A static hexagram implies a number of changing lines of zero; number of changing lines (zero through six) was tabulated and averaged, but the mean did not differ significantly from chance of 1.5:  $M = 1.51$ ,  $t = 0.22$ ,  $df = 695$ ,  $p = .83$  (two-tailed). (This result is consistent with the view that there was no bias in the coin-tossing, since coin-throws of three-of-a-kind [producing changing lines] came up with only chance frequency.)

## Discussion

This exploratory exercise — possibly the first of its kind — yielded results disappointing for the psi hypothesis. Despite apparent peaks and troughs in the meta-hexagrams, these were not extreme enough or frequent enough to warrant rejecting the hypothesis that the distribution conformed to chance. And des-

pite runs of readings where the number of changing lines significantly deviated from chance (Thalbourne, 1994), this was not reflected in an overall deviation of number of changing lines or of static hexagrams.

It may be argued that null results were obtained because there is no paranormal component in the operation of the *I Ching*. Against this argument must be arrayed the ostensible psi results obtained by previous researchers, such as Rubin and Honorton, Thalbourne and his colleagues, and Storm and Thalbourne. Some other explanation seems preferable.

Of course it will be argued by the believer that the *I Ching* was never set up or intended for the use to which it has been put here, and therefore has no bearing on the validity of the *I Ching* process as traditionally used, and for which some evidence has been obtained at least for certain groups such as sheep and those persons who are high in transliminality. This objection is reasonable.

In future, it might be profitable to segment the set of readings into those that ask similar types of questions, to see whether there is a commonality in the type of answer given (Thalbourne et al., 1992-1993). For example, a person prone to ill-health or to anxiety about the future might examine just those readings pertinent to questions bearing on such issues. Against this it must be said that the same question asked on different occasions may actually give different outcome hexagrams, ostensibly because of changed circumstances. There is, therefore, less reason to suppose that the same type of question would lead to the same hexagram. In any case it must be emphasised that a large sample is necessary for such analyses, and data-collection under ecologically valid conditions might well take years.

## References

- Lawrence, T. (1994). Comment: Tony Lawrence comments on the article: 'A further attempt to separate the yins from the yangs: A replication of the Rubin-Honorton experiment with the *I Ching* by Thalbourne, Delin, Barlow & Steen (1992-

- 1993). *European Journal of Parapsychology*, 10, 144-145.
- Rubin, L., & Honorton, C. (1971). Separating the yins from the yangs: An experiment with the *I Ching*. *Journal of Parapsychology*, 35, 313-314.
- Rubin, L., & Honorton, C. (1972). Separating the yins from the yangs: An experiment with the *I Ching*. In W.G. Roll, R.L. Morris, & J.D. Morris (Eds), *Proceedings of the Parapsychological Association 1971*, No. 8 (pp. 6-7). Durham, NC: Parapsychological Association.
- Storm, L., & Thalbourne, M.A. (1998-1999). The transliminal connection between paranormal effects and personality in an experiment with the *I Ching*. *European Journal of Parapsychology*, 14
- Thalbourne, M.A. (1994). Postscript to an experiment with the *I Ching*: How many changing lines? *European Journal of Parapsychology*, 10, 130-135.
- Thalbourne, M.A., Delin, P.S., Barlow, J.A., & Steen, D.M. (1992-1993). A further attempt to separate the yins from the yangs: A replication of the Rubin-Honorton experiment with the *I Ching*. *European Journal of Parapsychology*, 9, 12-23.
- Wilhelm, R. (1967). *The I Ching or Book of Changes*. Translated from Chinese into German, and rendered into English by C.F. Baynes. Princeton, NJ: Princeton University Press.
- Wing, R.L. (1979). *The I Ching Workbook*. New York: Doubleday.
- Wing, R.L. (1982). *The Illustrated I Ching*. Wellingborough, Northamptonshire: Aquarian Press.

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## Book Review:

### *Sonhos, Parapsicologia e Aconselhamento* (*Dreams, Parapsychology and Counselling*)

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Claudia T. Coelho

A review of *Sonhos, Parapsicologia e Aconselhamento (Dreams, Parapsychology and Counselling)* by Ricardo Eppinger and Tarcísio Roberto Pallú, Curitiba, Brazil: Oficina de impressão, 1997. Pp. 1-133. For purchasing details contact [eppinger@moebius.psy.ed.ac.uk](mailto:eppinger@moebius.psy.ed.ac.uk).

*Dreams, Parapsychology and Counselling* is a well conceived book, written in Portuguese by two Brazilian parapsychologists with extensive experience in counselling, targeting those who have an interest in parapsychology, on a professional level.

It is written in an accessible and informative way having the potential to reach a vast range of people, introducing a clear view of what could be a pragmatic approach to counselling in parapsychology, restricting its aim to ESP experiences in dreams. The book is organised in the following way. First, a general and view of what parapsychology is, its evolution, particularly in Brazil, and object of study. Second, a brief review of the theoretical ground on dreams, framing the work on the ESP elements in dreams. Third, in the light of this review, the introduction and of a model of parapsychological counselling concerning the experience of ESP elements in dreams, including the methodological framework, research and data analysis process (this work was developed by Eppinger in 1997); also establishing dreams as channels of ESP manifestation. Finally, the last part of the book is dedicated to the possible applications of parapsychology as an intervention area (specifically, the work developed in the graduate course in parapsychology in the Faculty of Bio-Psychic Sciences of Paraná, Brazil, with its emphasis on ESP elements in dreams).

As above mentioned, this book presents a study on the manifestation of ESP

through dreams and its relationship with parapsychological counselling. This is, according to the authors, the therapeutic process in which psi experiences are included in the context of the person's day to day life as positive and integral events. The book addresses, within the realm of modern parapsychology, the practical aspects of counselling with those who experience situations in which elements of known paranormal phenomena are present.

In order to keep the book as informative as possible, the authors take great care in presenting a working definition of parapsychology and a summary of the basic concepts of psi interactions. There are also brief reviews of the main psychophysiological concepts in the study of sleep and dreams.

Dreams have been an object of study in parapsychology for more than a century now. The research done with spontaneous cases showed that the occurrence of ESP type dreams (clearly different from those considered to be usual) confers elements of information from the outside world perceived through ways that presently escape the understanding of the scientific community. These apparent new ways of communication between humans are part of the object of study in parapsychology. Although there is extensive research done on dreams in the Faculty of Bio-Psychic Sciences in Paraná, Brazil, there isn't yet a clear body of work that could serve as a basis for this kind of counselling process.

It is the authors' view that counselling



in parapsychology assumes great importance when we consider the effects that these ESP elements in dreams can produce on the person's life. This issue has particular interest in a country like Brazil where parapsychology has almost a compulsory imprint in the religious context. The confusion between religious beliefs and the knowledge gathered through scientific research is great — as an example, the authors mention the erroneous translation into Portuguese the word *mind* as *espírito* (spirit), which obviously has totally different meanings and connotations. The clarification of information distortions and misleading use of parapsychological data is one of the aims of this book, making it available to those who have any questions arising from their own experiences.

Naturally, like all human experience, the occurrence of psi is embedded in the person's social context, which, in turn, affects the way he or she reacts to the paranormal manifestation. Apparently, the most "natural" and widely accepted context for these phenomena is the religious one (the experience of psi becomes a "mystical experience", or similar). The expression of psi when taken out of this context or unattached to the divine or supernatural can be terrifying. Without an adequate frame of reference to validate the experience, the person can go through states of confusion, disorientation or doubt often reinforced by family, social or cultural contexts.

Brazil is a sort of melting pot of various cultures and belief systems, bringing to this new country specific religious cults, such as Umbanda or Spiritualism (Eppinger and Pallú, 1997). Studies conducted in Brazil indicate that 90% of Brazilians declare themselves Catholic. Simultaneously, Hess (1987) found that a great part of the population also believes in the power of the spirits and, among the Catholic community, a majority wouldn't hesitate in participating in a Spiritualist, Candomblé or Umbanda session. The authors point out that the way reality and dreams are interpreted is strongly tied to one's cultural context. In Brazil, given this particular

cultural and social background, ESP elements in dreams come in the shape of religious symbols — angels, saints, spirits, entities, demons. This aspect is of great importance when considering the possibility of counselling people who have experienced ESP elements in dreams.

Historically, parapsychology in Brazil has its roots in two religious schools: Catholic Church and the Spiritualist Movement. As a direct consequence, most Brazilians associate parapsychology with one of these approaches, which are, by definition, interested in the metaphysical and religious implications and not the psychological aspects of paranormal phenomena. There have been, nevertheless, recent dramatic changes in this scenario since the early nineties, with the creation and growth of the Parapsychological Association (P.A.).

Brazil was also a pioneering country within the academic community, creating in 1980 a four year undergraduate course in Parapsychology in the Faculty of Parapsychology (Curitiba). Concerned with the issue of the parapsychologist's future professional activity, in 1988 the Faculty began to develop a parapsychological counselling program. In fact, in the eighties, the movement leading up to an approach to counselling in parapsychology developed in three focal areas — United States of America, Holland and Brazil. In Brazil, the social importance of the work in parapsychology has since then been recognised and it is the authors' opinion that parapsychology professionals have assumed a determinant position in the scientific and social communities.

In terms of evolution, research in parapsychology has globally followed two different paths: proof oriented research and process oriented research. Along with the scientific demonstration of the existence of psi phenomena, contemporary research has finally given more emphasis and attention to the phenomenology of the events in relation to the wider context of the person. The aim is to identify the process that accompanies or leads the phenomenon itself, trying to understand: the way it comes about in a person's life

context; how it integrates with cognitive / emotional processes; what might cause the process to start or come to an end; what are the general and specific consequences in the individual's life; and other related questions or issues.

The point the authors wish to make is that, in over a hundred years of research in parapsychology, the emphasis has mainly been put on the experimental process and the accumulation of data, attempting to explain how these psi events happen in their "natural" setting. In this vast range of scientific work there is one aspect that has been left out — the humanistic side of psi phenomena. Most of the interactions between the parapsychologist and the subject of a psi event have been designed to obtain information or data on the event itself, thus neglecting the work towards helping those who might experience the spontaneous psi episodes as disturbing events.

This has been the predominant tendency, despite results from recent studies (Irwin, 1994a, 1994b) indicating that more than half of the population in the United States of America reported at least one psi event in their lives — ESP being the most frequent one. Similar data was obtained from a study conducted in Brazil by Zangary and Machado (1996), in which 89.5% of the subjects reported having had at least one paranormal experience. The authors conclude that turning parapsychology into a professional intervention area still has a long way to go in order to meet the public's need for information or answers and, mostly, help and counselling.

There are several known ways of accessing psi information — intuitively through a vivid and significant hallucination, or in a symbolic process such as dream, dramatisation or delirium. Among these processes, there is a significant frequency (60%) for psi events in dreams (source L.E. Rhine, 1966) indicating that dreams could be a significant and frequent channel for communication of psi elements. Similarly, the authors refer to a series of experiments carried out by Kanthamani (1992) comparing the frequency of ESP in a dream state and in the Ganzfeld state.

Here, the results point out a slight advantage of the dream state.

As a possible explanation (also presented in other studies quoted in this book) it is stated that people who don't believe in psi manifestations tend to block ESP information in the waking state; however, when sleeping and dreaming this blockage is eased, allowing ESP information to incorporate dreams. If this premise is accepted, then it is reasonable to believe that the information remains present in the individual's memory, although the content may only be accessible when the person is confronted with its manifestation, then recognising it as something that was already known.

To understand dreams it is necessary to focus on both the physiological and the mental aspect, exploring the dreamt content in its own language. These two aspects obviously interact producing types of dreams that range from physical sensations, intense emotional states and to, in some cases, the manifestation of ESP events. The usual work done on dreams uses as a tool the contrast between verbal language and cognitive elaboration used in the dream reporting and the direct language of the elements appearing in the dream. The process goes through a sort of codification of these elements into understandable ones, thus suffering omissions, generalisations or distortions. It is important to keep these biases in mind and it is also fundamental to be aware that a dream conveys a significant content represented through a particular language — symbols — which can only be interpreted. From the authors' perspective, the language used in dreams includes consistent and complete information modules, however fragmented they may appear to our awake and conscious perception. They apparently come from memory modules where they exist as an interacting, coherent and continuous structure, despite the meaning to which they are afterwards attached (from the elaboration that language itself imposes or the secondary conscious interpretation process). In this way, during the dream, moments and elements seem coherent and

inherently continuous, however broken into disconnected bits when reported.

It is based on Delaney's (1981) idea that most dreams refer to the dreamer himself that ESP manifestations in dreams are included. The point is that dreams are channels through which past, recent and future experiences and meanings are expressed in an image code. Some of these images are fairly common and tend to have shared meaning among dreamers (relating to cultural contexts). Others, on the contrary, have particular and personal meaning, being a kind of message that needs to be understood and accessed by the subject. Keeping this idea as a frame of reference, ESP elements, apart from their symbolic interpretation, are considered to be clues to a broader personal and experiential knowledge.

From their experience in the Research Centre of Psi Dreams, the authors have concluded that a dream is reported as direct and vivid experience, during which the person is reacting instantaneously to the stimuli produced by the brain, usually without the mediation of cognitive processes. In this sense, working with dreams in a parapsychological framework is to verify the occurrence of psi phenomena (precognition, telepathy, and clairvoyance) in dreams, as the authors quite simply put it.

The necessary analysis of dream contents is then conducted as follows: first, the selection of dreams in which ESP elements are present; second, the identification of the personal ESP elements and typical dream type, involving the subject in this quest, facilitating the flow of the report with significant questioning or linking events; then, the aim is to create, with the person, tools in order to promote self-assessment, self-knowledge and self-control in this sort of experience. The final goal of this work is breaking the code in which the ESP information is enclosed, opening up a new world of information other than that conveyed through the five senses (to illustrate this process the authors include at the end of the book a series of characteristic ESP dreams and also some practical techniques that could facilitate

dream remembering and reporting). The relation between dreams and ESP is not yet understood and the authors' effort to present a working plan of dream counselling offers a way to reveal this communication potential.

The plan is based on a research study carried out by one of the authors (Eppinger, 1997), focusing on the occurrence of ESP in dreams, its lifespan distribution, characteristics and frequency. There are significant conclusions to be drawn from this study. It starts with the verification of the determinant role that dreams play in 71.5% of the subjects' lives and the fact that in adult life dreams are remembered more easily — thus underlying the possibility of the ESP elements being identified and worked upon. It is also in adulthood that most of the dreams (64.3%) are expressed in a symbolic way, representing an increase when compared to their incidence in adolescence and childhood. Then, concerning the appearance of ESP elements, it is also in adulthood that most of the precognitive dreams happen. According to this study, 85.7% of the subjects reported having had a precognitive dream, verifying the occurrence of the actual event afterwards (this result is consistent with the data gathered by Rhine). Moreover, 64.3% of the subjects have had this experience more than three times, attributing dreams the status of preferential vehicles for the manifestation of ESP.

The results also indicated that the actual manifestation of the event reported in the precognitive dream is more frequent one week after the dream, closer in space to the person and involving relatives or significant others. In reference to the reactions induced by these dreams, 67% of the subjects reported normal and uneventful reactions and only a small percentage reported anxiety or fear. However, after the actual manifestation of the dream most of the subjects expressed doubts and confusion. This brings us to the relevance of a counselling process aimed at these subjects. When asked if the subjects sought professional help, 78.6% responded negatively. The few that did seek profes-

sional help turned to psychologists or priests, not parapsychologists. Despite this, all the subjects considered counselling in parapsychology an important and desirable alternative.

Directly connected to the last, another issue considered relevant in this book is the distinction between pathological and psi events, as some similar characteristics can be found. Moreover, the confusion between the two situations, and thus the profound disturbance it induces, is often a motive for seeking professional help in this context. The search for information on "what's going on" is the most common one. Eleanor Criswell (1988) organised what could be considered the pattern of reported complaints in parapsychological context, to mention a few: feeling of leaving the body when falling asleep; feeling a strange presence, energies or objects; feeling of being mentally controlled by someone else; channelling experiences; hyper-sensitivity; memories of so called "past lives"; need of protection from unwanted psi experiences or information; wanting to fight negative premonitions and turn them into positive ones; experience of absorbing others' emotions, like intense pain, fear or anger.

Independent from the complaint itself, the authors' experience in counselling indicates that primarily the person only requests information or an explanation for the situation or, interestingly, expert confirmation of the person's paranormal ability. According to the authors, these first requests are ways of covering up disturbance with a sort of detached interest which could be a result of anxiety induced by the unknown. In reality, the most common responses to spontaneous psi events are as those presented by Allen (1988): fear, anxiety, confusion, helplessness, anger, depression, feelings of oppression and loss of control, fragmentation.

As in any other helping process, the outcome depends greatly on the needs expressed by the subject. It varies from the need to develop psi abilities, to dealing with the anxiety and other guilt related feelings produced by the event. In every

case the assessment process (directed at the subject, social environment and support structures) is fundamental to ensure the success of the process. Ideally, the counsellor should have an overview of the person's perspective, including psychological, biological, pathological and phenomenological aspects of the experienced psi event. Despite the apparently unique aspects of the psi elements, counselling in parapsychology is very similar in process psychological counselling. The main tenet of the helping process here presented is the interaction between the individual and the environment. It is necessary then to understand the triggering event, assess how the subject lived through the experience and consequences, trying to bring it into the person's day-to-day life and course of development, to use and control as a new world of potential communication. Keeping in sight the subject's personal and social adjustment, the work is done with (not for) the subject. This approach is rooted in a humanistic and transpersonal conceptualisation of these experiences.

There are, nevertheless, some practical questions that haven't yet been answered when considering counselling as a consistent body of work, such as: at what level should this counsellor intervene? What theoretical knowledge and training should one have? What resources should there be available? Is there real need for this sort of professional? The authors have looked for answers in their research, always considering that it is important to keep a scientific quantitative and qualitative approach to the process. It is by the possible results that the counsellor's work in parapsychology should to be accurately oriented.

From Rhine's to the authors' work, it has been made quite clear the distinction between two groups of goals in the parapsychological intervention realm (as stated above) — information and advice directed at the general public/media; individual counselling. The first group of goals includes: workshops and supervision for other professionals (psychologists and other health specialists), who frequently discard or overlook ESP

elements or experiences; information within the community; publishing of informative and rigorous scientific papers (especially in a country like Brazil); elaboration of informative material for the public/media. The authors present in this book a series of guidelines for these activities — conferences, workshops and case studies. Globally, these pointers highlight the need for a systematic, simple, scientifically sustained and pragmatic approach to paranormal phenomena — frequency, incidence and specific characteristics.

The second group of goals is a much more specific area of intervention and should be carried out by professional counsellors. Ideally, according to Hastings (1983), a counsellor should be trained in clinical psychology, psychotherapy, counselling and parapsychology, enabling him/her to make the interface between the understanding of psi experiences and emotional, behavioural, cognitive and personality factors. This group of goals includes: direct counselling; research into the differentiation between psi experiences and pathological or emotional disturbance (allowing differential diagnosis). In this area the authors present a specific process of assessment, diagnosis and intervention.

The initial assessment, is considered by

the authors to be the fundamental step in order to establish a base line for the event, specific complaints, needs, expectations and motivations towards the helping process. This can be done through interviews (paying special attention to the personal view of the experience, the language used to describe the event and the social context to which the subject belongs), questionnaires and rating scales. Then, the differential diagnosis is based on a thorough case study, keeping in mind that there are two main disorders that need to be distinguished from the psi event — psychosis and organic disorders. When the psi experience is adequately established, the actual counselling is initiated directed at the goals chosen in the partnership relation between subject and counsellor. Commonly, what is looked for is a sort of balance aiming at: reduction of fear and anxiety states; raised awareness of the event itself; integration of the event in the subject's developmental process; promotion of the individual's self esteem. In the end, the aim is to help the person understand and feel in control of psi experiences. Finally, the authors make it quite clear that it is necessary to be open to the intervention of other health care professionals, when needed, working in partnership.

# References

- Allen, G.K. (1987). Clinical perspectives on assessment and treatment of individuals who reported disturbing psychic experience. *Theta* 15, 30-41.
- Criswell, Eleanor. (1987). Psi in Psychotherapy. *Theta* 15, 42-47.
- Delaney, Dr. G.. (1991). *Breakthrough Dreaming*. New York: USA Press.
- Eppinger, R. (1997). *Um Estudo Exploratório da Manifestação da ESP Através dos Sonhos: Uma Abordagem Parapsicológica*. (unpublished paper).
- Hastings, A. (1983). A counselling approach to parapsychological experience. *Journal of Transpersonal Psychology* 15, No. 2, 143-167
- Hess, David. (1987). Religion, heterodox science and Brazilian culture. *Social Studies of Science* 17
- Irwin, H.J. (1978). ESP and the human information processing system. *Journal of the American Society for Psychical Research* 72, 111-125.
- Irwin, H.J. (1994a). The phenomenology of parapsychological experiences. In Kripner S. (Ed.) *Advances in Parapsychological Research* 7. Jefferson: McFarland.
- Irwin, H.J. (1994b). *An Introduction to Parapsychology* (Second ed.) Jefferson: McFarland.
- Kantanami & Broughton (1992). An experiment in ganzfeld and dreams. *Proceedings of the Parapsychological Association 35th Annual Convention*, 59-73
- Rhine, L.E. (1966). *Canais Ocultos do Espírito (Hidden Channels Of The Mind)*. São Paulo: Bestseller.
- Zangari, W. & Machado, F. (1996). Survey: Incidence and social relevance of Brazilian university students' psychic experiences. *European Journal of Parapsychology* 12, 75-87.

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## Book Review:

### *Guidelines for Extrasensory Perception Research*

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A review of *Guidelines for Extrasensory Perception Research*, by J. Milton and R. Wiseman. Hatfield, UK: University of Hertfordshire Press, 1997. Pp. 94. £12.45 pbk. ISBN 0-900458-74-7.

I've always wondered what estate agents mean by "deceptively spacious" — looks big, but tiny once you get inside? So to be perfectly clear, to say this book is "deceptively slim" is to say that it is small in dimensions, but substantial in content. Milton and Wiseman's *Guidelines for Extrasensory Perception Research* is an extremely useful and informative text that leads the reader through the methodological do's and don'ts of conducting ESP research. It is not an exhaustive and incredibly detailed consideration of the issues (nor does it claim to be), but it does an admirable job of flagging these issues succinctly and suggesting where further relevant reading can be found.

The book is the second title in a practical series, complementary to the first title: *Guidelines for Testing Psychic Claimants* (Wiseman & Morris, 1995). Following a foreword by Professor Robert Morris, holder of the Koestler Chair of Parapsychology, the authors begin at the most basic level by explaining what an ESP experiment is and describing the main different types of ESP methods (e.g. forced-choice and free-response studies). Then a series of concise chapters deal in roughly chronological order with the different issues involved in researching ESP: pre-specification of experimental details and statistical tests; methods of randomisation; randomness testing; type of participant (special, selected or unselected); sensory shielding (pre-trial safeguards, safeguards during the trials, post-trial safeguards); free-response judging; recording, checking, scoring and

calculation procedures; and reporting and retaining data. Consideration is also briefly given to experimenter fraud, to consultation with magicians, to the use of appropriate statistics, and to arguments for and against the use of a 'non-ESP' control condition. There is an extensive reference list, but no index.

A wide range of people could benefit from the advice given by Milton and Wiseman: undergraduate students and their supervisors planning an ESP project; those teaching in parapsychology and psychology; parapsychology researchers, whether "young blood" or "founding fathers"; and journal editors, particularly mainstream journals where there is a risk that the editors and referees are not well-acquainted with methodological issues in ESP research. In fact I think the book should be compulsory reading for anyone planning or evaluating ESP research.

The appendix contains an invaluable methodological checklist which essentially summarises the book's main recommendations. The checklist includes information derived from a survey by Milton (1996) of parapsychology experimenters' and critics' judgements as to how important it is to attempt to address the recommendations. This is useful because the full list of recommendations is likely to be quite daunting, not only to the undergraduate student who may be planning a parapsychology project, but even to parapsychologists who may have considerable resources at their disposal. *Guidelines* shows us the heights to which we must aspire, the ideal "wish list" for a

methodologically superb experiment. Even if, in practical terms, we must sometimes reach compromise solutions to methodological problems, *Guidelines* helps us at least to know where and why we fall short.

#### References

Wiseman, R. & Morris, R.L. (1995). *Guidelines for Testing Psychic Claimants*. Hatfield, UK: University of Hertfordshire Press.

Milton, J. (1996). Establishing methodological guidelines for ESP studies: A questionnaire survey of experimenters' and critics' consensus. *Journal of Parapsychology*, 60, 289-334.

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## Book Review: *Icelandic Spiritualism*

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A review of *Icelandic Spiritualism: Mediumship and Modernity in Iceland* by William H. Swatos, Jr., and Loftur Reimar Gissurarson. New Brunswick, New Jersey USA: Transaction Publishers, 1997. Pp xvii + 269. £25.95 Hbk. ISBN 1-56000-273-5.

Iceland produced only one physical medium of note, Indridi Indridason, who was discovered accidentally in 1905 and died prematurely of tuberculosis in 1912 at the early age of 29. Readers may be familiar with the monograph on this medium in the Proceedings of the S.P.R. for January 1989 by L.R. Gissurarson (co-author of the present volume) and Erlendur Haraldsson. Here, Chapter 3 rehearses the events of his brief career, but within the wider context of Spiritualism in Iceland, to which it gave such a dramatic boost.

The first author is a Canadian sociologist of religion who became acquainted with the Icelandic community in Manitoba, Canada. The second author, who is well known to parapsychologists, is an Icelandic who obtained his Ph.D. from the University of Edinburgh under Professor Robert Morris. The Introduction sets out, as the main question which the book seeks to answer, why Icelandic society and culture, including the Icelandic State Church, became so deeply penetrated by the phenomena of Spiritualism and the implications of this fact for sociological theories. This theme is taken up again in the final chapter, where the authors argue that the case of Iceland demonstrates that "the sacred takes meaning precisely as it runs in and through the everyday life-world in constant dialogue with the mundane elements of day-to-day existence", contrary to what the sociologist Durkheim, who drew a firm distinction between sacred and profane, would have predicted.

However, readers whose interests are primarily parapsychological rather than

sociological will want to turn to Chapter 3, which plunges us into the events surrounding the young Indridason, and the turmoil which these created for Icelandic society. A special Experimental Society was duly set up to deal with his mediumship, and the passions this aroused among the Icelandic public. Unfortunately, like other physical mediums, Indridason could function only in darkness, mitigated only by the occasional striking of matches or spontaneous luminous phenomena. Within these constraints, however, the phenomena were varied, spectacular, and often boisterous, with the occasional levitation of the medium himself, sometimes right up to the ceiling. There was even the occasional full-form materialisation.

The investigators were no easy push-overs, including Einar Kvaran, the distinguished writer and journalist, and Haraldur Nielsson, a prominent theologian, who became respectively president and vice-president of the "Experimental Society" — the first such society to be devoted to psychical research. But the man who in the end did more than any other to give the case legitimacy was Dr Gudmundur Hannesson, who became Professor of Medicine at the University of Iceland from 1911 to 1946, and was indeed twice president of the University of Iceland.

Mediums aside, however, the question which this book raises is whether Iceland is more susceptible to the allure of the paranormal than other countries. Erlendur Haraldsson (to whom this book is dedicated) published his comparison of representative national surveys of belief in

psychic phenomena (Haraldsson 1985), covering the USA, Great Britain, West Germany and Scandinavia. From this it transpires that Iceland is, indeed, well ahead of these other countries with respect to respondents reporting personal experiences of contact with the deceased. Thus, while 41% of Icelanders gave positive responses, no more than 9% of Danes did so, despite the fact that Denmark has closer historical links with Iceland than any other country.

All in all, the book can be confidently recommended to those who are interested in either mediumship or Iceland, or both.

## References

- Gissurarson, L.R. and Haraldsson, E. (1989). The Icelandic physical medium Indridi Indridason, *Proceedings of the Society of Psychical Research*, 57, 55-148
- Haraldsson Erlendur (1985) Representative National Survey of Psychic Phenomena: Iceland, Great Britain, Sweden, USA and Gallup's Multinational Survey. *Journal of the Society for Psychical Research* 53, 145-158

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## Book Review: *Advances in Parapsychological Research 8*

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*Advances in Parapsychological Research 8.* Edited by Stanley Krippner. USA:  
McFarland and Co., 1997. Pp. 331. \$85.00, cloth. ISBN 0-7864-0390-X

In this, the eighth instalment of the *Advances* series, we are offered five chapters relating to a variety of psi phenomena, an updated select bibliography of books on parapsychology, a tribute to Emilio Servadio (to whom the book is also dedicated) and a handy introduction summarising the book's contents. I have always been keen on the *Advances* series as representing a useful and fairly wide-ranging review of recent research in the field, and the latest edition is no exception. The emphasis this time is towards real-life settings, with articles on spontaneous psi, links with complementary medicine and aspects of social science which relate to psi research.

Douglas Stokes starts off with a chapter on involuntarily produced cases of spontaneous psi phenomena, recurrent or once-off. Several examples of the phenomena are given, along with methods for studying them, and a critical discussion of possible processes underlying and influencing them. Interestingly, Stokes highlights the bias towards ESP-type cases over physical ones, quoting Louisa Rhine's 10,000 plus ESP cases versus 178 PK-like ones. He suggests that this may be due to the increased difficulty in ruling out conventional physical causes, but also to the stronger prejudice to the idea of macroscopic PK phenomena amongst both sceptics and psi researchers. Stokes also mentions the small but significant number of researchers who argue in favour of the generally unpopular (or at least unfashionable!) "discarnate agency" hypothesis. He concludes with a cogent argument as to the place of spontaneous phenomena in modern research:

offering unique insights as to the natural role of psi and being capable of producing significant psychological changes that do not necessarily rely on the "reality" of the physical phenomena themselves.

Next is a review by Loftur Gissurarson of techniques which might enhance performance in PK tasks, split into the six categories of hypnosis, yoga / meditation, relaxation, feedback, negative reinforcement / punishment, and visual imagery. The hypnosis section describes some interesting studies, but goes on to highlight methodological problems with all of them, concluding that studies to date can at best only be suggestive of PK enhancement. A similar conclusion is reached for studies involving meditation, noting that although all but one of the quoted studies "evidenced some significant occurrence of PK apparently in relation to meditation practise", shortcomings in the study designs meant that further research would be needed for a more conclusive judgement to be made. The relaxation section starts with a brief, somewhat disconnected review of the role of relaxation in ESP studies, mentioning that this research grew out of Honorton's "noise reduction" model but making no attempt to relate this to the concept of PK. It then goes on to detail studies of PK using both mental (e.g. release-of-effort) and physical (e.g. muscle tension) relaxation techniques. Gissurarson sums up the studies with the statement that "it would appear that some sort of 'mentally relaxed' frame or mode of mind is more likely to yield extra-chance PK scores than mental approaches that involve what can be regarded as opposite processes or cond-

itions". In giving examples of this frame of mind as being non-analytical, "passive and effortless", and "non-striving and non-competitive", he highlights a problem with many areas of psi research — the lack of clear and generally agreed upon definitions. While it does appear that differing mental states are associated with performance in psi tasks, there are too many other variables involved in the manipulated states to allow easy interpretation.

Another important aspect of any psi experiment seems to be the feedback given to the participant, although the tendency for researchers to assume that the only feedback in a study is that explicitly provided results in confusion as to what quantity or complexity of feedback is required. Gissurarson suggests that, instead of unconscious participant psi, experimenter PK might be the most parsimonious explanation in cases of hidden or null-feedback tasks. He does not consider the possibility of more subtle feedback, either conventional demand characteristics or other non-sensory cues — could, for example, the PK agent be able to detect and respond to the electromagnetic radiation emitted by a hidden target system? He rightly finishes by stating that, as usual, more research needs to be done.

The interesting (in the current politically correct climate) question of negative reinforcement is also addressed, with several studies using annoying or unpleasant stimuli to discourage PK-missing. Partly due to the small amount of work carried out in this area (Gissurarson cites only 5 studies), the results are ambiguous but worthy of study for the design of future experiments. Finally, the role of visual imagery is considered, especially in relation to the volitional aspects of the strategy employed by the agent to attempt the PK task. Goal-oriented imagery (where the participant concentrates on the desired outcome rather than the minute-by-minute process) was the most successful strategy explored, although it is noted that practise in such mental exercise over a period of time did not increase PK scoring. The author notes

that goal-oriented imagery should therefore be considered as important, but that its true role remains to be discovered. In summary, Gissurarson details studies by the researchers at the Princeton Engineering Anomalies Research (PEAR) laboratory and by Kenneth Batcheldor, looking at the various mix of strategies employed by people in prolonged psi activity. He stresses the importance of psychological variables, be they in the form of a fear of success or of the feeling that one can form a rapport with the target system. Overall this chapter offers a good insight into the vagaries of research into psychokinesis, with the author making many valuable points for the experienced as well as budding researchers. It would have been useful if the chapter had been extended to cover some of the physical as well as psychological variables that might relate to PK work, but perhaps such will form a chapter on its own in the next *Advances*?

In another chapter which aims to address the role of psi in everyday life, Sybo Schouten reviews psychic healing and complementary medicine, concentrating primarily on the actual or perceived success of treatments rather than mechanisms. He asks why, "despite the general success of conventional allopathic medicine, and in view of the ambiguous effects of psychic healing", the various forms still attract large numbers of patients. This chapter is one of the most comprehensive, offering examples of studies in experimental and real-life settings, discussions on the role of expectancy, descriptions of the subjective experience of being healed, profiles of those who go to be healed, and a summary of the more conventional forms such as acupuncture and homeopathy. He also considers the concept of "placebo effects" — where effects are found which appear to be based on the beliefs of the patient rather than on the treatment itself — pointing out that it is an inherent part of all healing, conventional or otherwise. He ends by offering possible interpretations of the many studies that have been carried out, concentrating on some conventional physical and psychological explanations.

An interesting point made is that conventional medicine focuses on the existence of some objective condition which produces the subjective symptoms, which limits its application to cases where illness is related to psychological factors. Complementary medicine, on the other hand, tends towards a more holistic approach which might help the patient to understand and to come to terms with their symptoms as well as helping to relieve them.

Much to my surprise, one of my favourite chapters was that of Athena Drewes, on "Testing children for paranormal abilities". In a wonderfully clear and concise style, Drewes presents a good case for the benefits of an increase in research with children. She shows a good understanding of the inherent problems involved in such work and offers much valuable advice to those who might wish to conduct child-based studies. She points out that most work in this area has concentrated on either memories of past lives or RSPK, and has lacked systematic work into developmental issues: does psi experience and ability change with age? What is the earliest stage at which psi might occur? Such questions are valuable from both the psi and mainstream angles, offering insights into the child's experience of their environment. Drewes closes with a paragraph of something rarely seen in academic psi research articles — down to earth advice! Her final postscript addresses possible concerns of parents with children who have had psi experiences, with useful suggestions that should be palatable to both proponents and sceptics alike.

Finally, Marcello Truzzi writes on sociological and social-psychological aspects of conjurors and psychical research, this last term being used in its broadest definition to include all psi phenomena, be

they in the laboratory or the real-world. He starts by looking at the contradiction of psi researchers who acknowledge the value in being advised by conjurors and the frequent antagonism between the two groups — recent polls are quoted as showing between 47% and 87% of conjurors expressing a belief in ESP but only 3% of psi researchers agreeing that "most magicians believe in the reality of psi". Truzzi goes on to question the dichotomy between true psychic and mentalist, giving examples of many mentalists who think they have unreliable but true abilities, and of psychics who, for a variety of reasons, "cheat" when they have the chance. The chapter's main thrust is to look at the obstacles which make co-operation between conjurors and psi researchers difficult, and then to make some initial suggestions as to how to overcome these.

The best quality of the *Advances* books is that they manage to bring together an eclectic mix of research topics, written with the styles of the individual authors intact but while still giving a balanced presentation of the topics. As such, they represent a good introductory book for students and other aspiring psi researchers as well as being a valuable source book for the more experienced. My only real quibble would be the price: at around £50 (US\$85), it may be beyond the means of the people who would find it most useful. Librarians please take note!

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## Book Review: *Shopping for Miracles — a Guide to Psychics and Psychic Powers*

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Mary Rose Barrington

A review of *Shopping for Miracles — A Guide to Psychics and Psychic Powers* by Joanne DS McMahon, Ph.D., and Anna M Lascurain, Esq. Los Angeles: Lowell House, 1997. Pp. ix-xii, + 138, Appendix A and B and index. £15.95 hbk.

This is a very curious book. The first author is Director of the Eileen J. Garret library of the Parapsychology Foundation, and it is clear enough that she is well acquainted with the research literature detailed in some 13 pages of bibliography, while the second author is an advocate.

It was presumably Dr McMahon's task to give some outline of what is meant by "psychics and psychic powers" and though the selection is inevitably personal and arbitrary, the first 18 pages give a good idea of the broad scope of the subject. She then focuses on the Piper mediumship, rounding off this section with a few pages on the mediumship of Noreen Renier, a contemporary psychic.

We suddenly change gear and are launched into a lively description of fraudsters and hoaxers who have been brought to justice in American courts in recent times. One of the expert witnesses for the prosecution is described as "a man named Dr William George Roll". He assured the court that no psychic could be expected "to connect with a large number of people over a short period of time thorough a commercial mailing list". No one would disagree.

After that section, the guide to the meaning of "psychic powers" continues with what one might call the phenomena of the fairground-palmistry, Tarot, and sundry forms of divination ranging from Greek entrails and the Witch of Endor to "What to expect during a visit to a psychic".

We then return to the sphere of fraudulent practice, which seems to be fairly rife

in the USA and to rely on a degree of willingness by fools to be parted from their money. It may be because the average American has more surplus cash to waste or that salesmanship is a more highly developed art, but this leads on to a good deal of advice about what to do, and where and how to complain, if you think you have been ripped off by a self-styled psychic.

In the midst of these warnings to hold on to your wallet is some solid and useful material on the "Barnum" effect, i.e. the sort of statements that nearly everyone will accept as a fair description of themselves. I wonder if this is the sort of discussion that is going to be taken to heart by the sort of "consumer" who paid 100 dollars (each) for some rotten tomatoes to trap the devil that was said to be sitting on her shoulder? For the slightly more cautious customer we are given the sound advice that a Tarot reading twice a year for 25 dollars is reasonable and that an astrological natal chart need not cost more than 150 dollars.

In Appendix A we return to five centuries of psychics (Nostradamus, Swedenborg, Blavatsky, Cayce and Garret), this section looking very much as if it had been lifted out of the chapter that examined the career of Leonore Piper, where one would have expected it to belong. Appendix B is a list of research organisations, followed by consumer protection bodies in the USA.

One has to wonder what sort of person this book is aimed at. If it is to advise the reader not to be taken in by the sort of scam that would not deceive a ten year old, that sort of reader is not likely to read or buy books, though they might take notice of a

magazine headline or TV show exposé. If consumer protection is the main object, there are surely far worse predators than pseudopsychics around: cowboy builders, blandishments to collect your free gift, letters that start ingratiatingly "Dear Mr Bannington, you have been specially chosen ..."

There are different ways of looking at a book that combines two slim volumes into one book on two subjects, one viewpoint

being that you get two for the price of one. The other viewpoint is that you get a moderately entertaining ragbag from one author and some sporadic insights from the other.

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## Book Review: *The Conscious Universe: The Scientific Truth of Psychic Phenomena*

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A review of *The Conscious Universe: The Scientific Truth of Psychic Phenomena* by  
Dean Radin, PhD. San Francisco: Harper Edge, 1997. Hbk: £16.50/\$25.  
Pp 345. ISBN 0-06-251502-0

*The Conscious Universe* is an inspirational introduction to experimental parapsychology that ambitiously reviews the results of hundreds of studies conducted over the past century and sets these within a philosophical, sociological and metaphysical context. Such a remit has the potential to be a laborious read, but in fact Radin's wry humour, flair, and clarity of writing style mean that this book is easily accessible to readers. The humour sometimes catches you by surprise. For instance, in Chapter 15 Radin quotes the philosopher Nietzsche's famous phrase: "God is dead". This is followed by a reference to the chapter notes at the back of the book, where one finds the postscript: "It is rumoured that a few decades later, God replied with, 'Nietzsche is dead.' " (p.318).

The intended readers are, as Radin indicates in his introduction, those whose prior contact with the field has primarily been limited to the kinds of caricatures that appear in the popular media, with which most of us are painfully familiar. Professional parapsychologists might also find the book useful, as an up-to-date general reference text. Each chapter is supported by notes at the end of the book, and these are followed by 25 pages of references and a detailed index.

Radin does an admirable job of taking

the novice on a journey that begins with simple definitions of terms. He considers the importance of replication and the role of meta-analysis in achieving it, reviews the major findings of experimental parapsychology, and ends with metaphysical considerations such as bidirectional causation. My principal reservation is that from my perspective (as a professional parapsychologist whose opinion about the existence of psi is neutral shading into positive), I see the book as a brilliant act of rhetoric, persuasive to the novice, but perhaps less persuasive for those with a detailed knowledge of the controversies that both strengthen and hinder parapsychology. Before attempting to justify this reaction, let me give a more detailed account of the book's contents.

*The Conscious Universe* is organised into four themes: motivation, evidence, understanding, and implications. The four chapters under the motivation theme argue persuasively that, although psychic experiences have been reported across centuries and across cultures, we must move to experimental techniques to provide convincing evidence of psi. The reader is introduced to the importance of replication, and critically, to the use of meta-analysis as a way of measuring replication. Radin thus lays the foundations for the heart of the book: evidence.

The accumulated evidence for psi is presented in Chapters 5 to 9: Telepathy; Perception at a distance; Perception through time; Mind-matter interaction; and Mental interactions with living

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**Acknowledgements:** My thanks to Dr Julie Milton, Prof. Robert Morris and Dr Fiona Steinkamp for their helpful comments on an earlier draft of this review.



organisms. Chapters 10 to 12 deal with the relatively recent Field consciousness studies, Psi in the casino, and Applications. In most of these chapters, Radin gives a clear introduction including a brief history of research attempts, and a description of typical methodology. He then presents diagrams, supported by the text, summarising meta-analytic treatments of hundreds of studies in various groupings (e.g., grouped according to research centre; grouped according to methodology), often with a combined 'all studies' estimate of effect size. The diagrams are a useful technique for visually summarising an otherwise overwhelming amount of detail. If one accepts them at face value, they appear to provide similarly overwhelming evidence for the reality of psi or, if one were to be more cautious, for the presence of an unexplained effect in the experiments.

The third theme, understanding, considers why, despite the public availability of such apparently overwhelming evidence, parapsychologists still struggle for funding and few scientists seem to be aware of the evidence for psi. In the final theme, Radin gamely considers the implications of this evidence for theory development, science, philosophy and religion.

Although Radin claims to have 'de-emphasized' his personal role in experimental parapsychology, his passion for the subject permeates the text and it is quite likely that many readers will find his enthusiasm to be contagious. This could be no bad thing for parapsychology, if it increases informed interest in the field, especially among potential funders. Radin argues, however, that accepting psi is not a question of faith: the results speak for themselves and throughout the book he presents an apparently persuasive statistical case for the reality of psi phenomena.

He states: "The evidence for these basic phenomena (various forms of telepathy, clairvoyance, precognition, psychic healing, and psychokinesis) is so well established that most psi researchers today no longer conduct 'proof-oriented' experiments. Instead, they focus largely on "process-

oriented" questions ... " (p.6, my parentheses). Radin's argument depends on the strength of meta-analysis as a technique for demonstrating that we have replicable evidence of psi. Now here comes one of these irritating disclaimers: *I'm no statistician, but ...* what I have experienced and read of meta-analysis leads me to believe that the use of this technique, while an improvement on the traditional narrative literature review, nevertheless is not quite such an objective and polished approach as Radin portrays.

When conducting a meta-analysis, one codes a study according to various criteria. Not only is the selection of what criteria to include a personal decision, but often the published study details do not give information that fits neatly into the coding categories. Moreover, if the original study reports several different outcome statistics, the meta-analyst must decide whether to use an averaged outcome measure, restrict the database to those studies only reporting one type, and so on. No option is entirely satisfactory and in this decision, as in so many others made during meta-analysis, a complex and more or less subjective judgement call is required.

Radin does not ignore these potential problems, stating: "critics of meta-analysis (critics are everywhere) have argued that these integrative techniques can be biased or oversimplified" (p.54) and he argues in return that "meta-analysis requires explicit details of how the analysis was performed, thus allowing independent analysts to confirm the evaluation. Also, when we use *all* the relevant studies in the analysis rather than just the "good" studies, most of the problems related to reviewer bias are prevented" (p.54). In practice, when analysts with different opinions and orientations attempt to conduct identical meta-analyses, one quickly sees disagreements emerging over coding, and over interpretation of the outcome. This illustrates that meta-analysis often does not provide neat, cut-and-dried answers to questions.

So far as the book is a vehicle for presenting the evidence for psi, Radin is in some sense in a no-win situation. If he

does include all the gory details then the book would be five times as long, the arguments would be convoluted, and the target audience would give up after the first couple of chapters. If, as I think, he glosses over coverage of factors that muddy our interpretation of experimental parapsychology's results, then he risks presenting too rosy a view of our findings so far and our future prospects.

Earlier, I said I viewed the book as a brilliant act of rhetoric. This is in part due to the clear structure and ambitious scale of the book. I am particularly impressed by Radin's attempt to set these experimental findings in their broader scientific and philosophical context. This is something that is often skimmed on in other books.

For example, in chapter 15 (Metaphysics), Radin charts the change in worldview from mediaeval times, where scholastic authority shaped our view of nature. The discoveries of Copernicus, Descartes, Galileo and Newton gave science power and split our worldview into two: the part that was considered unmeasurable — the mind part — became the domain of philosophy and religion; science gave us the metaphor of the universe as a "great machine" — the matter part. Radin then considers how this bipartite worldview is beginning to break down. For example, the 'weird' world of quantum physics with its concepts — measurable, not abstract or metaphorical — of non-local correlation and of the importance of the observer that seem to suggest a kind of action at a distance that does not fit

easily into a world-view that separates mind from matter.

Radin argues: "Parapsychology fits in this picture by straddling the edge separating the mind-oriented disciplines such as clinical and transpersonal psychology and the matter-oriented disciplines such as neuroscience and cognitive science. Parapsychology explicitly studies the interactions between consciousness and the physical world. It assumes that downward causation exists in some form, and it assumes that scientific methods can be used to study this middle realm in a rigorous way. Thus the persistent controversy over psi can be traced back to the founding assumptions of modern science." (p.263). I think this is an excellent conceptualisation of parapsychology's position.

To sum up, my impression is that the book is less of an impartial presentation of the evidence for psi than Radin claims. Yes, data can speak for themselves, but our interpretation of what they say must be tempered by a consideration of the strength of the original studies, and of the analysis techniques. The informed reader therefore might not accept Radin's interpretation uncritically. As an introduction to experimental parapsychology, and in how Radin sets this in its broader perspective, I think the book is superb.

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## Book Review:

### *Tracks in the Psychic Wilderness: An Exploration of ESP, Remote Viewing, Precognitive Dreaming and Synchronicity*

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Joseph W. McMoneagle

A review of *Tracks in the Psychic Wilderness: An Exploration of ESP, Remote Viewing, Precognitive Dreaming and Synchronicity* by Dale E. Graff (Former Director of Project STARGATE), USA: Element Books, Inc., 1998. £12.99 hbk. ISBN 1-86204-203-9

Picking up Dale Graff's book, I didn't really know what to expect. Unfortunately, I had been front-loaded by numerous individuals who simply shrugged a "more of the same," message in my direction. As a result, I tried very hard to turn the initial pages with an open mind.

The facts are: if you begin this book with an expectation that you will discover secret knowledge or gain meaningful insight into the unknowns about remote viewing, then you will be sadly disappointed. Likewise, being critical from a literary point of view, he probably could have done better with a professional editor. Additionally, providing answers to a larger portion of his self-generated questions could have helped. On the surface, for those of us in the know, it seems to leave one a bit dissatisfied.

However true, these criticisms are far too harsh, because Dale does provide us with some very intriguing views of the remote viewing experience that are generally not found within more scientific publications. In a framework of small anecdotes and stories, he cracks the door to remote viewing potential, suggests some very inventive uses for it, and all within the context of its very strangeness. So what if some of what he says seems to be out of context? It was strongly reminiscent of my

own initial exposure to the subject matter — which was complicated, emotionally overwhelming to some degree, and most certainly confusing.

Buried within the context of his narrative is a vast array of valuable nuggets, or insights about remote viewing and remote viewing subjects. As in real life, these appear and disappear, as softly do real tracks through a wilderness.

Whether using remote viewing to communicate with submarines, in support of his own Coppermine River-Expedition, or in passing messages vis-à-vis a magazine, Dale's insights are softly but matter-of-factly presented, in a mysteriously compelling simplicity.

Some of his comments about psi and dream states, while understated, are significant. And, his comparison of psi functioning to a creative-collaboration through the reduction of ego is very interesting.

*Tracks in the Psychic Wilderness* may not belong on the top shelf in the library, but it nevertheless deserves a place within the library.

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## Abstracts: Quaderni di Parapsicologia Vol XXIX - Nos 1 & 2

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*Quaderni di Parapsicologia* Vol XXVIII, Ottobre 1997, No 2

### **Poltergeist-type Experiences and a Tentative Explanatory Framework**

**Massimo Biondi**

**Abstract:** Three new, poltergeist-type cases are described, about which the author was interested and performed direct enquiries. The first case occurred in the early Sixties and consisted of sounds heard by a woman and her husband when they were in the home of her late mother-in-law. Many years elapsed from the time when the case occurred and when the enquiry was performed, and an interesting feature was observed: whereas second and third-hand informants recalled many outstanding phenomena, focal people remembered the occurrences in a reduced and likely form. A brief remark about testimony psychology is offered.

The second case occurred about twelve years ago in the form of a typical stone-throwing poltergeist. The author was called to the location and arrived when the phenomenon was still active, but ascertained only a strange psychological relationship between two people involved in the events. Nothing unexplained or unexplainable was observed on that occasion.

Lastly, a poltergeist-type case with "demonic possession" features is described. The author hastened to the location and found a complex situation between the members of the family involved in the phenomena (especially disturbances to places and people). Signs of dissociation disorder were identified in a teenage girl and a brief psychological intervention was considered necessary. Afterwards any exceptional phenomena ended.

From these experiences, and an extended analysis of the literature about poltergeist / haunting phenomena, a psychiatric / psychological explanation for similar cases is suggested: the phenomena are produced by normal means and processes by the people involved, but only when and where they are subjected to mentally troubling causes, bound to natural characteristics of the people and places and predisposing neural disorders. "Paranormal", or exceptional, occurrences could be actually only normal phenomena, exceptionally perceived or explained due to the abnormal psychological state of the focal people.

Pp 36-48

### **Hermeneutics and Parapsychology**

**Giuseppe Perfetto**

**Abstract:** After having dealt with the definition of metaphysics and parapsychology, the author presents his own point of view on the hermeneutic approach to parapsychology. The most recent philosophical developments are focused on the critical examination of nature, and on the limits and validity of knowledge. The latest progress in this field is represented by the introduction of hermeneutics, which can be defined as the art or the technique of interpretation. The main concern of hermeneutics is the subjective aspect of knowledge, not the objective one. In the parapsychological domain hermeneutics can be applied for connecting the paranormal phenomenon with the different elements forming the subject's psychology. Of paramount interest is also the comprehension of the reasons and the modalities by which these experiences are tied to the psychological history of the subject. The author analyses too the relationship between parapsychology and the New Age movement, the sceptical groups, and the scientists.

Pp 49-68

## ABSTRACTS

### Nobel Prizes and Parapsychology

Bruno Severi

**Abstract:** The author's goal is to respond to the repeated observations of many critics that parapsychology is mostly sustained by unlearned and naive people. The Author disagrees with this claim and supports his view by listing the most famous scientists who are or were favourable to the existence of paranormal phenomena or showed a strong open attitude. The list is quite long, and it is possible to find more than ten Nobel Prize winners other than innumerable other world-wide appreciated personages. The author maintains also that nowadays there are some scientific (academic) domains which seem far more metaphysic than parapsychology is, and some of the most important scientists in these fields suggest truths which appear more heretic than parapsychology does. As a consequence, the academic position became more and more disconcerted and confused. A wider or a new paradigm seems impending or necessary in the very near future.

Pp 79-88

### CSP On-line

B. Severi & G. Gardini

The new website of CSP in Internet is described (<http://www.comune.bologna.it/iperbole/centrsp/> Email: [centrsp@iperbole.bologna.it](mailto:centrsp@iperbole.bologna.it)). The site now appears renewed and extended. In particular there is a kind of on-line journal called "Gli Speciali" (in Italian) dealing with Shamanism and altered states of consciousness. In the future, other topics will be treated. It also contains the index of all issues of the CSP Journal *Quaderni di Parapsichologia*, partly translated into English. Some other interesting on-line sites concerning both parapsychology and spirituality are also described and recommended to the readers of *Quaderni di Parapsichologia*.

Pp 89-95

### *Quaderni di Parapsicologia* Vol XXIX, Marzo 1998, No 1

#### "Sleep Paralysis" and Aliens

Bruno Severi

**Abstract:** The author deals with the problem of Old Hag, i.e. the nocturnal attack by supernatural beings such as demons, monsters, witches, vampires, etc. The victim awakes abruptly feeling a weight pressing on his chest, at times seeing or perceiving a threatening presence in the room. He tries to move, struggle or scream, but in vain; he is paralysed. These dramatic experiences appear to be transcultural and have always pervaded the folklore, the legends, the tales and the mythologies. There seems to exist a close connection between these experiences and the modern notion of alien possession / abduction. Such phenomena are now mostly thought to be the expression of a sleep disorder known as hallucinatory sleep paralysis or hypnagogic / hypnopompic sleep paralysis. This disorder is characterised by horrifying hallucinations accompanied by paralysis of the victim's body at the moment of falling asleep or on waking. The origin of this condition is believed to reside in the dream state, which, in some instances, begins just prior to falling asleep or persists in the period immediately upon weakening. The subject is fully aware of his condition, but is unable to move any of the involuntary muscles of his body or to speak. At this point dramatic hallucinations of different type appear: tactile, kinaesthetic, visual,

olfactory or auditory, accompanied by fear. Or, more simply, he vaguely feels an undetermined, generally malevolent, presence. The similarities between the Old Hag syndrome and hallucinatory sleep paralysis are quite striking. According to an increasing number of researchers, the hypothesis of a direct and reciprocal relationship between them appears fully justified. Narcolepsy too, another so-called sleep disorder, seems often involved in these experiences. The author suggests that endogenous hallucinogens might play a direct role in provoking such experiences.

Pp 5-18

### **Freud and Ferenczi: Correspondence 1914-1919**

**Giulio Caratelli**

**Abstract:** Giulio Caratelli, author of many essays dedicated to the interests of the psychoanalysis and psychology's fathers towards the paranormal, including an article about the correspondence between Freud and Ferenczi in the period 1908-1914, has been inspired by a recent article published in France to comment on some letters exchanged by the two great psychoanalysts during the years 1914-1919. After having pointed out Jones' strong resistance towards psychical research and the full possession of mental faculties by Ferenczi until his death, the author explains that in the considered period, some letters containing allusions about the paranormal (in this case, Jung's supposed prediction concerning a misfortune hitting Freud), also include concurrent superstitious comments concerning the psychoanalyst's father, though he had recognised that many superstitious beliefs had to be considered as products of the unconscious. These comments concerned the date of his death and the fatal influence of some numbers. Hints to this superstition can be found in a letter sent to Jung in 1909 and in some important essays written afterwards by Freud. An interesting exchange of correspondence, occurring in 1915 about Freud's presumed "premonitory dream" regarding his son Martin, who had gone to the war front, points out that Freud was more and more convinced about the reality of telepathic phenomena, a circumstance to be confirmed in the important subsequent essays of 1921.

Pp 19-30

### **Why Parapsychologists are interested in Near-Death Experience (NDE)**

**Piero Cassoli**

**Abstract:** The author surveys the reasons which induced parapsychologists to be interested in the NDE; among them he outlines the unsatisfactory answers about death and after death given by both religion and philosophy. When the NDE became of public concern, parapsychologists were attracted by these experiences because they were often accompanied by another intriguing phenomenon: the Out-of-Body Experience (OBE). In this paper the author recalls research on the externalisation of both senses and motor functions carried out by historical metaphysicians such as Albert De Rochas. He reviews also the hypothesis of the existence of an astral body and the recent studies of psychic healers who seem to externalise something from their bodies able to influence the outer reality. From these considerations, he believes that all these phenomena, NDE included, are due to the emanation of something from our body and such an explanation could be applied to psychic phenomena too.

Pp 31-40

## ABSTRACTS

### **In Defence of Roberto Setti**

**Alfredo Ferraro**

**Abstract:** The author deals with the significant production of physical phenomena carried out by one of the most famous mediums in Italy, Roberto Setti from Florence, during mediumistic seances. The author argues against some members of the most important Italian sceptic organisation who claim that such phenomena are easily reproducible with tricks. He contends that these physical phenomena, which covered almost all aspects of PK, occurred in such a way and under such particular conditions that the tricks suggested by sceptics are not possible.

Pp 42-56

### **Comment on the DAT Theory as described in a recent issue of the *Journal Of Parapsychology***

**Bruno Severi**

**Abstract:** The Decision Augmentation Theory (DAT), as has been presented by E.C. May and colleagues in two recent papers appearing in *The Journal of Parapsychology* (Volume 59, No 3, 1995) is here described and commented upon. According to the author's opinion, this theory shows many interesting novel features and could represent a start point to begin a new speculative trend aiming to unify the various parapsychological theories. Some debatable aspects are also outlined which at present limit its applicability. Particularly relevant seem those regarding its non-comprehensive nature, i.e. it can explain certain alleged physical paranormal phenomena (micro PK), but not others (especially in the macro PK Domain). The author suggests that an interesting area in which DAT might play an important role is that of luck, now under investigation by many parapsychologists and research centres.

Pp 69-77

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## Erratum

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Wilfried Kugel wishes to bring the readers' attention to some calculational errors that he found in his paper *Amplifying Precognition* in a previous issue of EJP (Volume 8, 1990-1991)

On p89 corrected formulae should be:

$$q_{aI} = \frac{F}{(F+A+L+M)} \quad \text{and} \quad q_{bI} = \frac{A}{(F+A+L+M)}$$

$$q_{aII} = \frac{L}{(F+A+L+M)} \quad \text{and} \quad q_{bII} = \frac{M}{(F+A+L+M)}$$

$$q = \left\{ \left( \frac{(F+M)}{(F+A+L+M)} \right), \left( \frac{(L+A)}{(F+A+L+M)} \right) \right\}$$

On pp 92 and 93 (tables 2 and 4), the phrase "between call and target" should be removed.



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## Publication Policy and Instructions to Authors

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The aim of the *European Journal of Parapsychology (EJP)* is to stimulate and enhance activity in parapsychology, especially in Europe, by communicating research results and issues related to parapsychology. To this end, *EJP* publishes original papers on a variety of topics including empirical, theoretical, historical and sociological issues. Translations of papers originally published in a language other than English are also welcome.

The *EJP* actively encourages the submission and evaluation of papers before the experimental data have been collected. The study's rationale, number of subjects and trials, hypotheses and planned statistical analyses should all be included in such submissions. Priority will be given to the publication of such studies.

Manuscripts, written in English, should be submitted preferably on computer disk in ASCII format. Otherwise, authors should submit three copies, typed double-spaced throughout. The organization of the paper must be clearly indicated by appropriate headings and subheadings. Include names of authors, positions and other affiliations, and mailing addresses. Each table should be given a descriptive title. Number tables consecutively with Arabic numbers in order of their mention in the text. Figures should be drawn on white paper in black lines: because they are normally reduced in reproduction, allowance should be made for the corresponding reduction in the thickness of lines and the space between them. References in the text should be indicated by dates in parentheses following the authors' names and should correspond to an alphabetical list at the end of the paper. References to books should include year of publication. References to journal articles should include volume number and year of publication. When quoting from a book or article, indicate the page(s) on which the quote appears. For statistical analyses,

report not only the inferential statistics (e.g., *t* values) but also the descriptive statistics for the data evaluated (e.g., group means and standard deviations). Report the number of subjects, trials or experiments on which the analysis was based, and where possible report effect sizes (e.g. actual values of correlation coefficients), and give exact probability values. Such information can be vital for later cumulative reviews, including meta-analyses. The *EJP* adheres to British Psychological Society style rules; please see volume 10, p. 151 for details. Each manuscript must include an abstract of not more than 200 words.

The *EJP* is published in the first quarter of each year. **The annual deadline for submissions is 31 August.** Subscription fees include shipping costs, and subscriptions may be taken out for one year (£12) or two years (£24). For members of the *Parapsychological Association*, a reduced rate is available of £10/£20. Please make payment in Pounds Sterling. Payment in any other currency must include an additional £8 for the cost of currency exchange to Sterling. Cheques should be made payable to 'The Koestler Chair of Parapsychology'. All submissions and subscriptions to and enquiries about the Journal should be sent to *European Journal of Parapsychology*, Koestler Chair of Parapsychology, Department of Psychology, University of Edinburgh, 7 George Square, Edinburgh EH8 9JZ, Scotland, UK. Alternatively, email [Fiona.Steinkamp@ed.ac.uk](mailto:Fiona.Steinkamp@ed.ac.uk).

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