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PHENOMENOLOGY OF EMBODIMENT

CHRISTOPHER M. AANSTOOS

ABSTRACT: Building on Merleau-Ponty's ontology of the lived body and the author's own previous research on the phenomenology of embodiment, this paper depicts the body as a "long body," that is, as an existential "inhabiting" of the world. This presentation includes two facets: a philosophical reflection on this ontology of the body, followed by an examination of its implications for parapsychology.

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CHICKS AND ALGAE: THE REMOTE INFLUENCE OF DESIRE

DONALD BEDFORD, HERMAN KRUIJSSE, WILL VAN DER LEIJ, ANITA NEL, & MARK SHUTTLEWORTH

ABSTRACT: Psychokinesis in humans is the direct, nonlocal influence of *intentionality* on a physical system. In animals, particularly primitive animals, the notion of intentionality is problematic, and hence we define animal PK to be the direct, nonlocal influence of *desire.* An attempt, using a modification of Peoc'h's apparatus, to quasi-replicate his purported demonstration of PK on a randomly controlled robot by 7-day old chicks failed to find any evidence of the phenomenon. An extension of this idea using an ultraprimitive living organism, green algae, and a quantum random event generator also found no evidence of the phenomenon.

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PRECOGNITIVE AVERSION

DARYL J. BEM

ABSTRACT: At an earlier PA Convention, I reported on a phenomenon called "Precognitive Habituation" (PH). The PH effect is a psi variation of a well-known psychological phenomenon, the habituation of arousal to an affectively arousing stimulus that occurs after repeated exposures to that stimulus. For example, Dijksterhuis & Smith found in one habituation experiment that participants subliminally exposed to extremely positive and extremely negative words subsequently rated those words as less extreme than words to which they had not been exposed: Negative words were rated less negatively and positive words were rated less positively. The PH procedure tests for precognition by, in effect, running a standard habituation procedure in reverse. Instead of exposing a participant to repeated exposures of a stimulus and then assessing his or her liking for it, the PH procedure reverses the sequence: On each trial the participant is first shown a pair of negatively arousing or positively arousing (erotic) photographs on a computer screen and asked to indicate which picture of the pair he or she prefers. The computer then randomly selects one of the two pictures to serve as the "habituation target" and displays it subliminally several times. If the participant prefers the picture subsequently designated as the target, the trial is defined as a "hit." Accordingly, the hit rate expected by chance is 50%. The PH hypothesis is that the repeated exposures of the target can reach back in time to diminish the arousal it would otherwise produce, rendering negatively arousing targets less negative and erotic targets less positive. (This latter effect on erotic targets can be conceptualized as precognitive boredom.) Operationally, participants are predicted to prefer the target-to-be on negative trials and the nontarget-to-be on erotic trials. Across several studies, these predictions were confirmed: The hit rate was significantly above 50% on negative trials (52.6%, t (259) = 3.17, p = .0008) and significantly below 50% on erotic trials (48.0%, t (149) = -1.88, p = .031). Unexpectedly, when the number of target exposures exceeded 8, a precognitive boredom effect also occurred on low-arousal "control" pictures. The current experiment was designed to explore this effect further across a range of low-arousal pictures, both positive and negative (in which it is probably more accurate to conceptualize it as precognitive aversion). Two hundred participants, 140 women and 60 men, participated in a 24-trial session that presented 10 supraliminal exposures (750 ms) of the target picture after each preference judgment. Overall, the hit rate did not differ from chance, but participants low in arousability or boredom tolerance achieved an overall hit rate of 47.3% (p = .006). Consistent with the reasoning behind the protocol, participants who were low in arousability displayed significant precognitive aversion on trials with negative targets (46.9%, p = .036) and

participants low in boredom tolerance displayed precognitive boredom on trials with positive targets (44.4%, $p = .005$).

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IMPLICIT MEASURES OF PARTICIPANTS' EXPERIENCES IN THE GANZFELD: CONFIRMATION OF PREVIOUS RELATIONSHIPS IN A NEW SAMPLE

JAMES C. CARPENTER

ABSTRACT: This study is a follow-up to my report in which transcripts of 364 ganzfeld sessions that had been collected previously in several laboratories were analyzed using a set of 36 rating scales developed to implicitly assess the approach and quality of experience of the percipient in the situation. A number of significant, apparently meaningful, and somewhat internally consistent relationships were observed in that sample. Multiple regression analysis was applied to the data in order to generate a cluster of items that, if pooled, might be expected to be a useful predictor of ESP success in a new sample. An additional, independent sample of 251 ganzfeld sessions drawn from 3 previously conducted studies is analyzed here in terms of this predictive cluster, and a significant discrimination of hitting and missing sessions is found. All data were then pooled and subjected to correlation and regression analyses. A significant portion ($n = 241$) of the sample was contributed by persons active in the arts, who scored more highly than the nonartists. The 2 groups are analyzed separately, as well as pooled. Hitting was predicted primarily by neutral or positive physical/emotional experiences in the session and by imagery suggestive of a capacity for self-transcendence, emotional closeness, and deep trust. Missing was predicted mainly by excessive verbosity, an overly cognitive, intellectualized approach to the task, anxiety and attendant defenses against anxiety, and (for persons in the arts) by more indirect indications of an unhappy adjustment to the situation. Ways in which such findings may guide future research are mentioned.

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EXTENDING THE ECOLOGICAL PSYCHOLOGY PARADIGM OF PERCEPTION: A NEW FORUM FOR PSI RESEARCH

IGOR DOLGOV

ABSTRACT: Ecological psychology takes the position that perception is direct and immediate rather than being cognitively constructed from impoverished sensory stimuli. These basic assumptions, as well as other principles of the

ecologically motivated perceptual paradigm make it appealing to research classically done in the fields of parapsychology and engineering anomalies. Yet, typically followers of the ecological psychology position only consider perception of information that is utilized in a narrow range of basic activities, such as navigation and locomotion. The ecological assumption is that the typical nonshifted state of the perceptual mechanism as optimized for action is the state in which the perception-action remains. I proposed that for instances of behaviors that are more complex, the ecological assumption of an optimal nonshifted perceptual state may be somewhat shortsighted. In this paper, I review the basic principles of ecological psychology and point out the fact that these principles are also prevalent in some animist, pagan, and eastern cultures. I then discuss how these cultures offer a different perspective on perception in complex behaviors, in which practitioners take advantage of intentional, functional alterations of their consciousness in order to gain access to typically unavailable sources of veridical information. This implies that in some instances, perception in altered states of consciousness should be viewed as shifted or even improved, rather than distorted or impaired, as proposed by the current ecological model. I note that awareness of the utility of functional altered states for enhanced perception in other cultures can illuminate and refine the ecological model of perception to encompass more complex, real-world phenomena. I conclude by elaborating on the observation that the ecologically motivated paradigm provides an exciting opportunity to extend psi research into an emergent, prudent branch of psychology and to obtain additional popular and academic exposure that such work deserves.

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THE SENDER AS A PK AGENT IN ESP STUDIES: THE EFFECTS OF AGENT AND TARGET SYSTEM LABILITY UPON PERFORMANCE AT A NOVEL PK TASK

Nicola J. Holt & Chris A. Roe

ABSTRACT: Our recent work has been concerned to evaluate whether the sender plays any active role in successful ganzfeld GESP experiments. In 2003, we and our colleagues used a random number generator (RNG) as a "virtual receiver" in a ganzfeld, in an attempt to detect any sender effect. During the sending period, descriptive statements were "selected" from among a pool of 768 to give a 20-item "RNG mentation" that may represent a more direct measure of any sender influence than the mentation of the "human receiver." A suggestive effect was obtained, with a 32.5% hit rate, when an independent judge used the "virtual mentations" to select the target clip from 3 decoys ($z = 1.48$, $p = .069$, 1-tailed). We later sought to replicate this effect and, further, compared ganzfeld trials with no sender and standard ganzfeld trials. Support for the hypothesis

that senders exerted some influence on the virtual receiver was obtained, psi success across 2 independent judges being higher in ganzfeld trials with a sender. One judge obtained 42.1% hits in trials with a sender (SOR = 43, z = .821, p = .412, 2-tailed) and 17.6% hits in trials with no sender (SOR = 47, z = -.868, p = .384, 2-tailed), whereas another judge obtained 26.3% hits in trials with a sender (SOR = 44, z = .616, p = .535, 2-tailed) and 5.9% hits in trials with no sender (SOR = 46, z = -.651, p = .516, 2-tailed). A third experiment in this series is presented here. The protocol was adapted in order to obviate the need for a human receiver. The focus for senders hence became the "virtual receiver." This displayed the statements to the sender as they were selected, as an analogue to hearing feedback from a human receiver in the ganzfeld. Senders could rate how well each statement corresponded with their sending experience. The lability of the target was manipulated (following earlier experiments by Braud). Twenty-four statements were selected for each trial, from a pool of 416, 8 by each of the following processes, which increased in lability: a random number table; a pseudo random process; and a live RNG. It was hypothesised that the greatest psi effect would be found with the most labile target. Further, drawing upon Stanford's conformance behaviour model, it was hypothesised that senders with the most "stable" trait characteristics would achieve higher psi hitting. Forty trials were conducted, the virtual mentations of which were rated by 2 independent judges. Significant psi-hitting was not obtained in any of the randomness conditions, although there was a trend towards psi-missing in the live condition for one judge (z = -1.485, p = .069, 1-tailed, r = .235) and a trend towards psi hitting in the pseudo condition for a newly recruited independent judge (z = 1.485, p = .069, 1-tailed, r = .235). However, there was a significant interaction effect between target and sender lability, across both independent judges (F4,74 = 4.959, p = .001). The hypothesis that "stable" senders would demonstrate higher psi hitting with the most labile target system was confirmed. Further, senders with high trait lability performed best with the most stable target system. This was interpreted as indicative of a reciprocal influence between labile and stable aspects of systems. Explanations for the overall lower psi outcome of this study were addressed in terms of the feedback potentially hindering motivation and the implications of direct rather than indirect intention, which was introduced in this study.

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ENVIRONMENTAL SENSITIVITY: A LINK WITH APPARITIONAL EXPERIENCE?

MICHAEL JAWER

ABSTRACT: Psi researchers often use the term "sensitivity" when theorizing that certain persons may be more apt to register anomalous influences than others. Through a review of the literature, it is argued that some individuals

are predisposed toward a range of innate sensitivities that, in novelty as well as intensity, distinguish them from the general population. It is hypothesized that such persons will exhibit greater susceptibility to a range of environmental factors, including allergies, migraine headache, and chronic pain and fatigue. Furthermore, it is suggested that sensitive individuals will report a higher than average degree of psi perception as well as electromagnetic influence. Through a 54-item survey designed by the author, the following issues are evaluated: the extent to which persons who describe themselves as "sensitive" appear to be affected by such factors, whether their immediate family members may be similarly affected, to what extent environmental sensitivity parallels apparitional experience, and how such findings compare or contrast with questions asked of a control group. Based on both the literature and the survey results, the author argues that sensitivity is a bona fide neurobiological phenomenon. Although no single factor in a person's background is likely to distinguish him/her as "sensitive," 8 demographic or personality factors are found to be statistically significant. If further studies were to document similar results, a more tangible basis would be provided for the study of apparitional experience than has been possible to date.

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EVIDENCE OF BRAIN CORRELATIONS BETWEEN ISOLATED HUMAN SUBJECTS: ELECTROENCEPHALOGRAPHIC (EEG) STUDY IN A POPULATION OF EXPERIENCED MEDITATORS

LEILA KOZAK[1], LEANNA J. STANDISH[1], CLARK JOHNSON[1,2], TODD RICHARDS[1,2], & BRENT K. STEWART[1,3]

ABSTRACT: The purpose of this study was to determine whether brain activation triggered by a visual stimulus in a member of a bonded pair could be detected in the other member who was physically distant and sensory isolated. Sixteen subjects (n = 16) who had undergone primordial sound meditation (PSM) training participated in the study. Subjects were asked to meditate together twice a day for 30 days before beginning the study. Simultaneous digitized EEG was recorded in pairs of human subjects while members of the pair were placed in sound attenuated rooms separated by 10 m. The stimulus condition consisted of a flickering black and white checkerboard pattern (2.11 cycles/degree) presented on a video monitor at a flickering rate of 1 Hz. Senders were presented with a series of 6 alternating stimulus-on/stimulus-off conditions (on/off/on/off/on/off) of random time duration ranging from 20 to 50 seconds. EEG data were analyzed looking for changes ("hits") in the nonstimulated subject's EEG activity (receiver) that were time-locked to their partner's stimulus-on condition. Test results at $p < 0.01$ were considered evidence of brain correlations. Of the 16 receiver sessions recorded during each visit, 4 sessions showed brain activity that was significantly correlated with their partner's stimulus-on condition ($p < 0.01$). None of the pairs replicated the results. In 1 case, a statistically significant result

was observed during the stimulus-off condition. Results indicate that in some pairs of human subjects a signal may be detected in the brain of a distant member of the pair when the other member is visually stimulated. Data support the findings of similar studies published by other laboratories throughout the world.

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PSYCHOKINESIS ON SINGLE QUANTUM EVENTS USING FALSE FEEDBACK

HERMAN W. KRUIJSSE, DONALD BEDFORD, WILL VAN DER LEIJ, ANITA NEL, & MARK SHUTTLEWORTH

ABSTRACT: Although psychokinesis is perhaps the most experimentally accessible of anomalous phenomena, interest in laboratory studies seems to have waned because of a failure to produce significant effects under experimental manipulation. This presentation reports 2 PK experiments in which the RNG was varied and experimental manipulation was introduced. The output of the RNG's was visualized online and experimentally manipulated by randomly balanced positive false feedback. In Study 1, a traditional electronic RNG (Orion REG) was used. In Study 2, a radioactive source (thorium) and a GM tube particle detector (sqREG) were used to generate a few single-quantum events per s. It was assumed that reducing the rate of quantum events would enhance the effects of intentionality. The results of both studies suggest that false feedback is associated with an increase in the differences between means under intentional conditions. The use of an RNG with a reduced number of quantum events per unit time proved promising.

Tangent Projects
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FACTORS AFFECTING THE RELATIONSHIP BETWEEN HUMAN INTENTIONALITY AND THE HEMOLYSIS OF RED BLOOD CELLS

JOHN PALMER[1], STEPHEN BAUMANN [2], & CHRISTINE A. SIMMONDS[2]

ABSTRACT: Twenty psychic healers and 40 nonhealers participated in a conceptual replication of an experiment by William Braud, which appeared to demonstrate that a significantly large number of participants (Ps) were able to influence the process of hemolysis of red blood cells in vitro. This finding, however, could have been artifactual. Following Braud's procedure, hemolysis was induced for each trial by mixing 50 µl of blood with 3 ml of

.425% physiological saline in a cuvette. The cuvette was then placed inside a spectrophotometer that measured the rate of hemolysis over a 1-min period. Healers completed 2 sessions and nonhealers 1. Each session consisted of 2 runs of 8 trials. During the test run, Ps attempted to psychically retard the rate of the hemolysis from a distant room on Trials 4 and 5, preceded by a progressive relaxation tape. They were unaware of any of the other trials in either run. During the nonintention periods, healers were interviewed about their healing practices and beliefs, whereas nonhealers completed a rating scale on these themes. Both samples completed a shortened version of the Hartmann Boundary Questionnaire (BQ) and the Spiritual Transcendence Scale (STS). For half the runs, the DC component of the earth's geomagnetic field (GMF) was essentially eliminated around the cuvette inside the spectrophotometer; for the other half, the GMF was set at 0.5 Gauss, its normal magnitude in nature. Hemolysis scores consisted of the ratio between *t* scores for the test and baseline runs, each of which reflected the difference between the results of Trials 4 and 5 and the other trials within the run, and they were corrected for the influence of the hemolysis at the time the measurement process began. Overall hemolysis scores were nonsignificant, the scores of healers and nonhealers did not differ significantly, and there was no direct effect of the GMF manipulation. Relative hemolysis retardation was suggestively associated with high values of ambient GMF on the day before testing, confirming a finding of Braud. Post hoc, it was found that older nonhealers appeared to accelerate hemolysis and younger nonhealers to retard it. Combined hemolysis scores for both runs in 1st sessions revealed hemolysis acceleration with GMF on and retardation with GMF off, indicating the possible influence of nonintentional psi. Retardation with GMF off was greater among thin-boundary Ps on the BQ. Healers scored much higher than nonhealers on the STS, and among nonhealers the STS was positively correlated with estimated success on the hemolysis task.

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DYADIC COMMUNICATION IN THE GANZFELD: REPORT ON A PILOT STUDY WITH A MODIFIED EXPERIMENTAL PROCEDURE

PETER PÜTZ, MATTHIAS GÄSSLER & JIŘÍ WACKERMANN

ABSTRACT: "Psi-communication" in the ganzfeld ("ganzfeld telepathy") is an established paradigm in experimental parapsychology of recent decades. Results have been considered as providing evidence for what Bem and Honorton called an "anomalous information transfer," although later meta-analyses questioned the validity of this conclusion. In a typical "ganzfeld telepathy" experiment, both participants are aware of the "psi" character of the task, that is, the communication anomaly involved. For participants not familiar with

parapsychology research and/or not sharing the "belief" in telepathy, this may mean facing a "mission impossible." This leads to the question of whether the overt "psi" character of the experimental situation is necessary for successful communication. Furthermore, in such a typical experiment the "receiver" is allowed, or encouraged, to verbalise continuously her/his mentation. This may divert the receiver's attention from the instruction and contaminate the "true" ganzfeld-induced imagery with free associations, thought fragments, and other cognitive processes; also verbal activity is known to cause muscular artefacts in simultaneous EEG recordings. Therefore we prefer that participants in our experiments give reports on their mentation in discrete "chunks," at times of maximally developed imagery, as in our earlier studies. Some authors advocate dynamic targets of rich content and featuring "dramatic changes" as facilitating the "ps"' communication. On the other hand, May and his colleagues argued for content homogeneity ("noise reduction") in remote viewing research. There is no evidence that rich content is really a necessary condition for efficient communication in ganzfeld. The aim of this study was elaboration of an experimental procedure acceptable for all participants (no subject indoctrination), focusing on ganzfeld-specific imagery and compatible with EEG recordings planned for later stages of the study. Specifically, in this pilot study we tested the experimental procedure in terms of time management, interactions with participants, acceptance of instructions by them, reporting, and rating. The EEG recording system was used to record synchronisation markers triggered by subjects' reports and/or issued by the target presentation software, but no real EEG was recorded.

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EXPERIMENTS TESTING MODELS OF MIND-MATTER INTERACTION

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ABSTRACT: A mind-matter interaction (MMI) experiment with random number generators (RNG) was used to test two types of causal models, those assuming forward-time influences and those assuming backward-time influences. Forward-time influences are often referred to as psychokinesis or PK, and backward-time influences as precognition or retrocausation. The test employed a Markov-chain, sequential dependency design to provide a way of tracing the history, and thus the possible causal sequences, within each trial. A pilot test and a replication provided significant evidence for an MMI effect, allowing the models to be tested. The forward and backward causal models were applied to the data, and in both cases the outcomes suggest that MMI is better accounted for by a retrocausal effect rather than a forward causal effect. This outcome is consistent with goal-oriented models of MMI in RNGs, and

it raises the possibility that teleological "pulls" from the future may be able to influence present-time decisions and events.

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PSI AND THE LONG BODY

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ABSTRACT: Mind is embodied and the body is emplaced, which means that mind is also emplaced. Mind has conative, cognitive, and executive functions performed, respectively, by the limbic system, the cerebral cortex, and the cerebellum. The first gives objects conative meaning, the second provides a cognitive map to reach or avoid objects, and the third provides the means to do so. Cognition makes it possible to locate an object in space and time, to determine its distance from the body and from other objects in space-time, and to establish its size, weight, and other quantifiable aspects. A material object is local. The conative meaning of an object, on the other hand, may be apprehended in another place and at another time than its material form. Knowing the conative meaning of distant objects is important to humans and other higher animals. Meaning is often nonlocal. ESP is to perceive the conative meaning of another person or object whose material form is absent. While the material aspect of an object usually remains the same in different places and at different times, its conative meaning is liable to change. The same object can have different meanings to different people or to the same person at different times. The meaning with which an object has been endowed does not disappear when the object is out of sight but may persist in the object and may affect others who come in contact with the object. The body's sensory and motor functions are mostly about objects that are conatively meaningful to the person. The objects can be reached by sight, hearing and the other senses, and they may be manipulated by the muscular system. Something that is out-of-reach of the familiar senses may be apprehended by perceiving its conative, nonlocal meaning (by ESP) and it may be affected by influencing its conative meaning (by PK). The sensory and muscular systems are properties of the familiar or "small" body. A person also has a "long body" that can perceive and affect conatively significant objects that are out of reach of the small body. The long body is an Iroquois term that refers to the tribal body, and embraces living members of the tribe, as well as ancestors, tribal lands, and objects. Families, tribes, corporations, churches, and other groups are long bodies that are composed of the long bodies of their members. Place and time are relative to the state of the observer. Events that are in the future or past to the small body may be in the present for the long body. What

to the small body is precognition or postcognition is perception of the present to the long body.

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FURTHER TESTING OF THE PRECOGNITIVE HABITUATION EFFECT USING SPIDER STIMULI

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ABSTRACT: This paper outlines two studies conducted to further test the precognitive habituation (PH) effect using spider stimuli, following the success of Savva, Child, and Smith (2004). The PH effect was first developed by Daryl Bem (2003) and was based heavily on the conventional mere-exposure effect, in which the presence of a stimulus leads to participants showing a preference for it over other stimuli. The PH effect is a time-reversed mere-exposure effect, as participants are asked to make a preference choice between 2 stimuli before they are presented with (or exposed to) 1 of them. In his original study, Bem had made use of violent and pornographic stimuli, which were replaced with spider stimuli in a successful conceptual replication by Savva and colleagues. This paper reports on 2 further replications; Study 1 incorporated a number of developments, most crucially using supraliminal rather than subliminal exposure of targets. Fifty participants took part in Study 1 and although there was a small yet significant above-chance hit rate (53% whereas MCE is 50%; $p = .046$), no PH effect was found. Study 2 incorporated a larger sample ($N = 92$), though testing took part in small groups (although again it was hoped that this minor adaptation would not have an effect on the results). No PH effect was found in the data, although Bem has suggested that Study 2 may provide evidence of what he has termed a precognitive aversion effect. The authors tentatively present that interpretation, although the inability to replicate the original findings of Savva, Child, and Smith does raise doubts about the reliability and strength of the PH effect.

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OF TWO MINDS: SKEPTIC-PROPONENT COLLABORATION WITHIN PARAPSYCHOLOGY

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ABSTRACT: A large body of research has examined the possible existence of psychic ability. Proponents claim that some of this work supports the existence

of such abilities; skeptics argue that such studies suffer from potential flaws and artifacts. As with other controversial areas of psychology, researchers on both sides of the debate have tended to collaborate only with colleagues who hold the same beliefs about the phenomena in question. This is unfortunate, as skeptic-proponent collaborations offer the potential for resolving key areas of disagreement. The first author, a proponent, and the second, a skeptic, have been conducting a systematic program of collaborative skeptic-proponent research in parapsychology. This involved carrying out joint experiments in which each investigator individually attempted to mentally influence the electrodermal activity of participants at a distant location. In the first two collaborations, experiments conducted by the proponent obtained significant results but those conducted by the skeptic did not. This paper describes a new collaborative study that attempted to replicate our previous findings and explore potential explanations for past results. The new study failed to replicate our previous findings. The implications of this work are discussed, along with the benefits of conducting collaborative work for resolving disagreements in other controversial areas of psychology.

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THE BLIND PROTOCOL AND ITS PLACE IN CONSCIOUSNESS RESEARCH

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ABSTRACT: This paper describes the development of the blind protocol, and its place in this history of consciousness research. It was first devised by Croesus, King of the Lydians (BCE 560-547) and reported by Herodotus (≈ BCE 484 - ≈ 424), and was created to protect against fraud in assessing an anomalous perception (AP) event; a remote viewing (RV) experiment little different than those conducted today. Its next use in the seventeenth century was to study a peasant farmer, Jacques Aymar, who solved crimes with anomalous perception, using dowsing. Not only was a blind protocol employed, but the rudiments of controls were introduced to assess Aymar. The next documented use of a blind protocol occurred in 1784, when it was explicitly employed in the interest of science, and its history as a research technique can be said to formally begin. King Louis XVI created a commission to evaluate Friedrich Anton Mesmer's claims concerning healing through "animal magnetism," administered while people were in a trance, and asked Benjamin Franklin to be the commission's head. The paper proposes that Franklin be considered the first parapsychologist. He created the blind protocol to answer the king's question as to whether "animal magnetism" was real, and not only introduced demographic variables and controls, but literally blindfolded people, which is why today we call it the blind protocol. Franklin's observations also present the first recorded Western

description of psychosomatic illness. An unintended consequence of Franklin's Mesmer study was the loss of the idea of psychophysical self-regulation (PPSR) as a research vector, although the English surgeon John Eliotson (1791-1868) apparently saw through the failure of Mesmer's explanatory model to the deeper insight in the form of hypnosis that was Mesmer's real discovery. He seems to have avoided all attempts at explaining how it worked, but he conducted a considerable number of surgeries using hypnosis as the anesthetic, anticipating its usage in this capacity a century later. So great was the disapproval of Mesmer, however, that no one seems to have gotten Eliotson's point. Franklin's protocol, though, rapidly became the gold standard of science. Rupert Sheldrake carried out a survey of the leading scientific journals and discovered, however, that the main use of the blind protocol is not in medicine per se but in parapsychology and consciousness research, where it is used for the same purposes as those for which it was originally conceived: to winnow out fraud in anomalous consciousness events and to avoid introducing experimenter effects. Ultimately, though, the protocol may be based on a false assumption, as research in areas such as therapeutic intent/healing and remote viewing increasingly suggests that all consciousness from single-celled organisms to human beings may be interlinked through a nonlocal aspect of awareness that they all share.

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SLEEP PATTERNS, PERSONALITY, AND SUBJECTIVE PARANORMAL EXPERIENCES

CHRISTINE SIMMONDS

ABSTRACT: This paper explores the relationships between personality, sleep length and quality, and subjective paranormal experiences (SPEs). Previous research indicates a relationship between both a greater tendency to hallucinate and shorter sleep length, and among near-death experiencers. It also indicates that sleep patterns should be considered in relation to personality. Individuals scoring high on personality variables related to boundary thinness (in particular schizotypy) may be more prone to experiencing SPEs as a result of their unique sleep-wake cycle; in particular, they may exhibit shorter nocturnal sleep patterns. The current study addressed the relationship between sleep length and SPEs. It was expected that both shorter sleepers and high scorers on schizotypy may be more prone to subjective paranormal experiences. A questionnaire-based survey was undertaken among 281 participants, who included students, visitors to the Rhine Research Center (RRC) and its web site, and visitors to a local hotel. There was no difference between long and short sleepers in terms of number of anomalous experiences. There was, however, a significant difference between short and average sleepers and average and long sleepers on schizotypy. None of the other personality variables demonstrated a significant relationship with

sleep-related variables. Sleep quality was, however, better for longer sleepers. A regression-based path analysis was undertaken with anomalous experiences as the criterion variable. This indicated that sleep-related variables along with gender and handedness may be indirect predictors of subjective anomalies via personality. Future work is planned to explore different types of SPEs among preselected extreme short and long sleepers, and to address sleep variables and psi performance in the laboratory.

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PUEBLO PARAPSYCHOLOGY: PSI AND THE LONG BODY FROM THE SOUTHWEST INDIAN PERSPECTIVE

BRYAN J. WILLIAMS

ABSTRACT: The long body is a concept that has its origin within the spiritual tradition of the Native American culture (particularly that of the Iroquois Indian tribe) to describe the broad interconnection between family and tribal members (both living and departed), the objects they possess, and the physical location in which they dwell as one large living body. It was first introduced to parapsychology by Christopher Aanstoos in 1986 and has been adopted and extended by William Roll as a metaphorical way to understand the links between individual embodied minds, objects, and places that are suggested in one form or another by all the known types of psi phenomena. The long body concept does not seem to be unique to Eastern United States tribes like the Iroquois; several Indian tribes of the Southwest United States also have aspects of their oral-based spiritual tradition that reflect something very similar to the long body. In this paper, the similar aspects from the traditions of 4 Southwest Indian tribes (the Hopi, the Navajo, and Laguna and Zuni Pueblos) are reviewed, and their implications for psi experiences within these cultures and Roll's long body hypothesis are discussed. It is suggested that the ora-lbased traditions of these cultures, which are based in memory, opens the way for psi as a means to ensure the survival of the tribes and their respective long bodies across space-time. Other aspects, such as beliefs and rituals that suggest close human interconnection with nature, place, and the spirits of the departed, also invite the experience of psychometry, place memories, and survival-related phenomena, particularly apparitions. It is further suggested that the geophysical characteristics of the location of certain pueblos and sacred tribal sites may display anomalous activity similar to that observed in investigations of reported haunted sites, which may help to give rise to the experiences through their possible effects on the human brain. Possible directions for future research are also offered.

Department of Psychology
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PANEL: REMEMBERING ROBERT L. MORRIS

CHAIR: DEBORAH DELANOY

JIM CARPENTER, DEBORAH DELANOY, HOYT EDGE, EDWIN MAY, & CAROLINE WATT

MEMORIES OF A FORTY-YEAR FRIENDSHIP

JIM CARPENTER

ABSTRACT: I recount memories and impressions of Bob Morris over a period ranging from our meeting in 1964 at the Duke Parapsychology Laboratory to our work together on the board of directors of the Rhine Research Center, which ended with Bob's death. Bob was so personally unassuming that it was sometimes a little hard in the moment to understand the enormity of his contributions, or the deeply intelligent planfulness with which he pursued them. In fact, his contributions were such that, if parapsychology has a future, it is primarily because of him. Additionally an overview is offered of the main emphases of Morris's published work up to the time he accepted the Koestler Chair at Edinburgh in 1985. Major areas include psi in animals, testing of psi in special subjects, study of methods to heighten PK and ESP effects, a construction of psi in terms of human abilities, a growing appreciation for an honestly skeptical approach, and a conception of how to place the study of parapsychological questions in a useful social and intellectual context. The panel will close with a slide-show montage that I put together of photographs of Bob over the years.

Rhine Research Center
Durham, NC, USA

ADVANCING PARAPSYCHOLOGY IN THE UK, EUROPE, AND BEYOND: BOB MORRIS'S CONTRIBUTIONS

DEBORAH L. DELANOY

ABSTRACT: This presentation will summarise the contributions that Professor Robert L. Morris made to advancing the well-being of parapsychology, focusing on how his endeavors had a significant impact far beyond the "boundaries" of the Koestler Chair of Parapsychology and the University of Edinburgh. The presentation will start with an overview of how he directly contributed to advancing the position of parapsychology in British universities over the last two decades. It will then briefly consider his role in furthering the presence of parapsychology in other European countries and beyond. His role in bringing research funding to the field will be discussed, as will some of his most notable research contributions. Finally, some observations about his thoughts on the future of parapsychology will be presented.

University College Northampton, UK

BOB IN BALI

HOYT EDGE

ABSTRACT: My comments will begin with my recollection of first meeting Bob. I will then transition to our collaboration on the text *Foundations of Parapsychology*, giving some background and a discussion of his contribution. Finally, Bob had a growing interest in cross-cultural aspects of parapsychology. Psychology had recently begun to focus on this area (calling it cultural psychology, or psychological anthropology, or indigenous psychologies), and Bob thought that parapsychology could contribute to this literature. His work in Bali with me on a project on volition, as well as 2 projects on cognitive DMILS, was a focus of his work in this area. As always, Bob showed insight and creativity in the theoretical aspects of this work, but his personality made him an ideal contributor in Bali.

Rollins College, FL, USA

STARGATE: BOB'S CONTRIBUTION TO THE US GOVERNMENT'S SECRET PROGRAM

EDWIN C. MAY

ABSTRACT: Beginning in 1985, the US Government's formerly secret program not only included research and applications of ESP to US national problems but also involved a number of specialized oversight committees; among these was the Scientific Oversight Committee. It had a 4-fold mission: (1) to review proposed protocols prior to any experiment, (2) to drop in, unannounced, to witness on-going activity, (3) to critically review, in writing, the reports that were generated as the major output of the project; and (4) to attend a 2-day conference of the committee to argue the critical points. Bob was the only parapsychologist in the group of 12, which included Nobel laureates, senior scientists from various government agencies, and academic department chairs. Bob was one of the most rigorous reviewers, but also among the kindest. We will report further on the function of the Scientific Oversight Committee and outline 2 examples in which Bob argued both against the research team (e.g., Decision Augmentation Theory) and for it (e.g., rank-order analysis of remote viewing).

Laboratories for Fundamental Research
Palo Alto, CA, USA

THE KOESTLER CHAIR OF PARAPSYCHOLOGY: BOB MORRIS'S AIMS AND ACHIEVEMENTS

CAROLINE WATT

ABSTRACT: This presentation will survey the aims and achievements of Professor Robert Morris during the nearly 2 decades that he spent as the Koestler

Professor of Parapsychology at Edinburgh University. Three "landmarks" will be used to allow Bob's own words to express his opinions about parapsychology at the Koestler Chair. First, the press statement that he gave on appointment in September 1985 will be examined. In this statement he outlines his aims for his professorship and the approach he would take to studying parapsychology. Second, in an article he wrote a decade later for a University of Edinburgh magazine, he highlights some of the research findings emerging from his first 10 years at the chair. Third, in 2001, he gave an interview to *New Scientist* magazine in which he made some of his strongest and frankest public statements yet about his beliefs and his involvement in parapsychology. In addition to Bob's own comments about the Koestler Chair, I will go on to present what in my view are some of his main achievements at Edinburgh, most notably: integrating parapsychological research into the ongoing academic activities of the University; and "seeding" new parapsychology research units elsewhere in the UK, which will be further discussed in another panel presentation.

Department of Psychology
University of Edinburgh, UK

PANEL: PARAPSYCHOLOGY AND TRANSPERSONAL PSYCHOLOGY

CHAIR: CHARLES TART

CHARLES TART, STANLEY KRIPPNER, ARTHUR HASTINGS, & MARILYN SCHLITZ

CONCEPTUAL AND EVIDENTIAL CONVERGENCE OF PARAPSYCHOLOGY AND TRANSPERSONAL PSYCHOLOGY

ARTHUR HASTINGS

ABSTRACT: Transpersonal psychology takes an expanded view of personality, human development, and identity, and focuses on the nature and integration of experiences such as mystical and unitive awareness, personal transformation, higher values, alternative and expanded consciousness, nonordinary perception, and transcendence. Transpersonal psychology assumes that these aspects of human experience are natural and healthy (they need not be pathological nor fantasy) and that they can be conceptualized and researched scientifically with both conventional methods and innovative approaches. Transpersonal psychology studies these topics with open-minded inquiry and with critical thinking. The field uses both quantitative and qualitative methods of research. Five peer-reviewed journals are oriented toward transpersonal articles and research, and publications also appear in mainstream journals. Transpersonal psychology accepts subjective awareness as an integral part of human reality, and subjective ways of knowing as including valid epistemologies. Transpersonal psychology is teleological, and less reductionistic compared to most psychologies. In its

worldview, transpersonal psychology is more organic and context-oriented than most schools of psychology. It provides a bridge between psychology and spiritual traditions. Several advantages can emerge from a conceptual conversation between parapsychologists and transpersonal psychologists. The transpersonal side can provide insights from theories and data about states of consciousness (e.g., James, Wilber, LeShan, Tart, and Baruss), and qualitative methods for researching subjective states, which can inform correlations and dynamics of psi. It can inform about processes developed in spiritual psychologies for altering and deploying attention. Transpersonal psychology suggests a wider context for psi phenomena in spiritual traditions and in some indigenous cultures. The parapsychological side contributes objective research methods that investigate transpersonal phenomena such as direct knowing, consciousness alterations, kriyas, subtle energy, OBEs, experiential transcendence of time, and trans-sensory modes of knowing. These methods can establish the empirical reality of phenomena found in transpersonal psychology. Clinically, the 2 fields together offer ways to address emotional and disturbed reactions from apparent psychic phenomena and conditions in which there are mixtures of psychotic and psychic experience. Both can bring critical thinking to these areas of human experience that are reported in science and in the popular media. Some concerns about transpersonal psychology that may come from parapsychologists are dangers of religious true belief about spiritual claims, the ambiguities of subjective data, and the open value orientation of transpersonal perspectives. The paradigm of transpersonal psychology may appear ungrounded. From the transpersonal side, the objective methods of parapsychologists may appear to open doors of ability without values to guide them. Parapsychologists may be seen as avoiding paradigms that accept apparent spiritual experiences (however they may be interpreted) with some claim to reality. There are also differences of temperament; inevitably some individuals prefer to engage in the study of parapsychological phenomena per se and others are drawn equally to transpersonal interests. Some professionals have found both fields to be of value in their work, and perhaps we can learn from their approaches. The goal is to enable conversation between the two fields where there can be mutual benefit.

Institute of Transpersonal Psychology
Menlo Park, CA, USA

LASZLO'S AKASHIC FIELD MODEL, PSI, AND TRANSPERSONAL PSYCHOLOGY

STANLEY KRIPPNER

ABSTRACT: Laszlo's recent Akashic field model focuses our attention on the least likely aspect of the physical cosmos, the vacuum that surrounds, embraces, and permeates all that is. Rather than the empty void of Democritus, this is an incredibly dense super-fluid medium with properties much like those of liquid

helium at absolute zero. Wavelets in this medium travel virtually instantaneously throughout space and time, creating cross-hatched holographic interference patterns that record the memory of the cosmos as information at both the micro and macro scales. Like Bohm's earlier model of a holographic universe, it posits information-rich fields that permeate the cosmos. Both models have profound implications, not only for understanding the nature of physical reality, but for conceptualizing human reality as well. The most obvious of the latter is the possibility that the feelings of nearness we share with others, as well as with nonhuman animals and transcendent agencies, may actually be more than productions of imagination. There is sufficient evidence from parapsychological studies on the validity of intimate human connections beyond the ordinary channels of communication. Transpersonal psychology is usually defined as the study of experiences in which one's sense of identity extends beyond the individual to encompass wider aspects of humankind, life, and cosmos. This framework is congruent with parapsychological data. Laszlo's Akashic field model could serve several purposes, among them serving as a bridge between transpersonal psychology and parapsychology, widening a dialog that is too often muted by suspicion and misunderstanding on both sides.

Saybrook Graduate School and Research Center
San Francisco, CA, USA

THE CONTRIBUTION OF PSI RESEARCH TO OUR UNDERSTANDING OF CONSCIOUSNESS AND HEALING

MARILYN SCHLITZ

ABSTRACT: One of the important ways in which psi research has made a practical contribution is in the realm of healing research. Our methods and approaches have been useful as evidence-based medicine has been directed toward studies of complementary and alternative medicines (CAM). The work involving direct mental intention between living systems (DMILS), for example, represents a significant body of data that lends support for some of the claims made by CAM practitioners (i.e., consciousness is causal; intention may create changes in the physical world; intuition and direct knowing are useful in the diagnosis of others). But as we think of our application to healing, we may also consider the implications of our studies for broader transpersonal issues. How do the data from psi research inform our understanding of the ontologies and epistemologies of different belief systems and worldviews? How do our findings help inform an expanded view of consciousness and the nature of human capacities? To what extent are we bridge-builders between science and the world's wisdom and spiritual traditions? How do our explorations address deep existential issues of identity, death, and the possible survival of consciousness? These are the questions I will consider in my contribution to the panel, drawing on my own research on healing from both the

laboratory and clinical perspective as well as in the context of my studies of cross-cultural healing practices.

Institute of Noetic Sciences
Petaluma, CA, USA

WHO IS THE EXPERIMENTER? TRANSPERSONAL ASPECTS OF PARAPSYCHOLOGICAL METHODOLOGY

CHARLES T. TART

ABSTRACT: Parapsychology, literally "alongside psychology," has adopted the methods of psychology and the physical sciences generally in almost all of its studies. These include assumptions, usually implicit and therefore hard to question, that experimental outcomes are determined by the will of the rational experimenter interacting with the nature of the psychological and physical world, so if these factors are understood well enough, experimental outcomes will be predictable and controllable. Although early psychical research was interested in "spirits," as part of the survival problem and partly accepted the idea that the intentions of such spirits might be an important determinant of experimental outcome, this idea is largely denied, indeed perhaps repressed, in modern parapsychological research, perhaps for largely political reasons about gaining acceptance in the general scientific community rather than for logical reasons. This paper will begin some exploration of questions about who the experimenter really is in our experiments and how openness to the idea of "spirit coexperimenters" could be put on a more objective footing rather than a subjective one. Issues of experimenter bias and the centrality of the experimenter in psi experiments will be raised. Transpersonal psychology is relevant for it studies experiences of people who have "contact" with areas of life that ostensibly go beyond the material and personal, and so may provide a broader perspective for parapsychological work.

Institute of Transpersonal Psychology
Menlo Park, CA and
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Davis, CA, USA

REMARKABLE CORRESPONDENCES BETWEEN GANZFELD MENTATION AND TARGET CONTENT – A PSYCHICAL OR PSYCHOLOGICAL EFFECT?[1]

By Joakim Westerlund*, Adrian Parker**, Jan Dalkvist*, and Gergö Hadlaczky*

ABSTRACT: Remarkable correspondences between ganzfeld mentation and target content have been reported since the start of ganzfeld experiments in parapsychology. These correspondences may be due either to some form of anomalous information transfer (e.g., telepathy) or to a cognitive illusion on the part of the perceiver. This paper presents 4 studies conducted in order to investigate which of these two possibilities is the more probable. In Study 1, an external judge in a ganzfeld experiment selected 20 short segments that showed most remarkable correspondences between ganzfeld mentation and film clip content while being blind to whether the chosen film clip had been used as a target or as a decoy. Only 6 of the segments showed correspondences between the mentation and the target, which is close to chance expectation level. In Study 2, 11 students rated the 6 correspondences that were "hits" as being equally as impressive as the 14 that were "misses." In Studies 3 and 4, the possibility that the 14 correspondences that were "misses" could have been due to a form of "displacement clairvoyance" was shown to be very unlikely. It was concluded that it is possible to obtain what at least some people consider to be very remarkable correspondences between mentation and film content by chance alone.

Since the very start of ganzfeld experiments in parapsychology, there have been reports of remarkable correspondences between ganzfeld mentation and target content. As an example, consider the receiver's mentation that was reported by Honorton et al. (1990): ". . . Now visual patterns more like a spider web and the color. And then like the form of the veins of a windmill. . . . Something like a spider web again. A spider web. A pattern that instead of a spider web it looks like basket weaving" (p. 125).

The target for this receiver was a film about a spider weaving its web. The receiver actually said the word "spider" 46 times during the mentation (Rick Berger, personal communication, August 1997). Many parapsychologists have apparently been very impressed by such correspondences. For example, Palmer (2003) writes: "Because a ganzfeld session comprises only one trial, success cannot be demonstrated statistically

[1] Study 1 and Study 2 presented here were also presented at the 47th Annual Convention of the Parapsychological Association (Westerlund, Parker, Dalkvist, & Goulding, 2004). We would like to express our gratitude to Johan Rosenblad, who was one of the judges in Study 3.

for a single session, although sometimes the correspondence of the mentation to the target is so close in detail that success is obvious" (p. 54).

Of course, most parapsychologists have also been aware of the difficulties in interpreting correspondences of this kind. However impressive they may appear, it has been impossible to know what the chances are of such correspondences occurring by random processes. Although some accounts of these correspondences have been published, most of them have been spread by hearsay and by informal presentations at PA conferences. One example is a videotape compiled by Kathy Dalton that shows some of the correspondences between receiver mentation and target content that appeared in the Sender-No Sender study conducted in Edinburgh in 1994 (Morris, Dalton, Delanoy, & Watt, 1995). On this tape, the target video clip is shown at the same time as the mentation of the receiver can be heard. One of the most remarkable excerpts shows a man who is running through a forest; it seems that he is being hunted — at the same time, the receiver says: "Trees. People running. Fleeing." Suddenly, the man falls down in a deep muddy pool — at the same time, the receiver says: "Falling. Muddy." The camera zooms in on the man's face — at the same time, the receiver says: "Blond hair. 70s hairstyle. Curly-ish. White face." All of these utterances appear to describe exactly what is being shown on the film. The next thing that happens in the clip is that the man can no longer keep his head above the surface, so he disappears into the mud — at the same time, the receiver says: "Dead man in the water." Unfortunately, synchronization between the video clip and the tape with the receiver's mentation was not done automatically. Kathy Dalton (personal communication, August 1997) matched the mentation tape with the video clip according to her memory of the session (in which she was one of the experimenters).

In order to resolve this uncertainty, in a series of ganzfeld experiments conducted by Parker, Persson, and Haller (2000), an additional videotape recorder was installed in the laboratory. The sound from the receiver was automatically recorded on the tape in this recorder together with the film clip that was played from the first videotape recorder to the sender. After using this method for 120 ganzfeld sessions, Parker was able to compile a 30-min-long tape filled with strikingly good correspondences between the receiver's mentation and the target clip. One scene, for example, shows a woman running through a forest. At exactly the same moment as the woman falls and hits her face on the ground, the receiver says: "Feels like someone is falling; the person's face is hitting the stony ground."

Two of us (JW and JD) were very impressed by these compilations of "Greatest Hits in the Ganzfeld." We soon realized, however, that there was considerable variation in how these correspondences were perceived by different persons. Some individuals (including both persons with a very skeptical attitude and with a very positive attitude toward psi) were not impressed at all, whereas others (also including both persons with a very

skeptical attitude and with a very positive attitude toward psi) concluded that this was as close to a "proof" of psi as it was possible to get. Of course, we also realized that even if everyone had been extremely impressed by these correspondences, they do not constitute scientific evidence for psi. There are many ways in which this kind of subjective validation could prove invalid, the most obvious being the inability to take into full account all instances in which there were no correspondences between the mentation and the target.

So, what is clearly needed is some form of *baseline* on which the correspondences between the receiver mentation and the target content can be compared. Contrary to what many parapsychologists have thought, such a baseline is, in fact, not impossible to establish. The way to do this is to select the most impressive correspondences while in the judgment phase of a ganzfeld session. In this phase, the judge (the receiver or an independent judge) compares the mentation to the four possible film clips. What the judge should do, of course, is to note all the striking correspondences between the mentation and the content of any of the four clips. If such correspondences are signs of telepathy, they should (more often than chance) turn out to be matches between the mentation and the target clip and not between the mentation and any of the decoys.

The problem with this method is that in traditional ganzfeld experiments, the mentation is usually recorded only on an ordinary tape recorder, making it difficult to synchronize the mentation with the target clip during the judgment phase and with each of the decoy clips as though the decoy had been the target. Fortunately, with the new digital ganzfeld technique recently developed in Sweden, the mentation is automatically synchronized with both the target and the three decoys during the judgment phase. This technique has been described in detail elsewhere (Goulding, Westerlund, Parker, & Wackermann, 2001, 2004; Parker, 2003), but because all studies reported in the present paper are based on data collected during the first formal digital ganzfeld experiment (Goulding, Westerlund, Parker, & Wackermann 2004), the most important aspects of the system will be described below.

The Digital Ganzfeld

The digital ganzfeld program consists of two software components, one for *running* a ganzfeld session and the other for *judging* it. When running a ganzfeld session, the software first selects one set of four film clips from a library of 25 sets. All film clips are stored digitally on the computer's hard drive, and all clips are exactly 2 min 3 s long (the last 3 s of each clip shows a blank screen). When the receiver is ready to start, the sender starts playing the clip. At exactly the same moment, the computer starts recording the receiver's mentation. The receiver's mentation can be heard in real time by the sender.

The target clip is played seven times, with 0 s being needed for restarting, and after this the recording of the mentation stops. Thus, a total of 14 min, 21 s of the receiver's mentation is stored on a file on the computer's hard drive. The experimental phase continues with the computer selecting a second set (but not the same as was recently used) and then presenting one film clip from this set seven times to the sender while recording the mentation into a new file. With this procedure, two trials are squeezed into one session, thus making the data collection more economical than when only one session is run in 30 min. It is also reasoned that if the participant were to enter a prolonged psi-conducive state, then the two trials might capitalize on this by producing a double hit.

The software for judging the session is primarily designed to be used by someone who is accustomed to it and has a great deal of time available for the judging (one session usually takes 1-2 hr to judge), but it can also be used by the receiver with some help from an experimenter. A session is judged by first downloading the corresponding mentation file from the university server. The name of the file reveals which set was being used (but of course not which clip was the target). The mentation file is then opened from the judging software, together with the four film clips in the set. The mentation file can then be played together with one or two of the film clips. The receiver's mentation becomes exactly synchronized with the film clips, so any real-time correspondences that occurred during the experimental phase can be easily identified. The idea is that this should help the judge in deciding which of the four film clips was actually the target. There is also a function for "bookmarking" correspondences. The judge can write down what the receiver said together with information about when it was said and save this as a bookmark. Later, by clicking on this bookmark, the judge can again listen to the mentation while watching and hearing the corresponding film clip at the same time.

The First Experiment Using Digital Ganzfeld

In the first experiment using digital ganzfeld (Goulding, Westerlund, Parker, & Wackermann, 2004), Annelie Goulding was the main experimenter and Westerlund (JW) worked as an external judge.The experiment was run in Gothenburg, but the judging was done in Stockholm, some 400 km away. A total of 64 receivers produced 128 mentation files. JW judged all of them, but half of the receivers also made their own judgments. The main analysis was done on the number of direct hits that the external judge produced. This number was almost exactly at chance level (23%). It is worth noting, however, that the receivers themselves produced only 14% direct hits, which is significantly below mean chance expectation ($p = .05$, two-tailed, exact binomial test).

Study 1

The purpose of the first study was to compare the number of subjectively remarkable correspondences that could be found between the receiver mentation and the *target* film clip with the number of subjectively remarkable correspondences that could be found between the receiver mentation and any of the *decoy* clips in the current set. If correspondences of this kind are signs of telepathy, significantly more than one fourth of them should be correspondences between the mentation and the *target.*

One problem that until now has not been addressed is how long a correspondence should be allowed to be and still be judged as *one* correspondence (not, e.g., two or three). In the present study, we decided that a correspondence should be restricted to "a single utterance" or "a single meaningful sequence of utterances." The exact limits of an utterance or of a sequence of utterances were not further defined, but the reader should note that there are important differences between an analysis based on such short segments of correspondences and one based on more complete mentation correspondences.

One major problem in judging the "unlikelihood" of obtaining similarities between the whole mentation from a ganzfeld session and a particular film clip is dependency. Suppose, for example, that the receiver guesses that the clip the sender is watching is from a western movie. The receiver will probably say things like this: "an American Indian"; "a man on a horse"; "a saloon"; "There is a quarrel"; "guns"; and "shooting." Now, if the guess actually was correct, there is a good chance that several, or maybe all, of these utterances will match the clip in some way because the utterances as well as the events on the clip are not independent of each other. If a film clip shows an Indian, it is also likely to show a man on a horse, and if someone thinks about a film with an Indian, that person is also likely to think about a man on a horse. However, by using small segments of the mentations, this dependency problem is substantially reduced and the task of selecting the most impressive correspondences thus becomes easier. The drawback is, of course, that a great deal of potentially important information is lost. If one knows only that the receiver said "spider" at one occasion when the target was a spider, one *should* be less impressed than if one knows that the receiver said "spider" 46 times in this situation.

Method

While judging the sessions in the first digital ganzfeld experiment, the external judge (JW) bookmarked what appeared to him to be remarkable correspondences between the mentation and any of the four film clips in the current set. As mentioned above, there were no limitations concerning the length or content of one correspondence. It turned out, however, that no single correspondence was longer than 38 seconds (Mean = 17.1 s, *SD*

= 9.2 s). There were also no limits on how many correspondences could be selected, except that only one correspondence was allowed for each mentation file.

Results

A total of 20 correspondences were selected. Two of them came from a receiver who was excluded from the main experiment. This receiver had already participated in a ganzfeld experiment, and one of the requirements for participation in the main experiment was no previous participation in a ganzfeld experiment. However, as the hypothesis under investigation in the present study was not dependent on whether the receiver was a ganzfeld novice or not, it was decided that those two correspondences should be retained. The selected correspondences are described in Table 1 below. The reader is urged to rate the degree of "impressiveness" of each correspondence before reading the rest of the results section.

Table 1
Descriptions of the 20 Selected Correspondences

No.	A frame from the clip, the mentation that was selected, and the corresponding film clip
1	

Mentation: *"A sun, a forest, and a meadow. Butterflies. A child, or a woman who is chasing the butterflies. She is wearing a long, light-colored dress. From the turn of the [last] century." (In Swedish: "En sol, en skog och en äng. Fjärilar. Ett barn, eller en kvinna som jagar de här fjärilarna. Hon har lång ljus klänning på sig. Sekelskiftet.")*

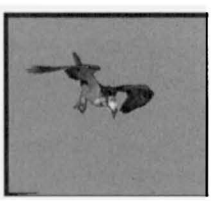
Film clip: Elvira Madigan, suicide pact.
Comment: In the film clip library there were three clips from the movie Elvira Madigan. On several occasions, this receiver appeared to describe the content in all of these clips. However, the descriptions were seldom synchronized, that is, they were seldom in real-time correspondence with the clip that was a part of the current set.

2

Mentation: *"Also a feeling of something that explodes, fireworks or. . . ." (In Swedish: "Också en känsla av att något exploderar, fyrverkeri eller. . . .")*

Film clip: Photographing Fairies.
Comment: This film clip is about a man who is coughing up fairies. Two assistants are trying to capture the event on film and use up a lot of magnesium powder flashes. The receiver talks several times about someone who is coughing and about explosions and fireworks.

3



Mentation: *"Falling." (In Swedish: "Falla.")*

Film clip: Nature film, a diving eagle.
Comment: The receiver talks about "blue sky," "parachute jumping," "floating," and "bird." Exactly at the same time as the clip shows the eagle diving, the receiver says: "falling."

4

Mentation: *"This sea animal is coming towards a little girl who is standing at the shore and she is quite petrified, this little girl." (In Swedish: "Det här sjöodjuret kommer fram emot en liten flicka som står vid sjökanten och hon är ganska så förstelnad den lilla flickan.")*

Film clip: Night of the Hunter, hunted children.
Comment: This clip shows a man, armed with a knife, who is chasing two children, a girl and a boy. The children flee in a rowboat and the man is forced to stop pursuing them in the water, which makes him scream in anger.

5

Mentation: *"Shot." (In Swedish: "Skott.")*

Film clip: Elvira Madigan, suicide pact (same as in Correspondence 1 above)
Comment: This clip shows a woman who is chasing butterflies in a meadow. It ends with the picture being frozen, followed by the sound of two shots being heard (it is the woman who is being shot). One second after the second shot, the receiver says: "shot."

6

Mentation: *"Birds." (In Swedish: "Fåglar.")*

Film clip: The Birds, attacking birds
Comment: The receiver says many things that appear to describe the content of the clip. For example, at the same time as the film shows children being attacked by seagulls, the receiver says "Birds."

7

Mentation: *"A chimpanzee." (In Swedish: "En chimpans.")*

Film clip: Nature film, monkeys in a jungle.
Comment: The receiver says many things that fit this film clip. Besides "a chimpanzee," she says "the twitter of birds" exactly at the same time as the twitter of birds can be heard on the clip.

8

Mentation: *"It is strange because I can feel it in my right forearm, in my right elbow." (In Swedish: "Det är märkligt för det känns i höger underarm, i höger armbåge.")*
Film clip: Photographing Fairies, a woman falls into a chasm.
Comment: The film clip is about a newly married couple who are taking a walk in the alps. Suddenly the woman falls into a chasm. Her husband succeeds in catching her hand and struggles to hold her. Eventually he loses his grip and she falls down into the chasm.

9

Mentation: *"And there is a quarrel starting. I think that maybe weapons are being used." (In Swedish: "Och det bli nåt gräl som uppstår. Jag tror det är vapen inblandat.")*
Film clip: Reckless Kelly, a preaching cowboy.
Comment: The receiver says many things that fit well with this clip, for example: "Yes, it is clearly the wild west." "It reminds me of the Cartwright brothers [from the TV series *Bonanza*] . . . in those cowboy hats."

10

Mentation: *"Where there's still blackness, there are flapping birds and there is mostly fog . . . and there are birds diving over the ocean, diving and catching something." (In Swedish: "Där det kvarvarande svarta är flaxande fåglar och så är det mest dimma . . . och det är fåglar som dyker över havet, dyker ner och fångar nånting.")*

Film clip: The Birds, attacking birds.
Comment: The receiver talked about flapping birds also on another occasion, but at that time, no birds were shown in the clip.

11

Mentation: *"I can feel it in my fingers and in my arms that I am holding something. It is round." (In Swedish: "Jag kan känna det i fingrarna och i armarna att jag håller i nånting. Det är runt.")*

Film clip: Barbara, rowing after a ship.
Comment: The clip is about a woman who is trying to row to a ship on which her lover is going away. The receiver says several things that appear to fit this clip quite well. For example, the receiver says: "I can feel movements, the chair is rocking."

12

Mentation: *"An old steam engine with its whistle blowing." (In Swedish: "Ett gammalt järnvägslok, som tjuter.")*

Film clip: Fried Green Tomatoes, a boy gets stuck on the tracks.
Comment: The receiver says this at exactly the same moment as an old steam engine shows up with its whistle blowing and starts to move towards the boy who is stuck.

13

Mentation: *"Looks like something is being lifted up, a tong holding something, a loop." (In Swedish: "Ser ut som om det hissas upp nånting, en tång som håller i nånting, en ögla.")*

Film clip: Freaks, the shortest man on earth.
Comment: The receiver says this at exactly the same time as this clip shows how a dwarf with a special tong lifts some things in a kitchen.

14

Mentation: *"Cowboy...No, it is a man sitting on a horse." (In Swedish: "Cowboy . . . Nej, det är en man som sitter på en häs.t")*

Film clip: Dances With Wolves, a man helps a wounded native American woman.
Comment: The receiver says a lot of things besides the statement above that fit well with this clip. For example: "This is America a hundred years ago." "Are there Indians too?" "Now he rides away" and "It's a horseman."

15

Mentation: *"Now I am not in space. Now a seagull comes, flies, big seagull, white, grey wings, yellow beak, flies down." (In Swedish: "Nu är jag inte i rymden, nu kommer en fiskmås, flyger, stor fiskmås, vit, gråa vingar, gul näbb, flyger ner.")*

Film clip: The Birds, attacking birds.
Comment: The receiver also says other things that fit well with this clip, for example: "And all the seagulls...."

16

Mentation: *"Big ear, protect your ears — she says." (In Swedish: "Stort öra, skydda dina öron säger hon.")*

Film clip: Custer, battlefield with a lot of corpses.
Comment: The clip shows how Native American women puncture the ears of a dead soldier with some sharp object. Besides the statement above, the receiver did not say much that appeared to describe the content of this clip.

17

Mentation: *"Now I want to think about blood, blood. But I can't see any blood, I just think about it." (In Swedish: "Nu vill jag tänka på blod, blod. Men jag ser inget blod, jag bara tänker på det.")*

Film clip: Jeanne d'Arc, miracle on the battlefield.
Comment: The receiver gives the statement above at the same time as a woman in this clip says: "I have seen enough blood." On another occasion the receiver says: "Yes, war, maybe war. War. I can see a German helmet." All soldiers in this clip wear helmets.

18

Mentation: *"Up in the air, the hands are being held out, upwards, as if someone tries to embrace the whole world." (In Swedish: "Uppåtgående, händerna går ut, uppåt, som om nån vill omfamna hela världen ungefär.")*

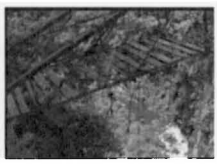
Film clip: The Color Purple, reunion.
Comment: This clip shows how a mother and her daughter reunite after having been separated for several years. They run towards each other while holding their arms up. Finally they meet and embrace each other.

19

Mentation: *"I can see seagulls, I can hear seagulls around me. This kind of mattress on the water, blue. An inflatable mattress . Empty. No one is on it." (In Swedish: "Jag ser måsar, jag hör måsar runt mig. En sån här madrass på vattnet, blå. En uppblåsbar madrass. Tom. Ingen på den.")*

Film clip: Jaws, people fleeing from the water.
Comment: A blue inflatable mattress is actually being shown on this clip (and you can hear seagulls), but the receiver talks about the mattress 15 s after it appears in the clip.

20



Mentation: *"A feeling of a waterfall, that was a little closer, like looking diagonally upwards, as if there was a bridge or something above." (In Swedish: "En förnimmelse av vattenfall, som var lite närmare, som om blicken ändå var riktad lite snett uppåt som om det gick bro eller nånting ovanför.")*
Film clip: Romancing the Stone, escape over a ravine on a suspension bridge.
Comment: Everything in the statement above fits with this clip. There are also several other things the receiver says that fit, for example: "glances down, looks steep" exactly at the same time as the woman in the clip glances down and it looks very steep.

Of the 20 correspondences, 6 were correct correspondences with the target clip (30%) and 14 were correspondences with one of the decoy clips. This result is almost exactly at chance level ($p = .383$, one-tailed, exact binomial test).

Correspondences numbered 6, 7, 8, 13, 16, and 20 were "hits," that is, the clip that the mentation appeared to describe was actually the target clip; the remaining ones (1, 2, 3, 4, 5, 9, 10, 11, 12, 14, 15, 17, 18, and 19) were "misses," that is, the clip that the mentation appeared to describe was actually one of the decoy clips in the set.

Discussion

Apparently, the results give no support to the psi hypothesis. Remarkable correspondences between ganzfeld mentation and target content, which so often have been reported from other ganzfeld experiments, were also observed in the experiment under investigation in the present study. However, remarkable correspondences were also observed between ganzfeld mentation and the content of the decoy clips, and the distribution of the correspondences on target and decoy clips was, in fact, very close to chance level.

So perhaps the remarkable correspondences between ganzfeld mentation and target content observed in the present and previous studies are not that remarkable after all. Perhaps they are altogether or mostly the result of subjective validation (a concept used by Marks, 2000, in explaining similar coincidental "hits" both in experimental work and real life). It is perhaps inevitable that subjectively impressive correspondences between people's fantasies and movie contents will appear when looking for such correspondences in material containing about 30 hr of nonstop talking.

A quick look at the correspondences reported in Table 1 shows that in several cases the receiver talked about water or about birds (especially seagulls). When judging all the mentations from the ganzfeld experiment, the judge (JW) noted that water and birds were, in fact, very common themes in the mentations, even though in many cases, there was no water or birds on any of the four clips in the set to be judged.

It could be argued, however, that *some* of the remarkable correspondences obtained in ganzfeld experiments were due to subjective validation but that a core of correspondences that cannot be explained in this way still remains. It could also be argued that the power of the current test was too low, as with 20 correspondences, as many as 9 (45%) would have to be hits to reach significance. A possible way to obtain more precise and reliable measurements, and thus higher power, would be to let a group of people rate the "impressiveness" of the 20 correspondences described in Table 1. This procedure was used in Study 2.

Study 2

In order to obtain greater statistical power, a group of students was requested to rate all 20 correspondences obtained in Study 1. The hypothesis (which was considered unlikely by the experimenter, JW) was that the mean rating of the 6 hits would be significantly higher than the mean rating of the 14 misses.

Method

Participants

Eleven undergraduate psychology students participated in the study (7 women and 4 men, 27–41 years old) as part of course requirements (all students at the Department of Psychology at Stockholm University are required to participate in a fixed number of hours in studies conducted at the department, but they can freely choose which studies). All participating students were taking a course in research methods and statistics, with the experimenter, JW, as the principal teacher. In this course, the students were required to read the discussion between Bem and Honorton (1994) and Hyman (1994), published in *Psychological Bulletin.* They were also required to participate in a seminar at which the tape by Kathy Dalton that was described above was shown and discussed. The advantage of having this population as judges was, of course, that the participants were all somewhat familiar with the ganzfeld technique and with the concept of "remarkable correspondences between ganzfeld mentation and film clip content." The disadvantage was that they all had met JW and thus could not be considered 100% blind to which mentation was a hit and which was a miss (even though the particular correspondences under investigation in the present study were not discussed).

Material

Software and apparatus for presenting the 20 selected correspondences. The software used for the judging phase in digital ganzfeld was slightly adjusted so that it could present the 20 selected correspondences (see above) and was run on an IBM ThinkPad r40 notebook computer connected to a Liesegang dv 325 projector with a brightness of 1000 ANSI.

Rating form. The ratings of the 20 correspondences were made on a form on which the participants were to rate each correspondence on a scale from 0–100. The instructions on the form were that "0" was to be used to denote a correspondence between the mentation and the content on the clip that was not impressive at all, a correspondence that would very often turn up by chance alone. The rating "100" was said to denote a correspondence between the mentation and the content on the clip that was extremely impressive, a correspondence that would very seldom turn up by chance alone. The instructions also urged the participants to try to use the whole range of the scale, such that they rated at least one correspondence using a number close to 0 and at least one correspondence using a number close to 100 even if they thought that all correspondences were "not at all impressive" or that all correspondences were "extremely impressive." These last instructions were given in order to avoid a restriction of range problem in the statistical analysis. (We feared that without this instruction many participants would give the highest possible rating to several correspondences.)

Procedure

The experiment was conducted in a large classroom 5 min after a lecture that all participants had attended. They were told to read the instructions on the rating form, after which any questions would be answered. No questions were asked. The experimenter started the presentation software and left the classroom. A few seconds after the experimenter had left the room, the computer presented the 20 correspondences in a random order (using the Visual Basic 6.0 rnd function, with the system timer as the seed). The participants had been instructed not to rate the correspondences the first time they were presented, as the purpose of the first presentation was to give the participants a "feeling" of the range of the degree of impressiveness of the correspondences. For each correspondence, the particular film clip was presented on a large screen, synchronized with the sound from the receiver in the ganzfeld experiment. The exact wording of the receiver was also presented in written form under the film clip window, as it was sometimes difficult to hear the mentation. Between successive presentations there was a 7 s pause. After all the 20 correspondences had been presented once, the software presented a text for 10 s, stating

that all correspondences were now to be presented once more, but that this time, the students were to *rate* every correspondence. The software then presented the 20 correspondences in a new random order but with a 12-s pause between presentations. After all the correspondences had been shown again, the participants left the room and handed the forms to the experimenter. The experiment took 25 min to perform.

TABLE 2
MEANS, STANDARD DEVIATIONS AND STANDARD ERRORS FOR THE RATINGS OF THE 20 CORRESPONDENCES, SORTED BY MEANS

No.	Hit/miss	*M*	*SD*	*SE*
12	Miss	77.73	24.12	7.27
14	Miss	73.00	23.83	7.19
5	Miss	69.27	28.63	8.63
7	Hit	66.36	25.80	7.78
15	Miss	65.00	25.40	7.66
2	Miss	63.82	30.97	9.34
18	Miss	62.91	26.63	8.03
9	Miss	62.45	24.64	7.43
20	Hit	61.82	29.26	8.82
8	Hit	60.82	25.60	7.72
13	Hit	56.82	28.92	8.72
16	Hit	48.36	25.23	7.61
17	Miss	47.73	35.95	10.84
6	Hit	44.18	35.18	10.61
10	Miss	43.91	26.85	8.10
11	Miss	43.91	23.77	7.17
19	Miss	32.82	21.18	6.38
4	Miss	23.73	17.05	5.14
3	Miss	19.45	27.37	8.25
1	Miss	17.36	15.47	4.67

RESULTS

The six correspondences that were hits (correspondences between the mentation and the target clip in the ganzfeld experiment) received a mean rating of 56.39[2] (*SD* = 8.51) and the 14 correspondences that were misses (correspondences between the mentation and one of the decoy clips in the ganzfeld experiment) received a mean rating of 50.22 (*SD* = 20.51). A Mann-Whitney U-test with type of correspondence (hit, miss) as the independent variable and mean rating of the correspondence as the dependent variable

[2] Unfortunately, at the PA convention in Vienna (Westerlund, Parker, Dalkvist, & Goulding, 2004), the means, standard deviations and *t* values presented were actually the results from Study 4 (see below). We are grateful to Jesper Jerkert, who noticed the error in the Vienna paper.

showed, however, that the difference was not significant: Mann-Whitney $z = .248$, $p = .804$ (two-tailed). The mean ratings for all 20 correspondences, together with standard deviations and standard errors, are presented in Table 2.

Discussion

The correspondences that were hits were not rated as significantly more impressive than the correspondences that were misses. The result is, thus, consistent with the notion that the remarkable correspondences so often reported in ganzfeld experiments are due to subjective validation.[3] The result should be interpreted with some caution, however, as the participants cannot be said to have been 100% blind, because they were all students of the experimenter.

So far, we have presented two studies, both of which have to be cross-validated in order to be conclusive. The first study showed that when a single judge blindly selected impressive correspondences between receiver mentation and film content, these correspondences were distributed between target and decoy clips almost exactly as would be expected by chance. The second study showed that a group of students did not rate the correspondences between mentation and target clips as significantly more impressive than the correspondences between mentation and decoy clips. Perhaps the most obvious conclusion from the above-mentioned studies is that very remarkable correspondences between receiver mentation and film content may very well happen by chance alone.

The chance theory does not provide the only possible explanation of the present result, however. It could be argued, for example, that most or all of the 20 selected correspondences in Study 1 were due to psi. Following this explanation, the correspondences between mentations and decoy clips could be viewed as due to clairvoyance, or, for those receivers who later watched all four clips in the used set, as due to precognition. The same could be said for the correspondences between mentations and target clips but with telepathy as a possible additional explanation.

Although this kind of argument may seem to be unfalsifiable, it is actually falsifiable. We could take half of the 128 mentation files created in the digital ganzfeld study and scramble them so that they became associated with different sets than the original ones. A new judge could then be given the task of listening to all mentations, scrambled and unscrambled, watching the clips in the associated sets, and trying to select the 20 most impressive correspondences. If significantly more of these correspondences belong

[3] AP has a different opinion, which is as follows: Because these results are from a nonsignificant ganzfeld experiment, we cannot as yet draw conclusions concerning the nonvalidity of qualitative studies that are based on the whole mentation report of statistically significant studies. This remains a question for further empirical study.

to unscrambled mentations than to scrambled ones, the clairvoyance hypothesis would gain support. If not, it would lose credibility. To see what would actually happen, a further study was conducted.

Study 3

The purpose of Study 3 was to test the possibility that the remarkable correspondences in Study 1 were due to clairvoyance or precognition.

Method

Half of the 128 mentation files used in Study 1 were associated with sets other than the original ones. Two judges were then given 64 mentation files each. The first judge, Gergö Hadlaczky, carried out the judging as part of an undergraduate course at the Department of Psychology at Stockholm University, in which the students were required to conduct a study and write a scientific paper about it ("C-uppsats"). The second judge, Johan Rosenblad, did the judging for a small fee. For both judges, 32 of the mentation files were associated with sets other than the original ones and 32 were associated with the original sets. The choices of which mentation files would be associated with the original sets and which would be associated with other sets (and which sets they would be) were made automatically by means of a Visual Basic 6.0 program (written by JW) using the rnd function, with the system timer as the seed. This procedure guaranteed that the principal investigator, JW, was not aware of which files had been scrambled and which had not. Both judges were given the task of selecting the 10 most impressive correspondences, so that a total of 20 remarkable correspondences was obtained. They used the same software for judging the sessions as the original external judge (JW) had used. As in Study 1, there were no limitations concerning the length or content of what should constitute one single correspondence, but the judges had to restrict the number of correspondences to 10 each. Both judges were aware of the negative results from Study 1, but they had not been told anything about the specific correspondences that had been selected.

Results

A total of 11 of the selected correspondences came from mentation files associated with the original sets (7 selected by GH and 4 selected by JR) and 9 came from mentation files associated with other sets than the original ones (3 selected by GH and 6 selected by JR). This result is almost exactly at chance level (p = .824, two-tailed, exact binomial test). Examples of some of the most impressive correspondences are described in Table 3 below.

TABLE 3
DESCRIPTIONS OF SOME OF THE SELECTED CORRESPONDENCES IN STUDY 3

No.	A frame from the clip, the mentation that was selected, and the corresponding film clip
1	 Mentation: *"An eye." (In Swedish: "Ett öga.")* Film clip: Jeanne d'Arc. Comment: Precisely after the receiver makes this comment, the camera zooms in extremely closely on one eye and stays zoomed for a number of seconds.
2	 Mentation: *"I see a large bird that first looked like a large black, as large as a gull but black; but then when it turned and flew back, I wonder if it wasn't a predatory bird." (In Swedish: "Jag ser en stor fågel som först såg ut som en svart stor, lika stor som en mås men svart, men sen när den vände och flög tillbaka så undrar jag om det inte är en rovfågel.")* Film clip: Swedish film about two witches ("Glasblåsarns Barn") Comment: The sequence shows a black falcon or crow. It is far away at first, standing still, waiting to attack. Then it starts flying closer to the camera, revealing itself.
3	 Mentation: *"Someone gives me an apple; it is multi-colored." (In Swedish: "Någon ger mig ett äpple, med många färger.")* Film clip: The Wizard of Oz. Comment: The mentation from the receiver comes at exactly the same moment as a girl in the film clip takes an apple from a tree.

Discussion

All correspondences in Table 3 are taken from mentation files that had been associated with sets other than the original ones. Our immediate subjective impression was that the 9 correspondences selected from mentation files associated with sets other than the original ones were equally remarkable as the 11 correspondences selected from mentation files associated with the original sets. To see whether completely blind judges would also get this impression, we decided to let students rate all correspondences in the same way as we did in Study 2.

Study 4

In order to obtain a more precise measure of how remarkable the two different types of correspondences are perceived to be, a group of students rated all 20 correspondences obtained in Study 3. They also rated all 20 correspondences obtained in Study 1, as the students who did this in Study 2 were not perfectly blind. The two hypotheses (considered unlikely by the experimenter, JW) were:

1. For the correspondences obtained in Study 1, the mean rating of the 6 hits would be significantly higher than the mean rating of the 14 misses.
2. For the correspondences obtained in Study 3, the mean rating of the 11 correspondences selected from mentation files associated with the original sets would be significantly higher than the mean rating of the 9 correspondences selected from mentation files associated with the other sets.

The correspondences obtained in Study 1 were not compared with those obtained in Study 3, as they were selected by different judges.

Method

Participants

Twenty-five undergraduate psychology students at Stockholm University participated in the present study (16 women and 9 men, 19-45 years old) as part of course requirements. None of the students had participated in the research methods and statistics course in which the above-mentioned tape by Kathy Dalton had been shown and discussed. Most of the students had, in fact, never met the experimenter, JW, before.

Material

The same software, apparatus, and rating form used in Study 2 were also used in this study. The only difference was that the number of correspondences to be presented and rated was 40 instead of 20.

Procedure

The experiment was conducted in a large classroom on two occasions (with 13 participants the first day and 12 the second). When all participants had arrived, the experimenter described the ganzfeld technique and explained that there sometimes were remarkable correspondences between the receiver's mentation and the content of the target clip, but that there were also similar correspondences between the mentation and the content of one of the decoy clips. The participants were then told to read the instructions on the rating form, after which any questions would be answered. No questions were asked. The experimenter started the presentation software and left the classroom. A few seconds after the experimenter had left the room, the computer presented the 40 correspondences in a random order (using the Visual Basic 6.0 rnd function, with the system timer as seed). The same procedure as in Study 2 was followed, but as there were twice the number of correspondences, the experiment now took about 50 min (instead of 25) to perform.

Results

Hypothesis 1

The mean rating of the 6 hits obtained in Study 3 was 62.78 (SD = 7.82), which was slightly higher than the mean rating of the 14 misses, which was 58.85 (SD = 18.94). A Mann-Whitney U-test with type of correspondence (hit, miss) as the independent variable and mean rating of the correspondence as the dependent variable showed, however, that the difference was not significant: Mann-Whitney z = .247, p = .805 (two-tailed).

Hypothesis 2

The mean rating of the 11 correspondences obtained in Study 3 that were selected from mentation files associated with the original sets was 55.88 (SD = 12.17). This value was actually smaller than the mean rating of the 9 correspondences selected from mentation files associated with sets other than the original ones, which was 60.64 (SD = 12.17). A Mann-Whitney U-test with type of correspondence (from "unscrambled"

or "scrambled" correspondences) as the independent variable and mean rating of the correspondence as the dependent variable showed that the difference was not significant: Mann-Whitney z = -.950, p = .342 (two-tailed).

Discussion

In the discussion of Study 2, we warned that the negative result should be interpreted with some caution, as the participants were not 100% blind. Given the present results, it is very unlikely that this lack of perfect blindness in any way caused the negative results in Study 2. The students who participated in Study 4 had not heard anything about "remarkable correspondences in ganzfeld experiments" before, yet there was no significant difference between how impressed they were by the correspondences that were hits and the correspondences that were misses.

In the discussion of Study 2, it was argued that chance was not the only possible explanation for the negative results, as it could be that most or all of the 20 selected correspondences were due to clairvoyance or precognition. This possibility now seems very unlikely. First, in Study 3, it was shown that of the 20 remarkable correspondences selected from an equal number of "scrambled" and "unscrambled" mentations, only 11 came from "unscrambled" mentations. Second, in Study 4, it was shown that the correspondences selected from "scrambled" mentations were rated as (nonsignificantly) *more* impressive than the correspondences selected from "unscrambled" mentations.

General Discussion

Let us start by giving a short summary of the four studies. In Study 1, an external judge in a ganzfeld experiment selected 20 short segments showing the most remarkable correspondences between ganzfeld mentation and film clip content while being blind to whether the chosen film clip had been used as a target or as a decoy. Only six of the segments showed correspondences between the mentation and the target, which is close to chance expectation. In Study 2, 11 students rated the six correspondences that were hits as being about equally impressive as the 14 that were "misses." In Study 3, the possibility that the 14 correspondences that were misses could have been due to a form of "displacement clairvoyance" was shown to be very unlikely. Half of the 128 mentation files used in Study 1 were associated with sets other than the original ones. Two judges were then given 64 mentation files each, 32 of which were associated with the original sets and 32 of which were associated with sets other than the original ones. Both judges were given the task of selecting the 10 most impressive correspondences, so that a total of 20 remarkable correspondences was obtained. It was found that only 11 of the correspondences that the judges

chose actually came from mentation files associated with the original sets, which is close to chance expectation. Finally, in Study 4, 25 students rated the 11 correspondences that came from mentation files associated with the original sets as being about equally impressive as the nine correspondences that were associated with sets other than the original ones.

A reasonable general conclusion from the present results is that it is possible to obtain what at least some people consider to be very remarkable correspondences between mentation and film content by chance alone.[4] Therefore, one should be very careful in drawing the conclusion that something paranormal is going on just from experiences of spectacular correspondences between ganzfeld mentation and film clip content. This warning is not new, of course, but it has not, in our view, been taken seriously enough. Our hope is that the present findings will serve as a reminder of the danger of relying too much on subjective impressions in the ganzfeld research and other parapsychological research.

This is not to say, of course, that correspondences between mentations and film clips in ganzfeld experiments that can *not* be dismissed as coincidences are inconceivable or have never occurred. The problem is, however, that we lack good criteria for identifying such correspondences and even if we could do so, we would still have the problem of distinguishing between correspondences that are due to psi and those that are not (e.g., correspondences that are attributable to knowledge about the film clip on the part of the receiver).

It may be argued that remarkable correspondences found in ganzfeld experiments that have demonstrated significant psi-hitting have been more remarkable than the correspondences found in the present experiment, which did not demonstrate significant psi-hitting. There is a difficulty in comparing our results with those of successful ganzfeld experiments because, in those experiments, the sequences of impressive correspondences are in general longer than they are in the present experiment. Comparing longer sequences with shorter ones may give the impression that the former are more impressive. This could be due to longer sequences permitting multiple correct pieces of information to be integrated with one another in a time sequence. Some of the examples in the videotape compiled by Kathy Dalton mentioned in the introduction can be said to contain such patterns. But longer sequences are also more vulnerable to the dependency problem discussed in the introduction to Study 1 above. As we wanted to avoid this problem, we have used only relatively short sequences, making it somewhat difficult

[4] We have, of course, not been able to consider all possible paranormal explanations of our correspondences. For example, it is theoretically possible that receivers in the original ganzfeld experiment were influenced by the experiences that the judges in Experiment 3 had when watching the film clips in the scrambled sets. We think, however, that these kinds of paranormal explanations lie beyond what is researchable.

to compare our short correspondences with the typically longer ones from previous ganzfeld experiments. However, when comparing our own correspondences with the best correspondences *of the same length* from ganzfeld experiments with positive results, all of us have the subjective impression (which, of course, should be experimentally confirmed) that there is no clear difference in how remarkable they are. In any case, the fact that the present ganzfeld results were not significant does not in any way invalidate our main conclusion that very remarkable correspondences between mentation and film content can be obtained by chance alone.

One objection to the results presented here is that they are "much ado about nothing" because one assumption behind the present work (and behind the real-time digital autoganzfeld technique) is that the (presumably paranormal) correspondences obtained in ganzfeld experiments are synchronized *in real time* with the receivers' mentation and the content of the target. This assumption is not held by all parapsychology researchers, and perhaps not even by the majority of them.

It is true that the remarkable correspondences between receiver mentation and target or decoy content selected in the studies presented here were selected largely owing to the real-time aspect of the correspondences. But this is simply due to the fact that correspondences synchronized in real time were judged as more impressive than correspondences that were not synchronized in real time.

As a thought experiment, one could try to imagine what the results of the studies presented here would have been if the "remarkableness" of a correspondence had not been dependent on the real-time aspect to the same extent as it actually was: For most of the chosen correspondences, the event on the film clip that corresponded to the receiver mentation occurred within ±5 s. What would have happened if this time span had been extended to, for example, ±1 min? The answer is, we believe, that many more correspondences would have been chosen. In Study 1, perhaps 200 instead of 20 remarkable correspondences would have been selected. But is there any reason to believe that this would have changed the proportion of target clips included? We do not think so, because this would suggest that one characteristic of psi is that psi-mediated correspondences are *not* in real time, but that it is *more* probable that a psi-mediated correspondence between a statement from a receiver in a ganzfeld experiment and the content of the target clip occurs when the content of the target clip happens at, for example, "statement + 60 s" than at "statement + 0 s." To our knowledge, this has never been suggested in the parapsychological literature.

We do not think there is any urgent need to replicate the present study for the purpose of demonstrating that striking subjective similarities can be obtained between mentation and film clips in the ganzfeld research by chance alone, even though it would be of some interest to see whether longer sequences than those considered in the present studies would

yield even more striking similarities than the present ones. Pursuing the study of remarkable correspondences between mentations and film clips can, however, be profitable in identifying the properties of film clips and mentations that are conducive for evoking experiences of remarkable correspondences. Normative data concerning the usual mentation images and the resulting chance correspondences that occur should improve ganzfeld judging and would even have some interest for mainstream cognitive psychology.

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THE SENDER AS A PK AGENT IN ESP STUDIES: THE EFFECTS OF AGENT AND TARGET SYSTEM LABILITY UPON PERFORMANCE AT A NOVEL PK TASK[1]

BY NICOLA J. HOLT & CHRIS A. ROE

ABSTRACT: Recent research to evaluate whether the sender plays any active role in ganzfeld GESP experiments has used a random number generator (RNG) as a "virtual receiver" to select descriptors from a pool of statements (e.g., Roe & Holt, 2005; Roe, Holt, & Simmonds, 2003). Here participants focused on the virtual receiver when attempting to "send" information concerning a randomly selected target clip. This obviated the need for a human receiver and allowed for immediate feedback of a 24-statement "virtual mentation" consisting of 8 statements selected by each of 3 methods differing in lability: random number table; pseudorandom process; and live RNG. We hypothesised that the greatest psi effect would be found with the most labile target system and with the most "stable" senders. Virtual mentations from 40 trials were rated by 2 independent blind judges for similarity to the target and 3 decoys. Significant main effects of target and sender lability were not obtained, but a predicted interaction between them was found, $F(4,74) = 4.959$, $p = .001$, as senders with high trait lability performed best with the least labile target system and vice versa. This result was interpreted in terms of Stanford's (1978) conformance behaviour model.

It is not straightforward to determine whether a sender makes an active contribution to the success of ESP experiments. Although there does seem to be a subtle advantage for telepathy experiments over equivalent clairvoyant studies (see, e.g., Honorton, 1995; Ullman & Krippner, 1973), this might be explicable in simple psychological terms, such as the sharing of responsibility for failures (and successes) at a psi task and the calming effects of having a friend accompany one to an unusual and potentially anxiety provoking situation (Morris, Dalton, Delanoy & Watt, 1995). In earlier papers we described a novel method that promised to provide a more direct assessment of any sender contribution (Roe & Holt, 2005; Roe, Holt, & Simmonds, 2003) by introducing a "virtual receiver" in the form of a random number generator (RNG). The output of the RNG was associated with a collection of 768 statements that had been coined to describe the clips in the target pool. During the normal sending period the RNG was continually sampled and a "virtual mentation" was produced that consisted of the 20 statements corresponding to the numbers that had been selected most often. Independent judges then used the virtual mentations to rank order four video clips (the target clip and three decoys) in much the same

[1] We would like to gratefully acknowledge the financial support of the Bial Foundation, which enabled us to conduct this study.

way as the receiver typically does in a conventional free-response ESP study. The participants did not see the virtual mentation at any point.

In the first such study (Roe, Holt, & Simmonds, 2003) the RNG was run in the receiver's room in an otherwise standard ganzfeld study. The sender was not asked to influence the RNG in any way but to send information to his or her partner undergoing ganzfeld stimulation. An independent judge (JW) rated the virtual mentations according to their similarity to the target video clip and three decoys, as the "human receiver" had done with his or her own personal mentation. The human receivers rated the target clip most highly in 35% of the trials (for which the MCE is 25%), a sum-of-ranks analysis for which was statistically significant ($z = 1.77$, $p = .038$, one-tailed). More relevant here, the statements selected by the virtual receiver enabled the independent judge to correctly identify the target clip in 32.5% of the trials. While in the expected psi-hitting direction, this was not statistically significant ($z = 1.48$, $p = .069$, one-tailed). This outcome was, however, considered to be encouraging and worthy of further investigation.

In a subsequent study, Roe and Holt (2005) attempted to replicate this finding and also compared the performance of the virtual receiver in two conditions: ganzfeld trials with a sender and without a sender.[2] It was considered that the no-sender condition would act as a control against which to evaluate performance in the experimental condition. Two independent judges were also used in this replication. This was prompted by a concern raised by Roe, Holt, and Simmonds (2003) that the selected statements could have been sufficiently flexible in how they might be interpreted by the independent judge to allow any above-chance scoring in that study to be due to the judge's own psi, as she perhaps unconsciously selected the target and then contrived an interpretation of the statements after the fact that allowed it to be ranked first. The inter-rater reliability between the two judges employed by Roe and Holt (2005) was poor, with a Cohen's kappa of .202, suggesting that the mentations were indeed open to a range of interpretations. Across both the sender and no-sender conditions the experienced independent judge, JW, correctly selected the target in 30.6% of the trials, whereas a newly recruited judge, RD, had a below-MCE hit rate of 16.7%. This appears to lend some support to the judge-ESP hypothesis. However, for both judges, performance was better in the experimental condition than the control condition. JW obtained 42.1% hits in trials with a sender (SOR = 43, $z = .821$, $p = .412$, two-tailed) and 17.6% hits in trials with no sender (SOR = 47, $z = -.868$, $p = .384$, two-tailed). While RD obtained 26.3% hits in trials with a sender (SOR = 44, $z = .616$, $p = .535$, two-tailed) and 5.9% hits in trials with no sender (SOR = 46, $z = -.651$, $p = .516$, two-tailed).[3] The effect sizes for the sender trials were positive in this study, at $r = .188$ (JW) and $r = .141$ (RD), and

[2] Aspects of this study focusing on the human receivers' performance in these conditions were reported by Roe, Sherwood, & Holt (2003).

[3] Though we should note that in RD's case it is the sender condition that better approximates mean chance expectation.

although smaller than found previously, were still regarded as suggestive of a sender effect that warranted further consideration.

In planning the current replication we were aware of the practical difficulties we had encountered in recruiting and scheduling sender-receiver pairs in these previous studies, and we speculated that it might be worthwhile to brief participants more thoroughly about the RNG as virtual receiver and thereby obviate the need for a human receiver. We hoped that participants would be more focused on the nature of the psi task and that this might improve performance, particularly since by changing the participant's primary focus from a human sender to the RNG we were able to offer them statement-by-statement feedback. This has been typically regarded as an important feature for successful GESP in the ganzfeld (see, e.g., Parker, 2000). Following Roe (1996), the statements appeared as if somebody were typing them, even generating and correcting typing errors. It was envisioned that this would give the virtual receiver a "human quality," and to enhance this impression the feedback was described to senders as analogous to hearing the mentation of the receiver in a standard ganzfeld experiment. Senders were able to rate these statements according to how closely they corresponded to their experience of sending. It was hoped that this level of involvement in the feedback process would outweigh any increase in participants' scepticism about interacting with a computer rather than a human.

In addition to these alterations in protocol, we planned to manipulate the source of randomness by which mentation statements were selected in order to explore the effects of target lability, following Braud (e.g., 1981, 1994), who has talked at length and persuasively about its importance in the occurrence of PK. Braud (1980, p. 301) has described the property of lability as "characterised by a ready capability for change — the ease with which a system can change from one state to another and the amount of 'free variability' in the system." Braud and Schroeter (1983) have demonstrated how this can be manipulated practically in a traditional PK task by modifying how random numbers are generated. They found that more labile selection methods (such as radioactivity-based random number generators) produced larger effect sizes than less labile ones (such as pseudorandom sources and random number tables), although this trend failed to achieve significance. One of us (Roe, 1996) attempted a simplified replication of this effect using a pseudopsychic paradigm in which participants believed they would be given a reading based on a Tarot card spread that they had generated. They were informed that to avoid sensory leakage from Tarot card reader to client their reading would be communicated via a computer network. In fact, all statements were drawn from a pool of already-generated descriptors and were selected by two methods that differed in lability — using a true RNG or using values from a predetermined table of random numbers. Each participant received an equal number of reading items from each randomness source, presented as if typed in real time by a human operator, and rated them for accuracy while

blind to this lability manipulation. It was found that ratings for statements generated using an RNG source were higher (i.e., were considered more accurate) than those generated using random number tables, suggestively so by one measure and significantly so by another. Given the relative success of our previous studies in the current series, which had been derived in part from Braud and Schroeter (1983) and Roe (1996), we felt it worthwhile to extend the design to attempt to replicate this lability effect.

These lability effects have been described by Braud (1980) in terms of Stanford's conformance behaviour model (Stanford, 1978), which makes no distinction between PK and ESP but rather conceptualises psi as the "conformance behaviour" of one system (e.g., the output of an RNG or the activity of a human brain) to the needs of a "disposed system" (e.g., the intention of a PK agent or a target image in a clairvoyance task). The latter is characterised as a relatively ordered and stable system that is thus not predisposed to vary, whereas the conforming system is characterised as a relatively disordered or unconstrained system that is free to vary and thus may be able to change in ways that more closely conform to the disposed system. In terms of classical PK studies, Braud (1980, 1981) predicted that the likelihood and/or magnitude of a conformance behaviour effect would be proportional to the degree of lability, "free variability" or "capability for change" of the "target system" and the degree of constraint, "inertia" or structure of the PK agent. In this study we would therefore expect the greatest conformance behaviour with the most labile virtual receiver, but also with senders who present as most stable[4] on personality and attitude measures. Braud, Shafer, and Mulgrew (1983) have, for example, previously considered the effects of cognitive lability, which they defined as the degree of free variability in the mental processes of percipients, upon psi performance. They assessed cognitive lability by measuring fluency of word associations and by "perceptual lability" (the frequency of alternations between perceptual representations of a Necker cube), but found that only "word fluency" was significantly correlated with subsequent psi scores ($r = .39$, $p < .05$, two-tailed). In the present study, it was decided to widen the construct of lability/stability by considering lability of cognition, affect, experience, and behaviour—trait factors tapping into the constraint/rigidity versus spontaneity that Stanford (1990) argued might moderate psi outcome. Whereas trait *lability* might be theorised by Stanford to facilitate ESP performance (because the participant needs to "conform" to the target system), the conformance behaviour model was interpreted here to predict that trait *stability* would facilitate PK performance (because the target system needs to conform to the agent's intention).

[4] "Stability" may be understood as the antithesis of lability, and so characterises constrained systems with very restricted capability for change (Braud, 1980, referred to this property as inertia). A system with a high degree of stability may be referred to as stabile to contrast it with labile systems.

Study Aims

Four directional trends were hypothesised, as listed below. Other, exploratory, analyses were conservatively kept as two-tailed.

1. For each randomness condition RNG mentations will allow each independent judge to rank order the target and decoy clips such that the target clip is ranked higher than would be expected by chance.
2. Each independent judge's sum-of-ranks for live RNG statements (Live condition) will be lower than for pseudorandom statements (Pseudo condition), which will be lower than for random number table statements (Table condition).
3. Less labile (i.e., more "stable") individuals will demonstrate higher psi performance (z-scores) on more labile systems.
4. The participants' subjective ratings of the degree of correspondence between the mentation and their experiences and thoughts while sending information about the target video clip will be higher for live RNG statements than for pseudorandom statements, which will be higher than for random number table statements.

Exploratory analyses were planned in order to consider the covariation between participants' subjective correspondence ratings (across the target lability conditions) and the independent judges' ratings.

Method

Design

This study adopted a 3x3 mixed ANOVA design in which lability of target selection method (live RNG, pseudorandom, and random number table) and participant lability (high, medium, and low) were independent variables. The dependent variable for planned analyses was the sum of target ranks awarded by independent judges; the dependent variable for exploratory analyses was the z score of participants' correspondence ratings.

Participants

An opportunity sampling method was used to draw 40 participants (18 males and 22 females; mean age = 33.05, range = 17–84). These consisted of friends and colleagues of the experimenter (n = 12), students at the University of Northampton (n = 10), and participants recruited from the wider community using posters and media appeals (n = 18). Fifteen

participants had participated in formal parapsychological experiments before, whereas 25 were novices. Lab personnel did not serve as participants. Nicola Holt conducted all trials in this study.

Participants may have had above-average trait lability, scoring higher on openness to experience and neuroticism and lower on conscientiousness than the norm.

Apparatus and Materials

Details of the experimental suite have been described by Roe, Sherwood, and Holt (2003), although in the current study only one experimental room was required, the "senders' room." This study used an automated ganzfeld computer system developed by Paul Stevens and written in Microsoft Visual Basic v5 that presented video material via the API for Media Player v7. Video clips are stored digitally as MPEG files, labeled 1a, 1b, 1c, and so on.

Part of the target pool used by Roe and Holt (2005) was adopted here, and it consisted of 52 digital video clips that were drawn from commercial films to reflect a range of emotions and themes. Clips were arranged in 13 sets of 4 so that members of a set were as distinct as possible. Copies of the target pool are available on CD or DVD from the first author on request. Randomisation is achieved using the Visual Basic pseudorandom algorithm (rnd), seeded using the timer at the start of the program (Randomize Timer). Once the "Start" button has been pressed, the computer selects a target set and then selects 1 of the 4 clips within that set.

A new descriptor pool from which the RNG would draw was created for this study so as to reflect the clips in the current target pool. This consisted of 8 statements for each of the 52 clips to give a total pool of 416. These statements were coined by the authors to describe the target set but were intended to be essentially accurate yet not overly specific (e.g., "I feel dreamy and trancelike" rather than "someone is hypnotising me") so that they were more characteristic of the kinds of descriptions given during ganzfeld stimulation, and also so that they could in principle help identify targets from other sets.

The mentation-generating program was written in QuickBasic v1, and ran on an ACER Extensa 503T laptop running under Windows 98. The program was adapted from versions used in previous studies so as to be able to compare three different statement-selection methods, using data generation methods described in the following paragraphs.

Random number table statements (the Table condition) for each participant were selected prior to commencement of the study using random number tables (Clark-Carter, 1997, Table X). An entry point to the list was determined using the RND function of a Casio fx-100 scientific calculator to give the row and the item along that row at which to begin the series. Reading from that entry point, digits were considered in sets

of three and each value in the range 001 to 416 was taken to generate a single data file that was sufficiently long to cover all participants in the study. These data were arranged in a 24x40 array, with each row containing the preselected statement numbers for a single participant. The program checked whether a statement had already been selected for that participant for that condition, and when this was the case, the next value in the series was used.

Statements using pseudorandom data (the Pseudo condition) were generated in real time using the INT(RND) command of Visual Basic to produce a value between 1 and 416. As for Table data, the program checked whether a statement had already been selected for that participant for that condition, and when this was the case, a new value was generated.

For RNG data (the Live condition), the program sampled an Orion RNG v1.1 attached to a serial port. We required the RNG to generate numbers in the range 1–416, but this exceeds the "natural" range of RNG outputs that runs from 0–255. Because of difficulties in combining more than one sample in a manner that ensured that all the possible outcomes were equally probable, we adopted a method in which for each selection the RNG was sampled 416 times, corresponding to the 416 statements. The iteration that generated the highest value became the selected statement (e.g., if only sample 177 returned the value 255 then statement 177 was selected). In the event of a tie, the first sample to generate the joint-highest value was selected. Again the program checked whether a statement had already been selected for that participant for that condition, and when this was the case, the process was repeated.

It was possible for the same statement to be selected and presented for more than one condition.

Materials

The standard Northampton Participant Information Form (PIF) was adapted in this study. The resulting 15-item measure included questions concerning biographical and contact details (6 items); belief in PK (3 items); previous participation in parapsychological studies (2 items); practice of mental/physical disciplines (1 item); creativity (2 items); and self-perceived happiness (1 item). Copies of all in-house measures are available from the first author on request. Participants also completed a number of other measures pertaining to lability.

In Study 1 (Roe, Holt, & Simmonds, 2003) "openness to experience" was negatively correlated with psi-success, rs (N = 40) = -.266, p = .097, two-tailed, and conscientiousness was positively associated with psi-success, rs (N = 40) = .212, p = .189, two-tailed. Individuals who are open to experience are described as curious about both inner and outer worlds and willing to entertain novel ideas and values, whereas conscientious individuals are conceived as "directed," competent, and striving toward achievement

(Costa & McCrae, 1992). These trends were deemed of interest to the "lability hypothesis." Hence we used the NEO Five-Factor Inventory (NEO-FFI, Costa & McCrae, 1992), a 60-item questionnaire with five subscales assessing neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness. Each subscale has 12 items with a five-point Likert scale response format. As a measure of emotional instability and poor impulse control, neuroticism was included in the lability construct.

Persinger (1983) argues that all humans can be placed on a continuum of temporal lobe stability and that increased electrical lability of the temporal lobes may facilitate psi experiences (Persinger, 1989). He describes the person with temporal lobe lability as more likely to be impulsive, versatile, imaginative, emotionally sensitive, verbal, interested in philosophical questions and aesthetics, and suggestible. The complex partial epileptic signs subscale of the Personal Philosophy Inventory (Persinger & Makarec, 1987) was used in this study. It consists of 16 items pertaining to temporal lobe lability (e.g., visions, hearing inner voices, intense sensations of smells without an obvious source, sense of noesis, perceptual aberrations, bodily vibrations, and dissociation from "reality") with a dichotomous (yes/no) response scale.

A measure of mood lability was also used, which was developed to screen for bipolar disorders (Akiskal et al. 1995). This consisted of two items with a seven-point Likert response scale ranging from "not at all" to "very much so": for example, "My mood often changes from happiness to sadness, without knowing why" and "I have frequent ups and downs in mood, with and without apparent cause."

Braud (1981) equates the "novelty generation" involved in the creative process with lability. Hence, aspects of creativity were included in the lability construct. Holt, Delanoy, and Roe (2004) found that rather than cognitive, personality, or domain-based components of creativity, only one creativity component, termed "intrapersonal awareness" was significantly correlated with the incidence of spontaneous parapsychological experiences (r = .45, p = .000001). This component may be conceptualised in terms of emotional and cognitive lability and was composed of scores on two measures:

The Emotional Creativity Inventory (Averill, 1999), a 30-item scale with a five-point Likert scale that measures three facets of emotional experience: preparedness, novelty, and authenticity and effectiveness.

The Creative Cognition Inventory (unpublished measure by Holt), a 29-item scale with a five-point Likert scale, assessing the use of different cognitive styles in the creative process, with seven subscales: heightened internal awareness; intuition and inspiration; linear, goal-directed cognition; playful, absorbed cognition; the use of analogy; and oneiric cognition (e.g., ideas arising in dreams).

Each trial was followed by a semi-structured interview in which participants were asked about their subjective impressions of the success of the trial, their experience of participating, and the type of sending strategies used. These qualitative data will not be considered in this paper.

Procedure

Potential participants were sent an information sheet illustrated with photographs that described most aspects of the study. This provided a rationale for the "sender as PK agent" paradigm and outlined the stages of the experimental procedure. Prior to the trial, participants completed a battery of measures. Participants were greeted on arrival and escorted to a reception room that had been specially prepared with comfortable chairs, a coffee table, rugs, paintings, and curtains so as to make participants feel as comfortable and relaxed as possible prior to the trial. The experimenter encouraged an informal and positive atmosphere, discussing the procedure and answering any questions that arose while sharing refreshments. Participants were informed of previous ganzfeld studies that had used an RNG as a proxy receiver. They were told that this study was an extension of such research without the added complications of a "human receiver" and were encouraged to focus on enjoying and getting involved in the task. Participants were not initially aware of the different target lability conditions. They were then shown the sender's room, and their role was explained again as they were made familiar with the setting and equipment.

Participants were seated in a comfortable office chair and shown the laptop computer screen on which randomly selected statements would appear. They were shown how to rate each statement after it had appeared, using the laptop's number keyboard. Then participants typed their name and the date into the laptop, after which a set of instructions appeared for them to read. Participants were shown an adjacent computer monitor on which the target video clip would be displayed and were shown how to adjust the volume of the video clip on the speakers and how to pause the video clip if they wished. Participants were also shown how to alter room lighting conditions using a dimmer switch. When each participant was ready to begin and had no more questions, the experimenter initiated the program that selected the video clip to begin playing in 1 minute's time, wished the person good luck and waited in the adjacent reception room for the trial to finish. Any information that the participant might need during the trial was clearly presented on posters on the wall of the room so as to allay any anxiety about remembering all of it.

During the sending period, a randomly selected 1-min video clip was played to the sender 14 times, with a 5-s pause between each repetition. Participants were advised to watch the clip once in order to become familiar with it and then to initiate the selection of random statements on the laptop. When they did this, a statement would be selected and would appear on the

screen, letter by letter, as if being typed. It would sometimes make a typing error and go back to correct it. When the statement was complete, a question mark would appear at the bottom of the screen to cue the senders to rate how similar each statement was to their experience (using a nine-point scale on which 1 = not at all similar and 9 = highly similar). When participants had typed in a correspondence rating, another statement would begin to appear after a delay of a few seconds. Participants were encouraged to rate the statements according to the entire content of their experience rather than just literal associations with the target clip, for example, feelings of tiredness, seemingly tangential thoughts, and so on. In total, 24 statements were rated by each sender, 8 from each target system. For each participant the statements were drawn in a consistent sequence from the three target lability systems (ABCABC...), and this order was counterbalanced across participants. When all 24 statements had been presented and rated, the program informed them that the trial had been completed, thanked them for participating, and asked them to inform the experimenter that they had finished.

The experimenter and the participant chatted informally. With the participants' permission, a record was made of the subsequent discussions of the meaning attributed to statements that had been selected during the trial, focusing on correspondences that seemed of interest to the senders and their experiences of sending. This led to a semi-structured interview concerned with the sending strategies adopted. The experimenter then fully debriefed the participants concerning the randomness conditions and the lability hypotheses and provided them with an opportunity to ask any further questions about the study.

After completion of all trials in the series, each participant's statement set was separated into three mentations, according to the lability source: RNG, Pseudo, and Table. Each of these mentations was given a new and independent code so that it was not possible to identify the sequence in which the trials occurred or any pattern between them without cross-referencing. Two judges who were otherwise uninvolved with the study[5] and who were blind to this manipulation were thus provided with 120 mentations, each consisting of 8 statements. They were informed of the target set for each mentation and independently rated the four clips in that set according to the degree to which they reflected the content of the mentation, much as a receiver would do in a standard ganzfeld trial.

Results

Inter-Rater Reliability in the Rank Ordering of Clips by the Independent Judges

For each condition of each trial, the independent judges compared the 8 statements to the four video clips for that trial, giving each clip a

[5] We are grateful to Jacqui Wilson and Louie Savva for serving as independent judges.

confidence rating (based on similarity between the clip and the mentation) between 0 and 99%. These were converted into target rankings, from 1 if they rated the target clip highest to 4 if they rated it lowest. We were concerned to assess the degree to which the independent judges' ratings would be determined by the mentation, with the alternative being that there was sufficient scope for "interpretation" that judging may reduce to an elaborate forced-choice ESP task for the independent judge. The target rankings of the two independent judges were calculated for each target lability condition. Cohen's Kappa (estimating the degree of similarity between the judges' rankings across trials) was considered poor in each case: $\kappa = .299$ ($p = .001$) for the Table condition; $\kappa = .096$ ($p = .287$) for the Pseudo condition; and $\kappa = .036$ ($p = .688$) for the Live condition. It may be that the independent judges are picking up different information in the mentations based on individual differences in judging strategy or conditions of judging. Because of this low interjudge reliability, it was decided not to combine their rankings but to treat judge identity as a further independent variable in subsequent analyses.

Target Lability and Psi Performance

The ranks allocated to target clips by the independent judges based on the three mentation types (Live, Pseudo and Table) are reported in Table 1. For the ratings by JW the direct-hit rates for all target systems are below mean chance expectation (MCE = 25%). For both the mentations generated by the random number table and by the pseudorandom process the direct-hit rate is 22.5%, and for the live RNG the direct-hit rate is 12.5%. The sum of ranks does not differ significantly from chance expectation for any of the target lability conditions. JW worked in our two previous studies, giving above-MCE direct-hit rates of 32.5%, $z = 1.485$, $p = .069$, one-tailed, $ES(r) = .235$, and 42.1%, $z = .821$, $p = .412$, two-tailed, $ES(r) = .188$, in ganzfeld conditions with a sender, when statements were generated by a live RNG in the receiver's room. In this study, for the live RNG condition there is a trend toward psi-missing, with an effect size comparable to that of the earlier studies, $z = -1.485$, $p = .138$, two-tailed, $ES(r) = .235$. In the other conditions, however, the effect sizes are not comparable, being $r = .011$ in the Pseudo condition, and $r = .034$ in the Table condition.

For the ratings by LS, a new independent judge,[6] the direct-hit rates for all target systems are above mean chance expectation. For both

[6] LS had previously been involved with a ganzfeld study at Liverpool Hope University and so had some experience of the free-response judging procedure both from a participant's and an experimenter's perspective. Prior to judging the data for this study LS had also been involved as a research assistant in a dream ESP project (Roe, Sherwood, Savva, & Baker, 2005) for which he had been trained and undertaken pilot trials so had some experience of the judging procedure at Northampton, albeit with a separate target pool. Nevertheless, LS would be regarded as less experienced than JW, who has served as independent judge in all studies in this series (Roe & Holt, 2005; Roe et al., 2003) and this may have contributed to differences in outcome.

the mentations generated by the random number table and by the live random process the direct hit rate is 27.5%, *ES(r)* = .012, and for the pseudo-random process the direct hit rate is 32.5%. The sum of ranks does not differ significantly from chance expectation for the latter, but again has an effect size commensurate with previous research, $z = 1.485$, $p = .138$, two-tailed, *ES(r)* = .235.

TABLE 1
A COMPARISON OF TARGET RANK FREQUENCIES FOR MENTATIONS BY TARGET SYSTEM ($N = 40$)

	Target system	Rank				SOR	*z*	*P* (two-tailed)
		1	2	3	4			
Independent judge JW	Table	9 (22.5%)	11 (27.5%)	9 (22.5%)	11 (27.5%)	102	-.21	.83
	Pseudo	9 (22.5%)	12 (30%)	10 (25%)	9 (22.5%)	99	.07	.94
	Live	5 (12.5%)	12 (30%)	10 (25%)	13 (32.5%)	111	-1.48	.14
Independent judge LS	Table	11 (27.5%)	11 (27.5%)	8 (20%)	10 (25%)	97	.08	.94
	Pseudo	13 (32.5%)	13 (32.5%)	6 (15%)	8 (20%)	89	1.49	.14
	Live	11 (27.5%)	11 (27.5%)	8 (20%)	10 (25%)	97	.08	.94

Interaction Between Lability of the Sender and Lability of the Target System

A composite score of sender lability was created by summing scores on all the trait lability measures that were selected on a theoretical basis in order to cover lability of behaviour, emotions, cognition, and experience. These components all formed significant correlations with the composite measure in the expected direction, as follows (all values one-tailed): the use of nonlinear forms of cognition, r_s ($N = 40$) = .828, $p = .0000001$; emotional creativity, r_s ($N = 40$) = .743, $p = .0000001$; temporal lobe lability, r_s ($N = 40$) = .647, $p = .00003$; mood lability, r_s ($N = 40$) = .580, $p = .00004$; openness-to-experience, r_s ($N = 40$) = .436, $p = .0001$; neuroticism r_s ($N = 40$) = .306, $p = .028$; the use of linear cognition, r_s ($N = 40$) = -.331, $p = .018$; and conscientiousness, r_s ($N = 40$) = -.296, $p = .032$. This composite lability variable had a Kaiser-Meyer-Olkin statistic of .737, suggesting that its components shared sufficient variance to represent an underlying construct. Scores on the composite lability measure approximated the normal curve (Kolmogorov-Smirnov statistic = .113, $df = 40$, $p = .200$), ranging between 121 and 270, with a mean score of 211.5.

A mixed 3 x 3 x 2 ANOVA was performed, with psi performance (z scores) as the dependent variable. Factor 1 was "target system lability," within subjects with three levels: Table, Pseudo, and Live. Factor 2 was "sender lability," for which participants were allocated to one of three conditions based on their scores on the composite lability measure so as to give approximately equal groups: low (n = 13); medium (n = 14); and high (n = 13) (based on a three-way split). Factor 3 was "judge," between subjects, Level 1 being JW and Level 2 being LS.

There were no significant main effects of target lability, $F(2,74)$ = .169, p = .845, or sender lability, $F(2,37)$ = .559, p = .651. Neither was there a significant difference in overall scoring between the independent judges, although there was a trend for LS to obtain higher z scores overall, $F(1,37)$ = 2.056, p = .160. The independent judges appeared to obtain a similar pattern of scoring in that there was no difference between their ratings across either the three target lability conditions, $F(2,74)$ = .690, p = .418, or the three sender lability conditions, $F(2,74)$ = .894, p = .418. However, there was a significant interaction between the lability of the target system and the lability of the sender, $F(4,74)$ = 4.959, p = .001.[7] A similar pattern appeared to emerge for both independent judges, with no significant difference between the target and sender lability interactions of JW and LS, $F(4,74)$ = 1.227, p = .307.

The form of the target x sender lability interaction is displayed in Figure 1. As hypothesized, stable (low lability) senders performed at the highest level with statements generated by the most labile system (the live RNG) (with hit rates of 23% by JW and 46% by LS), whereas highly labile senders performed at the lowest level with statements generated by the live RNG (with hit rates of just 8% for both JW and LS). Conversely, highly labile senders performed at the highest level with statements generated by the most stable system (the random number table), with hit rates of 46% by JW and 54% by LS, whereas "stable" senders performed at the lowest level in this condition (with hit rates of 0% by JW and 8% by LS). It appears that "medium labiles" had more psi-hitting in the pseudo random condition (the "medium" labile system), with hit rates of 36% by JW and 50% by LS.

Conducting post hoc tests revealed that the interaction effect consisted of the following significant differences: high lability senders had significantly higher z scores in the Table condition than in the Live condition, $t(12)$ = 3.056, p = .010, two-tailed, and stable senders had significantly higher z scores in the live RNG condition than in the table condition, $t(12)$ = -2.495, p = .028, two-tailed.

The Source of Randomness and Senders' Subjective Correspondence Ratings

Because participants received immediate feedback they were able to evaluate the degree of correspondence between each statement and

[7] This is significant when corrected for multiple analyses with the Bonferroni method where the criterion level for significance is .003 (.05/18).

their own sending experience. It was expected that statements in the Live condition, as the most labile source, would receive higher correspondence ratings; however this was not the case. Table 1 shows the mean scores for each target lability condition. Since correspondence ratings were on a nine-point scale, with 8 statements in each condition, this gives total correspondence scores in the range 9–72. The values in Table 2 equate to an average rating per statement of only 3.5. The subjective correspondence ratings are marginally higher for the Table condition and lowest for the Live condition. A mixed 3 x 3 ANOVA was conducted, with subjective correspondence ratings as the dependent variable. Factor 1 was "target system lability," within-subjects with three levels: Table, Pseudo, and Live. Factor 2 was "sender lability," as described previously: low (n = 13), medium (n = 14), and high (n = 13). From this, no statistically significant effects emerged. The correspondence ratings of senders did not differ significantly across the target lability conditions, $F(2,74) = .480$, $p = .620$. Sender lability, likewise, did not impact significantly upon the degree of correspondence between sending experience and the virtual mentation—more labile senders did not report more "meaning in randomness," $F(2,37) = .682$, $p = .607$. Finally, there was no significant interaction effect between sender and target lability; more stable senders did not report more correspondences in the more labile target conditions, as might be predicted by extending the lability hypothesis, $F(4,74) = .641$, $p = .532$.

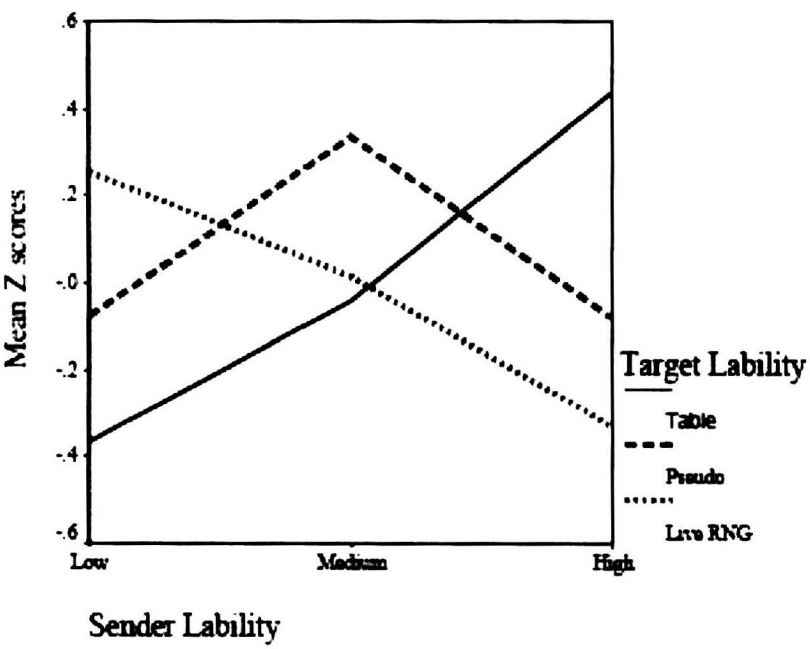

Figure 1. Interaction between target and sender lability on psi performance

TABLE 2
SENDERS' SUBJECTIVE RATINGS OF THE DEGREE OF CORRESPONDENCE BETWEEN THEIR EXPERIENCE AND THE RANDOM STATEMENTS GENERATED BY THE THREE TARGET SYSTEMS

	Table	Pseudo	Live
M	29.70	29.03	28.20
SD	11.84	10.87	11.67
N	40	40	40

Covariation of Independent Judges' Ratings for the Target Clip with Senders' Subjective Correspondence Ratings for Each Target Lability Condition

TABLE 3
SPEARMAN RHO CORRELATIONS BETWEEN THE SENDERS' SUBJECTIVE CORRESPONDENCE RATINGS AND PSI PERFORMANCE BASED ON THE INDEPENDENT JUDGES' RATINGS FOR EACH TARGET SYSTEM (AND TWO-TAILED PROBABILITIES)

		Independent judge JW	Independent judge LS
Participants' correspondence ratings	Table	.063 (.698)	.098 (.549)
	Pseudo	-.061 (.708)	.151 (.386)
	Live	.131 (.421)	-.087 (.592)

For each lability condition, the ratings of the independent judges were converted into z scores, a standardised measure of distance and direction of the target rating from the mean similarity rating for the four targets in each trial. This was deemed preferable to using simple ranks because it is more sensitive and allows for greater variance across participants, which is essential when considering covariation. These were compared to the participants' correspondence ratings for each condition, that is, the cumulative ratings (0–9) for all 8 statements for that condition, to assess whether there was any concurrence between participants and judges. There were no significant correlations between senders' correspondence ratings and the independent judges' ratings in each condition. Table 3 shows that these all have effect sizes, r_s, of .151 and below. It appears that the senders and judges saw different links and associations between the statements and the target clip.

Discussion

Contrary to expectation this study did not find that the virtual mentations enabled independent judges to identify the target clip at a level significantly greater than chance expectation in any of the randomness conditions. It failed to confirm the promising findings of earlier studies (Roe & Holt, 2005; Roe, Holt, & Simmonds, 2003), although effect sizes for some conditions were commensurate with those from previous studies. This may be interpreted as an indication that no psi was involved in the processes studied or that any psi effects are small and emerge in a complex system. There was insufficient agreement in terms of target ranking by the independent judges to consider their ratings collectively (Cohen's Kappa being considered poor in each case: κ = .299, .096, and .036). This suggests that the judges saw different points of similarity between the mentations and the target and decoy clips. It may be that the statements are too ambiguous, allowing much freedom of interpretation. It would be interesting to compare agreement ratings here with those of other studies that have used more than one independent judge.

The senders' own ratings of correspondences between the statements and their experience of sending, however idiosyncratic, were not significantly different across the three randomness conditions, χ^2 (2, N = 40) = .517, p = .772. It is interesting to note the low levels of agreement between participants' own correspondence ratings and those of the independent judges, which is reminiscent of the important work by Fox (2000), who reported that the sender's mentation may be prone to different forms of "drift," in which their thoughts or associations become disengaged from the content of the target clip such that any telepathic communication at such points would be unlikely to assist the receiver (or an independent judge) in identifying the target clip. We plan to study these ratings further to explore factors pertaining to lability, such as the types of associations made (e.g., literal or metaphorical) and the extent to which they deviated from the content of the target clip. For example, the following link between falling bottles (target clip) and blood (a statement) seemed highly relevant to one participant, an association that would be easily missed by an independent judge: "I really agreed with [that statement] because . . . you know that bit where all the bottles fall . . . I thought they were like little molecules . . . and it was really weird, it just felt like little . . . like haemoglobin." Clearly, senders may be impressed with correspondences that arise from personal associations that a receiver is typically going to be unaware of. When the associations, rather than direct references to the target clip, predominate (as suggested by Fox's innovative analysis) it clearly makes the independent judge's (and receiver's) task all the more difficult even when psi might have occurred.

Psi success did not increase as lability of the randomness condition increased (Table, Pseudo, Live RNG). Analysis of variance

confirmed this, with no main effect for target lability on psi outcome. Neither was there a main effect for trait lability of the sender. However, there was a significant interaction between senders' trait lability and target lability, $F(4,74) = 4.959$, $p = .001$. The hypothesis that "stable" senders would demonstrate higher psi-hitting with the most labile target system was confirmed, but this was negated by a "mirror" effect whereby senders with high trait lability performed best with the most stable target system. Also contributing to this interaction was a nonsignificant "intermediary effect" in which medium-labile senders performed best in the pseudorandom condition. These results are consistent with a speculative prediction that we derived from an interpretation of the conformance behaviour model, and we concur with Braud's (1980, 1981, 1994) lability hypotheses, which suggest that in a PK task "order" may be introduced into randomnicity under certain optimal conditions. However, these findings emphasise a bidirectional process between the labile and stable aspects of a system.

Proceeding with caution when interpreting these results, we must keep in mind the trend toward psi-missing of high labiles with the most labile target. Overall poorer psi performance compared with the previous studies (Roe & Holt, 2005; Roe, Holt, & Simmonds, 2003) may be explained by participants in this study having been more labile than previously, with high mean scores on openness to experience and neuroticism and low mean scores on conscientiousness, perhaps making it more difficult for the live RNG condition to succeed. Further, it may be that lability of the independent judges interacts with this process, causing some associations to be noticed and not others.

The trend toward psi-missing rather than psi-hitting (in the live RNG condition) may also have been a product of the overt nature of this task, which differed in nature from the covert nature of previous studies, in which a live RNG ran in the background of a ganzfeld study. Here, the intention was direct (i.e., to influence the statements) rather than indirect (i.e., to influence a human receiver). This could have heightened any participant skepticism, since interacting with an RNG may be regarded as less plausible than interacting with a human receiver. We had hoped that any negative effect of this change might be counteracted by providing immediate feedback on performance, which is regarded as psi conducive (e.g., Parker, 2000). However, post-experimental interviews suggested that some participants found that the rating and monitoring of descriptive statements interfered with their preferred sending strategy, as it inhibited them from becoming absorbed in the target video clip. The relationship between the effects of feedback and sending strategy upon performance seems likely to be complex, and we plan to explore it in more detail in a subsequent study. A 2 x 2 design may help us understand the effects of having participants know about the virtual receiver (direct versus indirect strategies) and comparing end-of-session feedback with statement-by-

statement real time feedback, while revisiting this study's interesting findings by keeping the three data generation methods.

In that study we will also attempt to confirm the interesting interaction between participant and target system lability reported here, but taking greater care to recruit participants from a wider range of backgrounds so as to capture a wider range of lability than was achieved in this study.

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THE EFFECTS OF STRATEGY ("WILLING" VERSUS ABSORPTION) AND FEEDBACK (IMMEDIATE VERSUS DELAYED) ON PERFORMANCE AT A PK TASK

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ABSTRACT: In recent work to evaluate the sender's role in successful ganzfeld GESP experiments, we have used a random number generator (RNG) as a "virtual receiver" in a ganzfeld-like experiment. During the sending period, statements are "selected" from a pool of items to give an "RNG mentation" to be used by an independent judge. After early success in demonstrating the basic effect, later work has explored the effects of the lability of the target selection method (random number table, pseudorandom process, and live RNG) and of the participant (high, intermediate, or low, based on a composite measure) and found a predicted interaction effect between these factors. The present study was designed to confirm that finding and extend it by exploring a putative interaction effect between sending strategy (active/willing versus passive/absorbed) and feedback type (delayed versus immediate). Forty participants generated virtual readings consisting of 24 statements, 8 from each of the 3 selection methods. A significant interaction was found between target lability and sender lability, replicating our earlier effect. Although the interaction effect between sending strategy and feedback type was nonsignificant, a predicted significant effect of feedback for participants in the willing strategy condition was found.

Many ESP experiments adopt a telepathy design in which psi is conceived as a dyadic interaction between one person (the sender) who is aware of some randomly selected target information and one person (the receiver) who is unaware of that information by normal communication channels. The sender's task is to attempt to convey target information psychically while the receiver adopts a relaxed, passive state that might be sufficiently labile to allow psi-mediated information to come to conscious awareness. In this paper we describe the fourth study in a series that uses a novel protocol to explore more directly the contribution that the sender might make in such a dyad. This protocol has utilised a random number generator (RNG) to act as a "virtual receiver" that might be analogous to a human receiver in providing a fluid, random system by which to select impressions that could be related to target information but might avoid some of the difficulties of working with complex and idiosyncratic human systems (see Roe, Holt, & Simmonds, 2003).

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In the first two studies (Roe et al., 2003; Roe & Holt, 2005) the RNG virtual receiver ran in the background during a standard ganzfeld ESP study in which a human receiver was relaxing and producing free-associative mentation. During the sending period, the RNG selected descriptive statements from among a pool of 768 to give a 20-item "RNG mentation," and this was used by an independent judge (JW) to select the target clip when presented alongside three decoys. In Study 1 a suggestive effect was obtained, with a 32.5% hit rate (MCE = 25%; $z = 1.49$, $p = .07$, one-tailed). Study 2 was intended to replicate this effect but also to compare sender and no-sender trials to explore whether the original finding might be attributable to the performance of the judge rather than any sender effect — if the effect persisted on trials in which in fact there was no sender, then this would be indicative of a judge or experimenter psi effect. Some support was obtained for the hypothesis that senders would exert an influence on the virtual receiver as psi success (using two independent judges, JW and RD) was higher in trials with a sender than those without (JW sender trials gave 42.1% hits, $z = .82$, $p = .41$, two-tailed, no-sender trials gave 17.6% hits, $z = -.87$, $p = .38$, two-tailed; RD sender trials gave 26.3%, $z = .62$, $p = .54$, two-tailed; no-sender trials gave 5.9% hits, $z = -.65$, $p = .52$, two-tailed). The outcomes of Studies 1 and 2 were considered to be sufficiently encouraging to warrant further research.

In Study 3 of the series (Holt & Roe, in press) the protocol was simplified by using only a sender and the virtual receiver, obviating the need for a human receiver and allowing for immediate feedback, as the sender could be accurately briefed. In addition, the lability of the target system was manipulated. Twenty-four statements were selected for each trial from a pool of 416, 8 by each of the following processes: a random number table, a pseudo random process, and a live RNG. It was hypothesised that the greatest psi effect would be found with the most labile target system, following Braud (1981, 1994) and Roe (1996). Further, drawing upon Stanford's (1978) conformance behaviour model, it was hypothesised that senders with the most "stable" trait characteristics would achieve higher psi-hitting. This expected interaction between target and sender lability was found, as senders with lower trait lability achieved higher psi scores in the highest labile target condition and vice versa, $F(4,37) = 9.96$, $p = .001$.

However, in Study 3 there was a lower overall psi outcome compared to Studies 1 and 2, and significant psi-hitting was not obtained in any of the randomness conditions. We speculated that this may have been due to the overt nature of the RNG task here, which contrasted with the design of previous studies in which the sender's attention was concentrated on the human receiver rather than the RNG. Not only was the sender's goal of influencing the RNG made more direct and overt in Study 3, which may have heightened any skepticism effect, but also participants were provided with immediate feedback and were asked to rate the descriptive statements as they were selected. It was expected, after Parker (2000), that

such feedback would be beneficial, but this generalization may not have been valid. In Holt and Roe (in press), post-experimental interviews gave senders the opportunity to describe the strategies they used in attempting to influence the virtual receiver and their experience of participating in the study. Of these participants, 17.5% found that the rating and monitoring of descriptive statements (immediate feedback) inhibited them from becoming absorbed in the target video clip, and they found the dual nature of the task difficult, having to constantly switch between the screen playing the video clip and the screen showing the statements. For example: "I did feel sometimes that I was looking at the screen here with the writing on instead of looking at the picture... and sometimes that was manipulating what I was thinking." And 17.5% of participants found the statements frustrating or demotivating — for example: "I got a bit downcast, thinking, 'this is not working.'" This suggests that, for a minority of participants at least, receiving ongoing feedback while sending had a negative effect upon their perceptions of success on, and/or absorption in, the PK task.

Gissurarson (1997) similarly found that immediate feedback was not preferred by all participants; following a qualitative analysis of participants' preferences for piecemeal ongoing feedback or gross delayed feedback during a PK task, he reported that just 44% of participants preferred the ongoing feedback mode. The main reasons for preferring ongoing feedback included the perception that immediate information about performance could help the development of strategies or enable judgments to be made about whether the trial was working, and some participants described feeling frustrated, lost, or lonely with no feedback. Some felt that the feedback was rewarding and encouraging — for example, in obtaining a sense of satisfaction at getting "points." However, 30% of participants preferred the nonfeedback mode. They explained that this was because there was less pressure to do well so they could relax more, plus there were no informational distractions to interfere with concentration. They could be optimistic about doing well without knowing that they had "missed," which they may have found inhibiting or off-putting. Approximately 19% of participants felt equally comfortable with both modes of feedback, whereas 1% disliked both methods. These data tend to suggest that their preference is not based simply on whether feedback is provided, but also on how well feedback facilitates the sending strategy that a sender has adopted; conditions that are conducive for some strategies may be inhibiting for others.

Concerning sender strategy, the main distinction that emerged from the post-experimental interviews of Study 3 was the preference of some senders to "consciously will" the virtual receiver to produce certain responses (which seems to exemplify what Gissurarson and Morris, 1995, refer to as "conation"), whereas others preferred to become absorbed in the task itself with more passive volitional strategies: 30% of participants described consciously attempting to influence the random process at some

point during the trial, focusing on particular ideas/words or emotions and "willing" them to appear within the statements, such as "I actually thought about it ... pull, pull, pull ... erm, so yes, I was literally going 'please say something' ... yes I was telling the computer to do something!" In contrast, 65% of participants described their activity as "just doing," simply watching the clip and rating the statements, often with a range of embedded techniques, such as trying to notice something different in the clip each time, free associating, or focusing on memories and emotional reactions to the clip — for example: "I totally forgot I was supposed to be sending... I forgot I was a sender; I was just sitting here wondering whether they would be the same ... that was it ... I wasn't actually trying to send whatsoever ... I forgot." Willing versus "just doing" strategies did not impact significantly on actual PK success, however, $F(1,36) = .979$, $p = .320$.

When Gissurarson (1997) looked at the exercise of volition in 212 PK trials, a qualitative analysis identified a range of sending strategies that participants had freely adopted, and these were compared to actual PK performance by calculating the average number of hits by people reporting using each strategy. "Resonance" — defined by Gissurarson in terms of Jahn and Dunne's (1987, p. 142) description as: "a state of immersion in the process which leads to a loss of self awareness, of myself and the immediate surroundings, similar to the experience of being absorbed in a game, book, theatrical performance, or some creative occupation" — resulted in the most hits (an average of 13.67), whereas talking strategies resulted in the lowest (9.52). Those who reported using concentration or will gave intermediate scores, with the average number of hits being 10.42. Gissurarson also looked at the strategies reported by high extra-chance scorers and reported that over 50% of significant results were attributed to three methods: concentration (but not "will"), imagery (both goal- and process-oriented imagery), and resonance.

In support of Gissurarson (1997), Jahn and Dunne (1987) found that the most successful participants associated their success with a sense of resonance with the target system. Similarly, Faithorn, Edison, Jenks, and Tyndall (1988) described how PK agents perceived themselves to be most successful when they were in a paradoxical state of "effortless effort." Houtkooper (2002) also argues that cognitive interference with intentional effort plays a role in any PK effect and describes the optimal state as one of "effortless effort," lack of ego involvement, passive alertness, or resonance. In an exploratory analysis, Houtkooper (2000) reported that in PK RNG trials in which participants reported using a volitional strategy of resonance there was significant psi scoring (no statistics are cited). He extended this work with 74 participants who took part in 271 PK RNG trials (Houtkooper, 2004). Before each run, participants recorded the volitional strategy that they tended to use, based on five categories taken from Gissurarson (1997) — imagery, relaxed, resonance, confidence and guessing — in addition to employing their own type of strategy. As predicted, Houtkooper found that

the resonance or effortless effort strategy was the only one that resulted in significant PK scoring in terms of a mean shift, $t(577) = 1.889$, $p = .03$, one-tailed. He describes resonance as the absence of conscious striving, a lessening of ego involvement, and an association with absorption, finding that participants who employed this strategy were more prone to absorption, $r(38) = .293$, $p < .04$, one-tailed. This interpretation concurs with the experimental and anecdotal PK literature, which, overall, suggests that a lack of ego-involvement and reduced conscious striving is associated with psi success (see, e.g., Heath, 2000; Stanford, 1993).

If successful PK involves resonance or absorption and the shutting out of cognitive interference, this may be difficult when one is continually being made aware of one's performance. It may be, then, that feedback and strategy variables will interact, so that although absorbed nonintentional strategies have been more commonly associated with PK success, this need not imply that goal-oriented strategies could not be successful if given the right operating conditions. For example, Levi (1979) and Morris, Nanko, and Phillips (1979) reported higher PK scores when goal-oriented strategies were employed. In both studies the focus was on imagery: the goal-oriented strategy involved imagining vividly the desired outcome (numbers above the MCE of 16) whereas in process-oriented conditions, participants imagined "energy" flowing from their bodies and intermingling with the RNG device to produce the desired outcome. Levi found higher PK scoring in the goal-directed strategy condition compared to the process-oriented condition, but only when feedback was given. With no feedback, the results were in the opposite direction, resulting in a significant interaction between feedback and strategy, $F(2,48) = 8.18$, $p < .001$, but no significant main effects for either. Higher PK scoring was obtained in conditions with either a goal-oriented strategy and immediate feedback or a process-oriented strategy and no feedback, whereas lower scoring occurred with a goal-oriented strategy and no feedback and a process-oriented strategy with feedback. Post hoc tests revealed a significant difference between feedback conditions for the goal-oriented group, $F(1,48) = 12.85$, $p < .008$, but not for the process-oriented group, $F(1,48) = 3.84$, $p = .056$. Significant deviations from chance expectation for the RNG output were obtained only in the goal-oriented conditions. Levi interpreted these findings in terms of cognitive effort, which, he argued, increases as the information processing demands of the task increase and leads to a reduction in performance. He argued that for the goal-oriented condition, receiving feedback would reduce the cognitive demands of the task since actually seeing the goal realised (in terms of the PK device's display) would help facilitate the participant's ability to imagine it (though of course this would depend on participants' actual level of success at the PK task). For the process-oriented condition, feedback may have been a distraction that interfered with participants' focus on visualising the *process* by which the target system is affected and so constituted a drain on resources. Although these interpretations are speculative, they suggest that

an optimal level of cognitive effort facilitates PK scoring and that feedback and task demands interact. If so, it would suggest that "conscious willing" for a PK outcome may require immediate feedback in order to monitor success, whereas "absorbed" strategies, such as focusing attention on a target video clip, as in Study 3, will be disrupted by such feedback. (But see also Edge & Burke, 1980, who failed to replicate this interaction.)

In summary, it appears that feedback may either hinder or facilitate PK success depending on factors as yet not fully understood but which may relate to the sending strategy employed and the task demands (e.g., whether the PK task is conscious or unconscious). Further, it appears that in PK trials, absorption, resonance, imagery, and concentration without egoic conscious striving facilitate psi success. However, feedback and volitional strategy may interact. Perhaps conditions that enable the participant to gain optimal enjoyment and reduce performance anxiety or frustration in the task are key factors, or the cognitive demands of different aspects of the task might cause interference. These factors may in part explain why psi performance was lower in Study 3, in which the shift of the sender focus changed from being nonintentional to intentional. It is hoped that this will be elucidated in the present study by comparing direct "willing" strategies with absorbed, nondirect strategies and by comparing immediate feedback with end-of-trial feedback in these conditions.

Given the reported interaction between trait lability and target lability in Study 3, it is also possible that the lower overall psi performance may have been due to that sample's high trait lability leading to psi-missing in the live RNG condition, in line with Stanford's (1978) conformance model. We planned, therefore, to sample from a less creative population in order to improve performance here.

Study Aims

In Study 4 we intended to investigate more specifically the effects of having direct feedback by manipulating both this variable and the sending strategy employed (focused "willing" directed at the virtual receiver versus absorption in the video clip and association-forming process). For these analyses we planned to consider only the RNG-generated mentations so as to allow for meaningful comparisons with the studies described above. In addition, we revisited Study 3's interesting findings by keeping the three data generation methods (random number table, pseudorandom process, and live RNG) and sought to replicate the sender trait lability x target lability interaction.

Five hypotheses were tested, using sum of target ranks as the primary outcome measure. For interaction hypotheses, psi performance was assessed by computing z scores derived from these sums of ranks. The following hypotheses are directional but other, exploratory, analyses were conservatively kept as two-tailed.

1. Mentations from the live RNG condition will enable an independent judge to identify the target clip to a greater degree than expected by chance.
2. There will be an interaction between participant lability and target system lability, in which less labile senders will demonstrate higher psi performance with more labile target systems whereas more labile senders will demonstrate higher psi performance with less labile target systems.
3. There will be greater psi-hitting in the absorbed, process-oriented condition than in the willing, goal-oriented PK condition.
4. There will be greater psi-hitting when trial-by-trial feedback is provided than when feedback is delayed until the end of the trial.
5. There will be an interaction between feedback and strategy variables, such that psi scoring will be highest with: (a) willing and statement-by-statement feedback and (b) absorption and post-trial feedback.

Method

Design

A 3 x 3 ANOVA design was employed to replicate the target-sender lability interaction of Study 3, in which Factor 1 (target system lability) has three levels (random number table, pseudorandom process, and live RNG), and Factor 2 (trait lability) has three levels (low, medium, and high). However, the primary focus of the study was on the effects of sender strategy and feedback. To assess these factors, an independent 2 x 2 ANOVA design was adopted, which manipulated participant sending strategy (willing versus absorption in the task) and feedback type (post-trial feedback versus statement-by-statement "real time" feedback). The dependent variable for overall psi outcome in conditions was the sum of target ranks awarded by an independent judge, whereas the dependent variable for the ANOVA analyses was the *z* scores of target ratings. Participants were randomly allocated to one of the four experimental conditions using a random number table.

Participants

An opportunity sampling method was used to draw 40 participants (14 males and 26 females; mean age = 29.38, range 18-61) recruited from the undergraduate psychology student population (n = 16) and friends and colleagues of NH (n = 24). Participants were selected with the lability hypothesis in mind in order to represent as wide a range of lability as possible, and all were naïve in that they had not taken part in, and were

not familiar with, previous "sender as a PK agent" research, the knowledge of which might bias their sending strategy. One individual was recruited to act as an independent judge (JW, who has performed this role in all of the virtual receiver studies to date).

Apparatus

Details of the experimental suite have been described previously (Roe, Sherwood, & Holt, 2004). In this study only one experimental room was required, the "senders' room." This study used an automated ganzfeld computer system developed by Paul Stevens and written in Microsoft Visual Basic v5 that presented video material via the API for Media Player v7. Video clips were stored digitally as MPEG files, labeled 1a, 1b, 1c, and so on.

Part of the University of Northampton target pool used by Holt and Roe (in press) was used for this study, consisting of 48 1-min digital video clips that were drawn from commercial films to reflect a range of emotions and themes. Clips were arranged in 12 sets of four so that members of a set were as distinct as possible. Copies of the target pool are available on CD or DVD from the first author on request. Randomisation is achieved using the Visual Basic pseudo-random algorithm (rnd), seeded using the timer at the start of the program (Randomize Timer). Once the "Start" button has been pressed, the computer first selects a target set, and then selects one of the four clips within that set.

The descriptor pool from which the RNG draws was different from that of the original study (Roe et al., 2003), as a different target pool was used. This consisted of eight statements for each of the 48 clips, and an additional eight statements that described thoughts relating to the task itself, such as "I am concentrating very hard," to give a total pool of 392. These statements were written by the authors to describe the target set and were intended to be essentially accurate but not overly specific (e.g., "I feel dreamy and trancelike" rather than "someone is hypnotising me") so that they were more characteristic of the kinds of descriptions given during ganzfeld stimulation and could in principle help identify targets from other sets.

The mentation-generating program was written in QuickBasic v.1 and ran on an ACER Extensa 503T laptop running under Windows 98. The program was adapted from versions used in previous studies so we could compare three different statement-selection methods, using data generation methods as follows:

- Random number table statements (the Table condition) for each participant were selected prior to commencement of the study using random number tables (Clark-Carter, 1997, Table X). An entry point to the list was determined using the RND function of a Casio fx-100 scientific calculator to give the row and the item in that row

at which to begin the series. Reading from that entry point, digits were considered in sets of three and each value in the range 001 to 392 was taken to generate a single data file that was sufficiently long to cover all participants in the study. These data were arranged in a 24x40 array, with each row containing the preselected statement numbers for a single participant. The program checked whether a statement had already been selected for that participant for that condition, and when this was the case the next value in the series was used.[2]

- Statements using pseudorandom data (the Pseudo condition) were generated in real time using the INT(RND) command to produce a value between 1 and 392. As for Table data, the program checked whether a statement had already been selected for that participant for that condition, and when this was the case a new value was generated.
- For RNG data (the Live condition), the program sampled an Orion RNG v1.1 attached to a serial port. We required the RNG to generate numbers in the range 1-392, but this exceeds the "natural" range of RNG outputs that runs from 0-255. Because of difficulties in combining more than one sample in a manner that ensured that all the possible outcomes were equally probable, we adopted a method in which for each selection the RNG was sampled 392 times, corresponding to the 392 statements. The iteration that generated the highest value became the selected statement (e.g., if only Sample 117 returned the value 255, then statement 117 was selected). In the event of a tie, the first sample to generate the joint-highest value was selected. Again, the program checked whether a statement had already been selected for that participant for that condition, and when this was the case the process was repeated.

Materials

The University of Northampton Participant Information Form (PIF) was adapted for use in this study. The resulting 15-item measure included questions concerning biographical and contact details (6 items), belief in PK (3 items), previous participation in parapsychological studies (2 items), practice of mental/physical disciplines (1 item), creativity (2 items), and self-perceived happiness (1 item). Copies of all in-house measures are available from the first author on request.

Participants also completed the same battery of measures pertaining to lability as used by Holt and Roe (in press):

[2] Although checks were made to avoid repetition of statements within a condition, it was possible for the same statement to be selected and presented for more than one condition.

1. The NEO Five-Factor Inventory (NEO-FFI) (Costa & McCrae, 1992), a 60-item questionnaire with five subscales assessing: neuroticism, extraversion, openness to experience, agreeableness and conscientiousness. Each subscale has 12 items with a five-point Likert-scale format.
2. The complex partial epileptic signs subscale of the Personal Philosophy Inventory (Persinger & Makarec, 1987), which consists of 16 items pertaining to temporal lobe lability (e.g., visions, hearing inner voices, intense sensations of smells without an obvious source, sense of noesis, perceptual aberrations, bodily vibrations, and dissociation from "reality") with a dichotomous (yes/no) response scale.
3. A measure of mood lability that was developed to screen for bipolar disorders (Akiskal et al., 1995). This consisted of 2 items with a seven-point Likert format ranging from "not at all" to "very much so": "My mood often changes from happiness to sadness, without knowing why" and "I have frequent ups and downs in mood, with and without apparent cause."
4. The Emotional Creativity Inventory (Averill, 1999), a 30-item scale with a five-point Likert format that measures three facets of emotional experience: preparedness; novelty; authenticity and effectiveness.
5. The Creative Cognition Inventory (unpublished measure by Holt), a 29-item scale with a five-point Likert format assessing the use of different cognitive styles in the creative process, with two main subscales: the use of linear versus nonlinear cognition.

Each trial was followed by a semi-structured interview in which participants were asked about their subjective impressions of the success of the trial, their experience of participating, and the types of sending strategy used. Analysis of these data will not form part of this paper.

Procedure

Once recruited for the experiment, participants were allocated to one of the four experimental conditions described above using two random numbers (generated by the Rand function on Microsoft Excel) to provide entry points into a random number table (Coolican, 1999, p. 547). Participants were given one of two information sheets depending on their allocated condition, which described, respectively, the rationale and procedure for the "absorbed" process-oriented and "willing" goal-directed conditions. Both information sheets were illustrated with photographs and briefly described what participating in the study involved. These additionally explained participants' right to withdraw from involvement in the research at any point and invited potential participants to discuss

the procedure in more detail with the experimenter before agreeing to participate. Those who expressed further interest were then sent a PIF and other personality questionnaires, which were to be completed ahead of the trial.

Prior to the arrival of each participant, the computer program was initiated for the experimental condition, ready for the participant to type in his or her name and initiate the trial. The appropriate instructions were clearly displayed on a notice board in the sender's room, describing the procedure for the willing strategy with statement-by-statement feedback, willing strategy with post-trial feedback, absorption strategy with statement-by-statement feedback, or absorption strategy with post-trial feedback. Participants were greeted on arrival at the University and escorted to a reception room that had been specially prepared with comfortable chairs, a coffee table, rugs, paintings, and curtains to make participants feel as comfortable and relaxed as possible prior to the trial. The experimenter (NH) encouraged an informal and positive atmosphere, discussing the procedure and answering any questions that arose while sharing refreshments. Participants were given an overview of past ganzfeld ESP research that had been conducted at Northampton and were informed that the study was following this research by exploring the role and experience of the sender in this process.

Absorbed Trials

Participants in the absorbed, process-oriented conditions were told that through this research we hoped better to understand the subjective experience of sending and the types of associations senders might make with target stimuli, how remote their associations may be and to what extent they may leap from one percept or idea to another, and further how this process relates to both personality and creativity. Participants were asked to watch the video clip and try to get absorbed in it — paying attention to its imagery, emotions, and perceptual or conceptual content as they wished — and to make associations with the clip. If they wished, participants could write down ideas or draw images with coloured pencils. They were encouraged either to think imaginatively or to simply enjoy the experience and relax, following their thoughts about the clip with the focus being on trying to connect with its content in some way. As the rationale for this condition focused on exploring the thought processes of senders in the ganzfeld, participants were asked to consider the relationship and links between the video clip and the computer-generated descriptive statements in order to explore the extent to which the sender's thoughts might deviate from the literal content of the target video clip. The "virtual receiver" was described as a "statement generator."

Willing Trials

Participants in the willing, goal-directed conditions were told that the research was concerned with potential interactions between mind and matter, were briefly informed of previous research using a virtual receiver, and were asked to attempt to consciously influence the virtual receiver via ESP-PK. "Willing" was defined as "consciously controlled mental effort — during the implementation of choice — to strive to make the goal happen" (following Gissurarson, 1997, p. 22). Participants were briefed that their goal was to try to make the virtual receiver select statements that could be related to the video clip and were asked to consider the degree of correspondence between the clip and computer-generated descriptive statements that were selected throughout the trial.

Immediate Feedback Trials

In the immediate feedback conditions, participants were told that the descriptive statements would be selected randomly by the statement generator program on a laptop and that these would be shown to them while they watched the video clip. After participants pressed the spacebar on the virtual receiver to initiate the program, a statement appeared on the screen after a delay of a few seconds with a question mark at the bottom of the screen to cue the sender to rate how similar the statement was to their experience (using a 9-point scale on which 1 = not at all similar and 9 = highly similar). When participants typed in a correspondence rating, another statement began to appear after a delay of a few seconds.

Delayed Feedback Trials

In the delayed feedback condition, participants were told that the statements would be randomly selected while they watched the video clip and then would be presented in sequence for them to rate after the sending period was over. In the willing condition with delayed feedback, while a statement was being selected, the words "I'm thinking ..." appeared on the screen of the virtual receiver, after which it produced a beeping sound to indicate that a "choice" had been made. In the delayed feedback conditions, the statements were selected without being displayed on the screen until all 24 had been selected. At this point they were displayed to the participant as described above except that there was no delay between the presentations of statements.

All Trials

Participants in all four conditions were not initially aware of the different randomness conditions in this study or of the different feedback

and strategy conditions. As in the previous study (Holt & Roe, in press), participants in all conditions were encouraged to rate the statements according to the entire content of their experience rather than just literal associations with the target clip — for example, feelings of tiredness, seemingly tangential thoughts, and so on. All participants were encouraged to focus on enjoying and getting involved in the task. In total 24 statements were rated by each sender, 8 of each selection type: random number table, pseudorandom process, and live RNG. For each participant the statements were drawn in a consistent sequence from the three lability conditions, and this order was counterbalanced across participants.

After all statements had been presented to and rated by a participant, a message was displayed, stating that the trial had been completed, thanking them for taking part in the study, and asking them to inform the experimenter in the adjacent room that they had finished. The experimenter and the sender then chatted informally. Together they reviewed the statements that had been rated above 5 and the experimenter expressed interest in these, commenting on them positively. This reinforcing of close correspondences and ignoring of distant correspondences was introduced to create a "need" or "reward" component to the study in order to facilitate psi performance according to Stanford's (1974) PMIR model. Both the sender and experimenter looked at a list of the statements and their correspondence ratings that constituted the saved record of the trial. This led to a semi-structured interview focusing on the sending strategies that participants had actually used and their experience of participating in the study. The participant then had the opportunity to ask the experimenter any questions about the study or to request feedback about the overall findings of the study to be sent on its conclusion.

After completion of all trials in the series, the virtual mentation for each trial, consisting of 24 statements, was separated into 3 sets of 8 so that statements derived from each of the three statement selection methods (Live, Pseudo, and Table) could be evaluated separately. Thus the independent judge, JW, was provided with 120 mentations to be rated against target clips and decoys.[3] The independent judge was blind to this manipulation and to the four strategy x feedback conditions, and each trial was given a new and independent code so that it was not possible to identify the sequence in which the trials occurred or any pattern between them without cross-referencing.

Results and Discussion

Target Lability and Psi Performance

The ranks allocated to target clips by the independent judge based on the mentations generated using three different randomisation methods

[3] We should like to thank Jacqui Wilson for serving as the independent judge in this study.

(Live, Pseudo, and Table) are reported in Table 1. The direct-hit rates for all target systems are at or below mean chance expectation (MCE = 25%). For both the mentations generated by the random number table and by the live RNG, the direct-hit rate is 25%, and for the pseudorandom process, the direct-hit rate is 20%. The sums of ranks do not differ significantly from MCE in any of the target lability conditions. The small deviations from MCE are in a psi-hitting direction for the random number table target system and in a psi-missing direction for the pseudo and live RNG target systems. Hypothesis 1, that live RNG mentations would enable JW to identify the target clip to a greater degree than expected by chance, was therefore not supported. However, one may argue that a global outcome at chance level is not surprising when this analysis includes conditions that are hypothesised to be less psi-conducive than others, so that any psi effect may be canceled out. As suggested in Study 3, any psi effects may be small and may emerge in a complex system of situational and person variables. Hypothesised interactions will be described in the following sections.

TABLE 1
A COMPARISON OF TARGET RANK FREQUENCIES FOR MENTATIONS BY TARGET SYSTEM

Target System	*n*	Rank 1	2	3	4	*SOR*	*z*	*p* (two-tailed)	*r*
Table	40	10 (25%)	6 (15%)	20 (50%)	4 (10%)	98	-.212	.832	.036
Pseudo	40	8 (20%)	10 (25%)	12 (30%)	10 (25%)	104	.495	.620	.078
Live	40	10 (25%)	9 (22.5%)	9 (22.5%)	12 (30%)	103	.354	.724	.056

Creating a Composite Participant Lability Measure

A composite score of sender lability was created as in Study 3 (Holt & Roe, in press). Scores on measures of lability of behaviour, emotions, cognition, and experience were summed. These components gave correlations with the composite measure in the expected direction, as shown in Table 2, and these were all statistically significant apart from that for mood lability. However, given that each measure contributes to the composite score, these values may be inflated, so intercorrelations between scales are also shown in Table 2. Of course, variables that are related to some underlying factor need not always correlate strongly with one another, or alternatively they may share variance that is already explained by relationships with other variables in the matrix. To control for these concerns, a principal axis factor analysis set to extract one factor was conducted and gave the loadings described in Table 2. All values

apart from that for mood lability are greater than .3, which Kline (1998, p. 57) regards as the threshold for significance.[4] Notwithstanding these results, it was decided to retain mood lability in the lability construct for purposes of consistency with Study 3, although we recommend that it be omitted from any future work with this composite. Scores on the composite lability measure approximated the normal curve (Kolmogorov-Smirnov statistic = .71, df = 39, p = .69), ranging between 61 and 210, M = 167, SD = 34.79.

Interaction Between Lability of the Sender and Lability of the Target System

A mixed 3 x 3 ANOVA was computed, with psi performance (z scores) as the dependent variable. Factor 1 was "target system lability," within-subjects and with three levels: Table, Pseudo, and Live. Factor 2 was "sender lability," between-subjects and with three levels based on a three-way split of scores on the composite lability measure: low (n = 13), medium (n = 14), and high (n = 13). There were no significant main effects: neither the degree of target lability, $F(2,74)$ = .07, p = .93, nor the lability of the sender, $F(2,37)$ = .39, p = .65, significantly impacted upon psi success. However, there was a significant interaction between target lability and sender lability, $F(2,74)$ = 2.75, p = .04. This supports Hypothesis 2 and replicates the interaction found previously, albeit with a smaller effect size. The form of the target x sender lability interaction is displayed in Figure 1.

As predicted, stable (low lability) senders performed at their highest level with statements generated by the most labile system (the live RNG) and at their lowest level with statements generated by the most stable system (the random number table), with hit rates of 46.2% and 7.7%, respectively; the difference in z scores for these conditions is significant, $t(12)$ = -1.93, p = .04, one-tailed. In contrast, highly labile senders performed at their worst with the live RNG and at their best with the Table, with hit rates of 15.4% and 46.2%, respectively; the difference in z scores for these conditions is significant, $t(12)$ = 2.76, p = .009, one-tailed. This appears to replicate the pattern we reported previously (Holt & Roe, in press) and is consistent with Braud's (1981, 1994) lability hypotheses, which extends Stanford's (1978) conformance behaviour model by suggesting a bidirectional process between the labile and stable aspects of a system.

Effects of Sending Strategy and Feedback Upon Psi-Outcome in the Live RNG Condition

In order to investigate the effects of sending strategy and feedback upon psi outcome a factorial 2 x 2 ANOVA was performed with psi performance in the live RNG condition (z scores) as the dependent

[4] Given the very low sample size here, too much weight should not be accorded to this analysis. However, this study was not designed to provide a psychometric assessment of this composite measure, and a more extensive evaluation is warranted.

TABLE 2
SPEARMAN RHO CORRELATIONS BETWEEN MEASURES THAT COMPRISE THE COMPOSITE LABILITY MEASURE, INCLUDING ITEM-TOTAL CORRELATIONS AND FACTOR WEIGHTINGS

	Composite score	NLC	EC	TLL	OE	N	ML	LC	Factor loadings
Nonlinear cognition [NLC]	.829**								.709
Emotional creativity [EC]	.803**	.541**							.724
Temporal lobe lability [TLL]	.602**	.478**	.511**						.626
Openness-to experience [OE]	.515**	.526**	.365*	.176					.359
Neuroticism [N]	.378*	.036	.271#	.200	-.104				.324
Mood lability [ML]	.133	-.147	-.061	.133	-.223	.607**			.207
Linear cognition [LC]	-.355#	-.212	-.228	-.273#	-.023	.009	-.213		-.351
Conscientiousness [C]	-.369**	-.175	-.085	-.218	.024	-.210	-.225	.369*	-.310

**$p < .001$, *$p < .01$, #$p < .05$. All comparisons are one-tailed.

variable. Factor 1 was sending strategy (absorbed versus goal-oriented/willing) and Factor 2 was feedback type (immediate versus delayed). There were no significant main effects: neither the sending strategy, F (1,36) = .03, p = .87, nor the feedback type, F (1,36) = 2.10, p = .16, significantly impacted upon psi success. The interaction between these variables showed a trend in the predicted direction, as illustrated in Figure 2, but was not significant F (1,36) = 2.31, p = .14. Thus Hypotheses 3-5 were rejected.

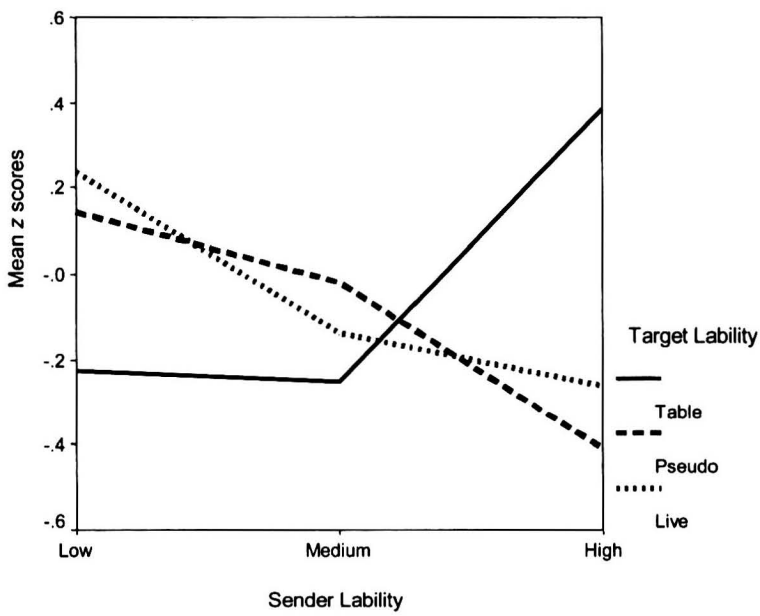

Figure 1. Interaction between target and sender lability on psi performance

However, follow-up multiple comparisons tests showed, as expected, that senders who adopted a willing, goal-directed strategy performed better when they received ongoing, immediate feedback than when feedback was delayed, with hit rates of 40.0% and 0.0%, respectively; the difference in z scores for these conditions is significant, t(18) = 2.34, p = .02, one-tailed. But with an absorbed sending strategy there was little difference in performance between immediate and delayed feedback conditions, with hit rates of 30.0% for both; the difference in z scores for these conditions is not significant, t(18) = -.05, p = .48, one-tailed. These findings are similar to those of Levi (1979), who reported a significant difference between feedback versus no-feedback conditions in a goal-directed PK task — psi-hitting with feedback and psi-missing without feedback, as here — but not in a process-oriented PK task.

One referee criticized the enormous reduction in power of restricting this analysis to RNG-derived data. This decision was made so as to be consistent with previous studies that have considered sending strategy and feedback, and that exclusively have used labile PK sources. For completeness, however, we can note here that including target source as a factor in a 3 x 2 x 2 ANOVA gives a marginally significant interaction between strategy and feedback, $F(1,36) = 3.06$, $p = .05$, and a suggestive effect of feedback, $F(1,36) = 2.19$, $p = .10$; all other effects are nonsignificant ($F < 1.1$), suggesting that effects did not vary across target types. To explore these effects further, multiple comparisons tests were conducted, and these replicated the patterns found with the 2 x 2 analysis given above: senders adopting a willing, goal-directed strategy performed better when they received ongoing, immediate feedback than when feedback was delayed, $t(18) = 2.39$, $p = .01$, one-tailed; those adopting an absorbed sending strategy did not show a difference in performance between immediate and delayed feedback conditions, $t(18) = -.24$, $p = .41$, one-tailed.

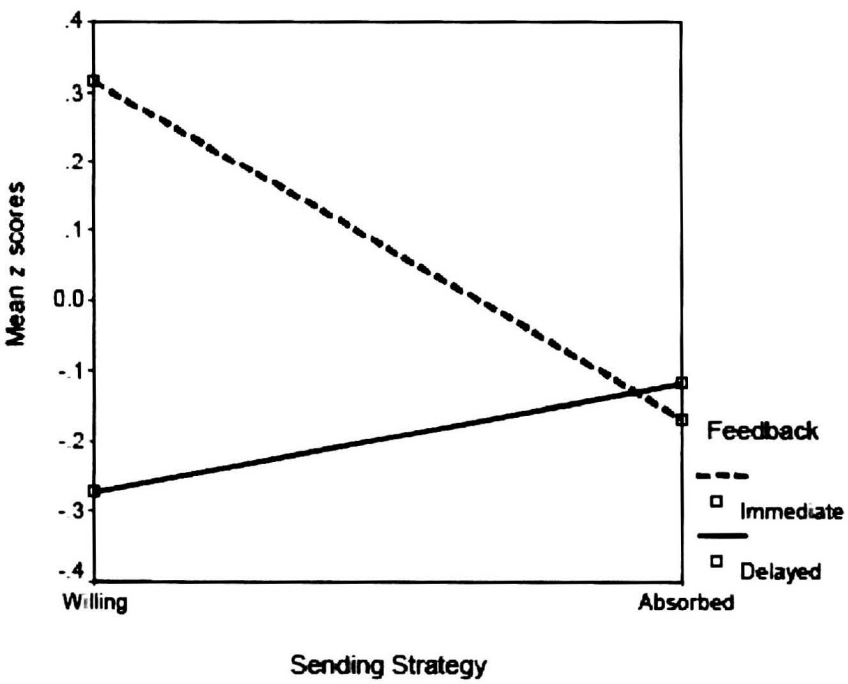

Figure 2. Interaction between sending strategy and feedback

Our results therefore provide only mixed support for Levi's explanation of performance patterns across tasks in terms of their information processing demands; feedback was predicted to facilitate performance when participants adopted a goal-oriented strategy, as found

here, but also to inhibit performance when they adopted an absorbed strategy, in which feedback was proposed to increase demands beyond the agent's optimal capacity, which was not found here. It may be that in using a task in which participants considered associations with a selected video clip, the distinction between the "competing" elements of the task was blurred such that it did not inhibit psi performance.

Perhaps more importantly we should note that participants in the absorbed condition did not report significantly higher levels of "engagement and absorption with the video clip" than those in the willing condition, Mann-Whitney $U = 174.50$, $z = -.73$, $p = .23$, one-tailed. In fact, the mean score rating (from 1, "not at all" to 7, "very absorbed") was actually higher in the willing condition (3.65) than in the absorbed condition (3.30). Hence, one may question whether the experimental manipulation was successful in encouraging a deeper level of imaginative involvement with the target material in the absorbed condition. Senders in the willing condition may have used an absorbed strategy, highlighting that individuals vary in their predisposition toward different attentional strategies in PK tasks, as shown by Gissurarson's (1997) work. In future research it may be necessary to be even more explicit in directing participants to adopt the particular sending strategy allocated to them and to provide practical advice for how it might be implemented. Alternatively, it could be more productive to allow participants to freely adopt their preferred strategy so as to ensure that it will be maintained consistently throughout the sending period, although with such a quasi-experimental design there is a danger that experimental conditions so defined may differ systematically in ways other than the factor under investigation.

Conclusions

The main outcome of the current study is that an effect reported previously (Holt & Roe, in press) has been replicated, whereby highly labile senders perform better with more stable PK targets, and low labile ("stable") senders perform better with more labile PK targets. Although this is one among quite a large number of analyses reported here, and so may leave us susceptible to committing a Type 1 error, it is important to note that many of these analyses are post hoc multiple comparisons that are intended to elucidate upon the outcomes from just two preplanned ANOVA analyses. These follow-up simple effects would need to be replicated before any strong claims for them should be made. In the case of both ANOVA analyses, there is some support for claims that interaction effects should occur, giving in one case effect sizes that an anonymous referee described as "remarkably strong." Indeed, throughout this series of studies, the effect sizes seem to be some orders of magnitude greater than is typical in PK studies (see Roe et al., 2003; Roe & Holt, 2005), which may be a consequence of the method of combining RNG samples to give a single metric of performance in a manner that has some psychological meaning for participants. This

paradigm continues to show promise, though perhaps simpler designs with fewer variables might give clearer outcomes.

However, it is also clear from this study that any PK sender effect is sensitive to situational variables and that these form complex interaction patterns (particularly with feedback in the willing condition, and between task demands and personality) so that simple designs may end up being simplistic. As predicted from previous research, willing in a PK task was facilitated by receiving immediate feedback concerning one's performance. This suggests that feedback was not a psi inhibitory factor in Study 3, and neither perhaps was the overt goal-directed nature of the task. Rather, the high lability of the participants in Study 3 compared to Study 4 ($M = 211.53$, $SD = 36.36$, and $M = 167.05$, $SD = 34.79$, respectively) — the difference being statistically significant, $t(78) = 5.59$, $p = .0000003$, two-tailed) — may have led to psi-missing overall, as high lability is associated with psi-missing on the live RNG and psi-hitting on the Table target system.

Finally, Schmeidler (1988) has noted that the distinction between goal- and process-orientation may be confounded by factors such as activity-passivity that covary with this variable, and it is true in this study that the absorption condition could be regarded as requiring less active involvement from participants than the willing condition, although participants in the former were asked to actively immerse themselves in the target clip. Indeed, it seems to us that greater clarity is needed in describing what is incorporated in an "active" condition, which may be understood to involve only psychological focus and commitment factors but equally may be conceptualised as incorporating some kind of physiological energising or arousal element (cf. Heath, 2000). Until this issue is resolved, it seems unlikely that this dimension can be mapped out or operationally defined in a manner that participants can adhere to.

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YOGIC ATTAINMENT IN RELATION TO AWARENESS OF PRECOGNITIVE TARGETS[1]

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ABSTRACT: This study explored whether long-term yoga/meditation practice facilitates psi awareness. Data were collected in an Indian ashram setting in 2003 and 2004 from yoga practitioners with three levels of initiation: students (ST) (0.3–15 years practice); sanyassins (SN) (1–10 years practice); and swamis (SW) (4–33 years practice). These preliminary experiments focused on adapting Western laboratory procedures to the ashram setting with a Macintosh laptop serving as a portable laboratory. Participants had a short meditation followed by an awareness period to precognitively perceive a target video clip that they would see at the end of the session. They then rated four target clips on a 1 to 100 scale for similarity with their awareness experience. A reanalysis (using effect size *r*) showed no overall significant effect in either year (2003: *r* = -0.09; 2004: *r* = 0.08). Advanced practitioners (SW) in both years showed nonsignificant psi-hitting (2003: *r* = 0.21; 2004: *r* = 0.07), whereas the other two groups (SN and ST) were more variable in their scoring (2003: SN *r* = -0.23 and ST *r* = -0.38; 2004: SN *r* = 0.05 & ST *r* = 0.13). In 2003, in line with the hypothesis, the advanced group (SW) scored significantly better than SN (*p* = .05) or ST (*p* = .04). In 2004 these differences became nonsignificant. Implications and possible explanations are explored.

During the 1970s interest in maximising psi awareness focused on altered states of consciousness (Braud, 1974, 1978; Honorton, 1977; Tart, 1969, 1975; Ullman & Krippner, 1979). Part of this program of research investigated meditation as a psi-conducive state (for reviews see Braud, 1989; Honorton, 1977; Schmeidler, 1994). Most of the research used beginners in meditation and only a handful of studies were run, with mixed results that do, however, give highly significant results on a combined analysis (Honorton, 1977). Consciousness research is central in parapsychology. In the 1970s, Braud (1974) introduced the concept of the psi-conducive state. This is a model that has driven much of the parapsychological research into altered states of

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consciousness as a state conducive to the experience of psychic phenomena. The model states that psi functioning is enhanced when there is: (1) cortical arousal sufficient to maintain conscious awareness, (2) muscular relaxation, (3) reduction of sensory input, and (4) internal attention—in other words, when the receiver is in a state of sensory relaxation and is minimally influenced by ordinary perception and proprioception (Braud, 1975). At the same time, Honorton (1981) was developing his model of internal attention states from his readings of the classic yoga text known as Patanjali's sutras. These sutras (Satyananda, 1982) state that when one attains samadhi the "siddhis" (psychic powers) manifest. Meditation techniques take us into a state of consciousness that is considered traditionally to be a heightened, or even advanced, state of consciousness. In meditation there is internal noise reduction, external noise reduction, and various psychophysiological correlates, such as alpha rhythm and increased skin resistance, that have been found to be associated with greater psi awareness (Honorton, 1977). A full discussion of Patanjali's yoga sutras in relation to psi research has been provided by Braud (2006).

During the 1970s and 1980s, several experiments were conducted suggesting that meditation might help one to attain a state of consciousness conducive to psychic (psi) awareness.[2] In this early research, the unspoken assumption was that merely practicing meditation would enhance psychic awareness. The first study was by Schmeidler (1970). She reported that students obtained significant ESP scores (p = .01) after they had been instructed by a swami in pranayama (breathing techniques) and meditation. The pre-meditation scores were at chance. Dukhan and Rao (1973) also tested for pre- and post-meditation psi scoring. They worked with Western and Indian students in an ashram in South India using a combination of meditation practices. Beginners and more advanced meditators both obtained highly significant psi-missing prior to meditation (beginners, $p = 10^{-6}$; advanced, p = .012) and significant psi-hitting after meditation (beginners and advanced, $p = 10^{-4}$). Roll and Zill (1981) also found a significant difference, with the participants once again scoring negatively before the meditation and positively after. They did not specify the degree of meditation skill of the participants. They stated that they consider these results due more to the participants conforming to the experimenters' wishes than to the effect of meditation per se, because the significance of the study was primarily due to the decreased scoring before the meditation. Compliance with experimenters' wishes is an effect of which one must always be aware.

[2] In the current studies "psi awareness" is operationally defined as the score achieved on the psi task. As this score is related to the task in which the participant is asked to become aware of the target picture after the meditation session and prior to viewing the pictures on the computer, there is a suggestion that, in line with yoga psychology theory, there is some level of cognitive awareness of the target picture through psychic means when the person does accurately describe and choose the target picture at the end of the session. While "awareness" has other implications in other contexts, that is beyond the scope of the current research.

In contrast, Stanford and Palmer (1973) worked with a single participant (Bessent) who meditated before the ESP session and whose EEG was being monitored. In those sessions in which he produced relatively high alpha waves, he showed stronger psi ($p < .005$).

As well as exploring with different types of participants, experimenters also worked with both forced-choice and free-response methodology. Rao, Dukhan, and Rao (1978) tested participants both before and after a half-hour meditation session. The participants scored significantly higher on both types of test after the meditation. Braud and Boston (1986) used free-response methodology with a relaxation tape session and obtained significant scoring with 25 meditators. They used trained meditators from the Center of Healing and Enlightenment in Houston, but the degree and sort of meditation is not specified. Harding and Thalbourne (1981) tested people trained in Transcendental Meditation (TM), using three groups: nonmeditators, ordinary TM meditators, and siddhas (advanced TM meditators). Again they used both forced-choice and free-response methods, but they obtained null results. They considered that this was because the meditators had not really wanted to participate and considerable persuasion had been used to obtain participants for the study. Like Harding and Thalbourne, Rao and Rao (1982) used people who had trained in TM, though in this case for only a week. They compared those who had done no meditation with those who had done the one-week course. Participants were tested for both ESP and subliminal perception. The meditators scored above chance with both forms of target, whereas the controls scored at chance.

Rao and Rao's (1982) study suggests that in meditation one is learning to become aware — this awareness and openness being a generalized form of sensitivity to incoming information, whether subliminal or psychic. Some meditation practices result in habituation to external signals (e.g., yogic, in which attention is inward) and others (e.g., Zen) show no habituation at all (Murphy, Donovan, & Taylor, 1999). The yogic teachings stress again and again that one is learning to become more aware at all levels. They state that removing the noise of the internal dialogue allows greater sensitivity and awareness in general, of which psi awareness is an aspect that occurs at a certain stage in meditation attainment. Although meditation has been linked with other psi-conducive state techniques, such as the ganzfeld, it may be a very different state in that the person is being trained to go "beyond mind" into a state of pure awareness where there is very little or no thought. Honorton (1996) reports on his ganzfeld database collected during the 1980s and finds that practice of a mental discipline helps novice ganzfeld participants to score better in the initial session. However, meditation is not separated from hypnosis, relaxation, or biofeedback exercises, so in this analysis we cannot specifically see the effect of meditation on novice ganzfeld participants.

A meta-analysis of all the research done by 1976 shows that overall there were 9 significant meditation psi experiments out of a total of 16, giving

an overall $p = 6 \times 10^{-12}$ (Honorton, 1977). Schmeidler (1994), who summarises the research from 1978-1992, concludes that: "meditation is conducive to ESP success if (and only if) the meditators wholeheartedly accept the experimental procedure and the goals of the research" (p. 181).

The Ashram Studies

A so far unexplored hypothesis, which comes directly from Patanjali's sutras, is that *degree* of meditation attainment is related to enhanced psi functioning. Patanjali states that the "siddhis" (psychic faculties) manifest on attainment of Samadhi. There are two possibilities here: one is that as a person practices meditation, he or she gradually develops greater one-pointedness, greater awareness, and, bit by bit, greater psi awareness, which is the hypothesis that parapsychological research has used so far. The other is that *only* when one attains Samadhi (total one-pointed concentration) does the psi awareness manifest. Indian folklore considers that the more adept one is as a yogi, the more psychic one is, but this has never been explored scientifically.

An invitation to teach parapsychology at a university in an ashram (a yoga monastery) in India enabled this research to be conducted with experienced practitioners — swamis (yogic monks and nuns) — as well as with inexperienced practitioners (students). This is essentially field research, taking the methodology that has been designed in Western laboratories and adapting it to work with the participants in their own setting.

In 2002, a number of different types of experiments were run with students (Roney-Dougal, 2002). The design of the two studies being reported here emerged as the most suitable for development. Only students participated and static pictures were used as a target in a telepathy design. The experiments did not give any significant results, but they suggested that this topic was amenable to research and that the free-response method was suitable for research in the ashram setting.

Building on these findings, a preliminary experiment was run from January to March 2003, with individuals who were living and working in the ashram. Changes in methodology were made in order to tighten the procedure, and a computer program (Precog) was designed. Otherwise the basic free-response design was kept the same to see if significant results would emerge in this situation and if it was feasible to run a more tightly controlled experiment in future years, when circumstances permitted.

In 2004 the final ashram ESP experiment was run using equal numbers of participants in each of the three groups that were identified in 2003, each participant undertaking six sessions. A modified version of the Precog program was again used, as this had shown considerable suitability for work in this setting.

Hypothesis

The hypothesis for these experiments was that persons with a greater level of yogic attainment (i.e., more years of practice and a greater degree of attainment) will show greater psi awareness, such that the swamis will rank the target correctly significantly more often than the students.

This hypothesis was decided upon prior to the preliminary studies being undertaken. The design, procedure, computer program, questionnaires, and so on, were all then developed, dependent on what was appropriate for this particular setting, with changes made year by year. Then, when the Bial Foundation funded a formal continuation of these studies, Jerry Solfvin joined the team as statistical analyst, and this paper is a result of his reanalysis of the data in preparation for the more formal studies being undertaken at present. The hypothesis being tested has, however, remained consistent throughout.

Method

A basic free-response design was used in which a computer program chose a video clip at random from a pool. After meditating, the participants aimed to visualise this target, and after that they saw a set of four video clips, one of which was the target clip. These were rated on a 100-point scale according to similarity with the visualization experience. The target picture was then shown.

Materials

A precognition computer programme (Precog) was designed by Jezz Fox of Liverpool University for an Apple Macintosh G4 Powerbook.

In 2003, the Kathy Dalton set of dynamic targets (Dalton, Steinkamp, & Sherwood, 1996), which has 25 sets of four video clips, was used. In 2004, an adapted set of the University College Northampton target set, which has 23 sets of four video clips, was used. These were amended so as to contain primarily pleasant or neutral material, with no overt violence or sexual content.

A yogic attainment questionnaire (YAQ) was designed in 2002 with the help of the students and amended in line with improvements during its first year of use, and later with help from David Luke. This amended questionnaire was used in 2003 and then further developed for use in 2004, again with the assistance of David Luke (see Appendix A). This questionnaire has two main parameters: the first is the number of years the participants have practised different yogic disciplines, such as physical asanas and breathing techniques (pranayama) that are thought to be

related to the emotions, and meditation, which works at the mental level. Cleansing practices (shatkarmas) were included in the 2004 questionnaire, as yogic theory states that these facilitate the manifestation of psi. Thus the degree of yogic attainment could be clearly specified, with each participant estimating the number of hours per day or week that they practised the various techniques as well as specifying the number of years they had practised them. In addition, they stated whether or not they were practising regularly at the time of the research. In 2004, a second part of the questionnaire addressed a specific meditation practice (antar mouna) and the level the participant had attained with this practice. This meditation technique has six clear stages, ostensibly making it a good tool for the purpose of this experiment. Base level is whether one is distracted by the body; this is followed by awareness of the senses and whether one is distracted by them; the next state is becoming aware of the space behind the closed eyelids and of one's spontaneous thoughts and whether one is distracted by the senses; the next stage is choosing and then disposing of specific thoughts, and the degree to which one can accomplish this; at the next stage one maintains awareness of, and then disposes of, spontaneous thoughts; one then aims to be aware of the space behind the eyelids with no thought; and the final stage is maintaining focus on a visualized symbol.

Design

A precognition design was used so that the sessions could be run without any assistants, enabling SRD to work with the percipients at any time that was mutually convenient for them. By its very nature, precognition is double-blind, thus allowing full control with minimal need for the usual laboratory facilities such as soundproof rooms. Further details are given in the procedure section.

The program chose a target set using a pseudorandom algorithm for the participant, such that the participant never received the same set more than once. The participant was shown all four video clips, which they rated on a 1–100 point rating scale. This permits a first choice (direct hit), a four-rank scale, and a rating to be used for analysis. The program then showed the target video, chosen at random out of the four in the set (see Appendix B for assessment of the randomisation procedure).

As the 2003 sessions were completely exploratory and we were attempting to find a methodology that worked in the ashram situation, SRD accepted anyone who wished to take part and ran as many sessions with them as they were able to do. This enabled 102 sessions to be run in an 8-week period.

In 2004, the design was tightened in that there were equal numbers in each of the three groups identified in 2003, and each person did six trials so that a more reasonable estimate of their psychic awareness could be assessed. This resulted in a total of 108 trials run in a 10-week period.

In both years, the yogic attainment questionnaire (YAQ) was completed by each participant. In 2003 this was done after the first session, as each participant completed different numbers of sessions and some did only one session. In 2004, participants completed it after their final session, when they were also interviewed.

Participants

In 2003, the study included any visitors (V), students (ST), sannyasins, (SN, those who have taken some degree of yogic initiation: jigyasu and karma sannyasins), and swamis (SW, also known as poorna sannyasins, as they have taken full yogic initiation) who wanted to participate, with a range of 4 months to 33 years experience of yoga. This permitted a good spread of degree of yogic attainment. though inevitably there was overlap between the groups both in terms of number of years of practice and the fact that some students had received some degree of initiation. In these cases students were assigned to the sannyasin group. The numbers "by chance" turned out to be very even, with a total of 34 people participating, of whom 12 were students or visitors, 10 were initiated to some degree (jigyasu and karma sannyasins), and 12 were swamis. Between them they had completed 102 sessions, which again were "by chance" very evenly balanced, with the swami and sannyasin groups doing 35 trials each and the students 32 trials (see Table 1).

TABLE 1
2003 PARTICIPANT DEMOGRAPHICS

Expertise	*N*	*N* trials	Average years practice	Average age*	Gender
Student/visitor	12	32	3.7 (0.3 – 15.0)	35.7	7m, 5f
Sannyasin	10	35	6.0 (2.0 – 10.0)	31.4	5m, 5f
Swami	12	35	19.7 (4.0 – 33.0)	44.6	3m, 9f

Note. Years of practice range in parentheses. *Average age in years. Abbreviations: m = male; f = female.

Considering that the numbers were not preplanned, it is pleasing to have such equivalence. The swamis were older on average, and more female than male swamis participated, whereas gender numbers were fairly even for the other two groups. Another difference is that the swamis were, in general, Westerners, whereas the other two groups were composed primarily of Indians. Thus, there were demographic differences between the swamis and the others.

In 2004, six students, six sannyasins and six swamis did six sessions each, making a total of 108 sessions (see Table 2).

TABLE 2
2004 PARTICIPANT DEMOGRAPHICS

Expertise	*N*	*N* trials	Average years practice	Average age*	Gender
Student/visitor	6	36	2.8 (1.0 – 7.0)	32.2	3m, 3f
Sannyasin	6	36	5.7 (1.0 – 11.0)	29.8	3m, 3f
Swami	6	36	18.7 (14.0 – 27.0)	41.2	1m, 5f

Note. Range in parentheses. *Average age in years. Abbreviations: m = male; f = female.

The swamis are once again clearly a different group from both the students and the sannyasins in terms of both age and number of years of practice. Also, the swamis were entirely Westerners, whereas the other two groups were once again primarily Indians. Whereas gender was equal for both sannyasins and students, only one male swami participated.

Procedure

All the sessions in both years were run in SRD's quarters in the guesthouse in the ashram, consisting of a main room with a small office attached.

In 2003, on arrival, each participant was told the basic design and hypothesis of the experiment, and his or her details were written into the computer. The experiment was discussed until the participant felt comfortable. A candle and incense were lit to create a conducive environment and the participant then settled down to meditate for 10 minutes. Some used the candle for their meditation, but each person was free to choose what meditation technique to use, how to sit, and so on, as there was such a wide range of expertise.

After 10 minutes SRD entered the room and guided the participants through a "sankalpa," or resolution, in which they repeated a positive statement of intent to become aware of the target video clip that the computer would show them at the end of the session. They then had a 4-minute awareness session in which they were instructed to become aware of the "chidakasha," which is the space one sees behind one's closed eyelids, and to become aware of any impressions they experienced while looking into their own mental space.

After this period they were asked to complete their meditation and then went through to the computer. There was a 5-minute period in which they were encouraged to draw out and to describe any impressions they had received, and the computer recorded their mentation using the MicNotePad Lite application, which records everything spoken. They then saw four video stills on the computer and chose which video they wanted to watch first as a full-screen video. They then chose their second video to watch, and so on. As these studies were preliminary, this procedure was followed out of interest to see whether the participant chose to view the target clip first. There was no noticeable sign of this. SRD discussed the four videos with the participants in the light of their impressions, and the participants rated the videos. The computer then showed the target video, which was discussed. After the first session, the participant completed a yogic attainment questionnaire.

In 2004 the major change to this procedure was that the meditation period was 15 minutes and a specific meditation technique (ajapa japa) was done by all participants, with a 4-minute awareness period following. Also, the amount of discussion during the judging process was decreased from 2003, with the participants doing the judging more or less on their own after an initial training session.

Results

The analyses for this study are primarily descriptive, in line with the exploratory nature of the study. The data were originally analysed using a different method (Roney-Dougal, 2003), and have been re-analysed in order to find a statistical treatment appropriate for further studies. The analysis procedures reflect the exploratory nature of the data. This study is part of a larger series that is still in progress and for which we wish to derive insights to inform future design and analysis. The underlying data for the primary variable, psi scoring, are the preferential ratings (1–100) assigned to a pool of four possible targets for each trial. Since ratings present two classic problems — idiosyncratic "meaning" of ratings, and possible violations of normality — we converted ratings into ranks. We continue to use and recommend others to use 1–100 ratings in data collection due to their ease of administration (it's easier to instruct participants about ratings than about rankings), for microanalysis of individual trials, and for possible future use to compare with other studies. For the analysis, however, ranks are not only more predictably Gaussian but also become candidates for several simple, sound, and powerful analytic methods. In this small-sample exploratory study we elected to use the average rank statistic for the key variable because of its use as a normal deviate in correlation and regression analyses and because it can be tested for significance with a t test (Solfvin, Kelly, & Burdick, 1978). Effect sizes can then be computed directly from the t statistic.

Part 1: Data from 2003

The gender and age breakdowns are presented in Table 3 along with the yogic attainment score (YAQ) averages, numbers of psi sessions completed, and test results for each subgroup. Figure 1 shows psi scoring by group and gender.

The data in Table 3 and Figure 1 show the predominant tendency towards psi-missing. With the chance level being mean rank of 2.5, and with *lower* rank scores indicating psi-hitting, it can be seen that three of the subgroups are very close to chance expectation on psi scoring (male and female SW, male ST), and the remaining three groups are psi-missing, but not significantly so. Thus, there is no suggestion of any subgroup scoring significantly different from chance expectation, nor is there any indication of between-group differences. Even the deceptively large visual difference in Figure 1 between male and female students does not approach statistical significance.

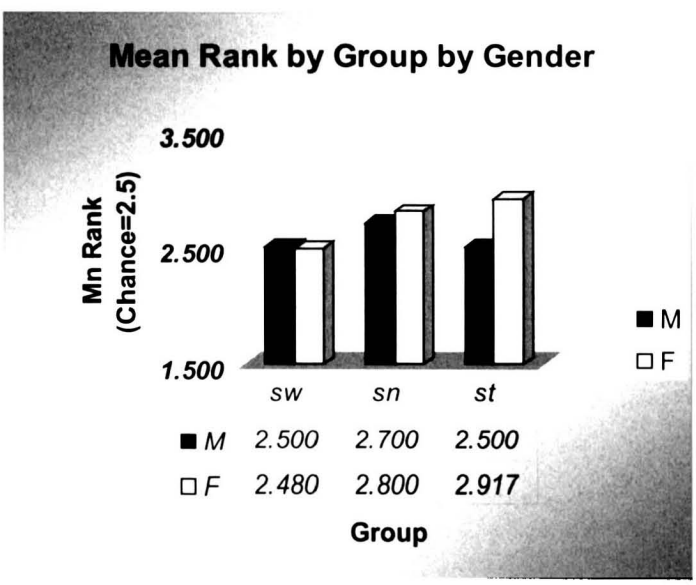

Figure 1. 2003 mean rank for participants (excluding visitors)

However, the picture changes if we note that those participants who completed only one or two trials gave poor and inconsistent results. Of these 16 participants, there were 2 visitors who completed one session each owing to the short period of their stay in the ashram. There were four students whose course finished at the time the research sessions were starting, so they were able to complete only one session each before leaving the ashram; one swami was too busy with other duties; and 4 participants started only at the

TABLE 3
2003 RESULTS SHOWING GENDER, AGE, YOGIC LEVEL AND PSI SCORE FOR ALL PARTICIPANTS

Grp	*n*	Age	Min/max	YAQ	*N* sess.	Psi rank	*t*	*p**
SW	12	44.6(9.6)	25/59	1074(897)	35	2.49(1.17)	-0.07	.943
F	9	45.3(10.9)	25/59	1212(986)	25	2.48(1.26)	-0.08	.938
M	3	42.3(4.5)	38/47	659(445)	10	2.50(0.97)	0.00	.999
SN	10	31.4(7.9)	22/50	380(285)	35	2.74(1.12)	1.12	.208
F	5	31.4(4.5)	24/36	372(305)	15	2.80(1.26)	0.92	.374
M	5	31.4(11.0)	22/50	388(299)	20	2.70(1.03)	0.87	.397
ST	9	38.2(8.4)	26/50	129(84)	24	2.71(1.08)	0.94	.356
F	3	42.3(8.0)	34/50	182(100)	12	2.92(1.16)	1.24	.241
M	6	36.2(8.5)	26/49	103(69)	12	2.50(1.00)	0.00	.999
V	3	28.3(0.6)	28/29	34(25)	8	2.63(1.06)	0.33	.749
F	2	28.5(0.7)	28/29	47(16)	7	2.57(1.13)	0.17	.873
M	1	28.0(--)	28/28	59(--)	1	3.00(--)	--	--

Note: Grp = group; Min/max = minimum/maximum age; YAQ = yogic attainment questionnaire; Psi rank = unweighted group mean; standard deviations in parentheses; SW = swamis; SN = sannyasins; ST = students; V = visitors; * two-tailed

end of the period of the study and so were able to complete only one or two sessions each before SRD left the ashram. For the remaining 5 participants, 3 completed two sessions each and showed an improved score on the 2nd trial. The final 2 both got "misses" on their single trials (rank 4 out of 4), so it is possible that they dropped out due to poor scoring. But if that were the case, these are only two data points out of the total 73, which would have negligible impact on the results. Thus we can remove them for post hoc exploratory analyses, leaving the 17 participants who did three or more trials, which is arguably a more valid sampling, though the student sample is reduced considerably.

In terms of years of yogic practice the demographics change slightly: students have practiced between 0.6 – 6 years; sannyasins from 2 – 10 years; and swamis from 10 – 33 years. Table 4 shows these selected data.

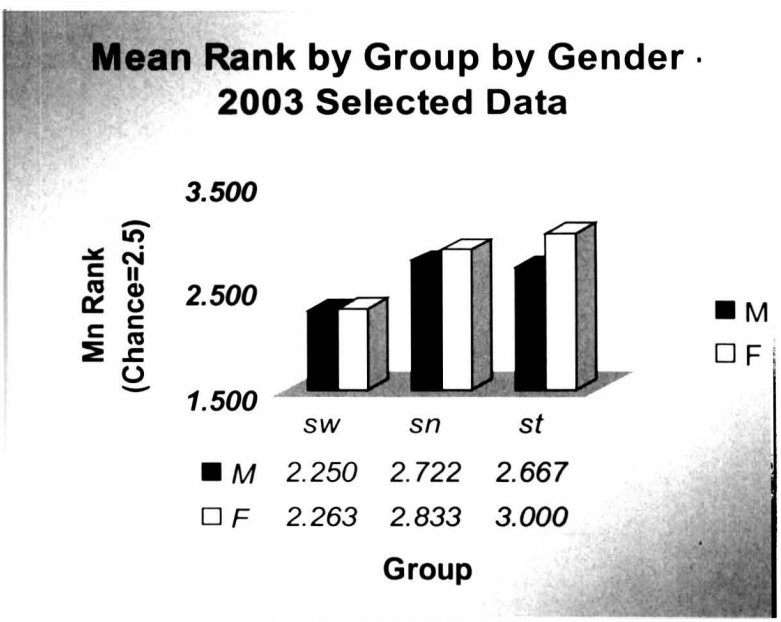

Figure 2. Mean rank for selected participants

All participants who completed at least three sessions averaged 2.60 (SD = 1.13) on the psi task for the 73 sessions, so there is still nonsignificant psi-missing overall. However, Figure 2 shows a different pattern than Figure 1. Eliminating the participants with fewer than three trials has little effect upon the psi scoring for the male and female sannyasin and student groups, as can be seen by comparing the graphs, but both male and female swamis can be seen to have performed much better than previously revealed. The swamis mean rank score of 2.26 (SD = 1.16) is in the psi-hitting direction, $t(26)$ = -1.08, p = .392, two-tailed. When compared to sannyasins and

TABLE 4
2003 RESULTS SHOWING GENDER, AGE, YOGIC LEVEL AND PSI SCORE FOR SELECTED DATA

Grp	*n*	Age	Min/max	YAQ	*N* sess.	Psi rank	*t*	*p**
SW	7	46.9(4.9)	41/59	1165(705)	27	2.26(1.16)	-1.08	.292
F	5	47.8(5.5)	41/59	1265(838)	19	2.26(1.28)	-0.80	.432
M	2	44.5(3.5)	42/47	916(3.1)	8	2.25(0.89)	-0.80	.451
SN	7	30.7(9.4)	22/50	287(164)	30	2.77(1.14)	1.29	.208
F	3	29.7(4.9)	24/33	304(173)	12	2.83(1.27)	0.91	.382
M	4	31.5(12.7)	22/50	275(182)	18	2.72(1.07)	0.88	.392
ST	3	37.7(11.0)	29/50	122(79)	16	2.88(0.96)	1.57	.138
F	2	42.0(11.3)	34/50	141(100)	10	3.00(1.05)	1.50	.168
M	1	29.0(--)	29/29	83(-)	6	2.67(0.82)	0.50	.638

Note: Grp = group; Min/max = minimum/maximum age; YAQ = yogic attainment questionnaire; Psi rank = unweighted group mean; standard deviations in parentheses; SW = swamis; SN = sannyasins; ST = students; * two-tailed.

students, swamis performed significantly better than each of the other groups, SW versus SN: $t(53) = 1.67$, $p = .05$, one-tailed; and SW versus ST: $t(41) = 1.79$, $p = .04$, one-tailed.

It seems reasonable to assume that excluding those who did not complete at least three sessions gives us a more valid indicator of psi scoring for the groups that they represent. This view is bolstered by reiterating that those participants with only one or two trials, regardless of group assignment, performed highly variably on the psi task. Thus, to eliminate them is to reduce extraneous variance in the psi data. As an added bonus to this "cleaning" of the dataset, a hitherto unseen trend becomes visible, the trend for swamis to perform better than sannyasins and students.

Using Effect Size Display

At this point it is useful to convert the psi scores from average rank to effect size in order to get a truer picture of the strength of these data. Effect size facilitates comparisons between groups with unequal n's and with data from other years or experimenters. The correlation effect size, ES(r), recommended by Rosenthal, Rosnow, & Rubin (2000) can be computed directly from the t statistic: ES(r) = t / sqrt($t2$ + df)

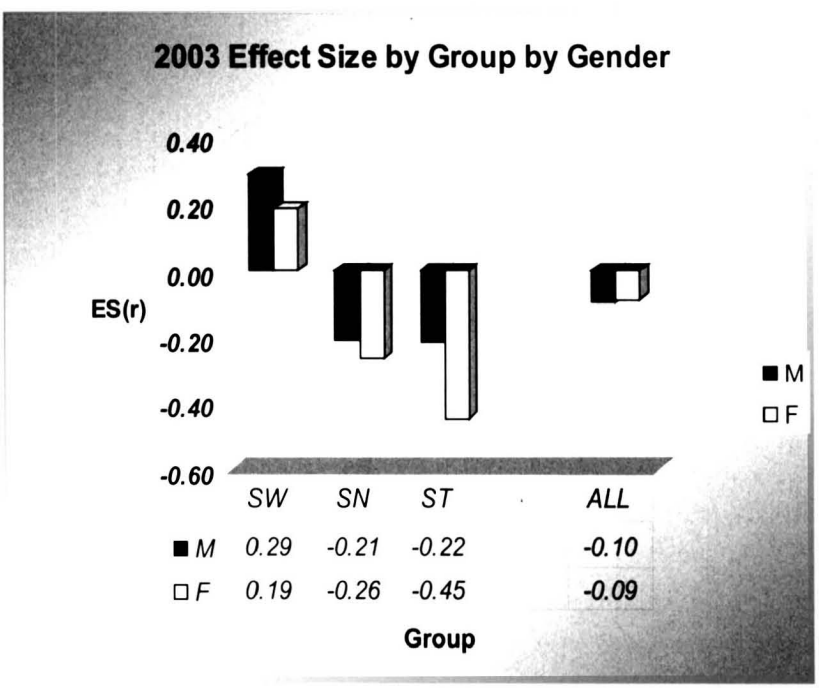

Figure 3. 2003 effect sizes for selected participants

The figure above shows the same data as in Table 2, but displays effect size: positive effect size indicates psi-hitting whereas negative effect size indicates psi-missing. In this effect size display, it can be seen that the 2003 data show some interesting (absolute value) effect sizes. Psi scoring in parapsychology ranges widely but generally a psi effect size of .25 to .35 would be considered "successful." We can see above that the male and female swami groups show small but respectable positive effect sizes, whereas the sannyasins and particularly the students had negative effect sizes (psi-missing tendency). Even in the absence of statistical significance these effect sizes can be helpful in planning subsequent research.

We must keep in mind that these results are post hoc; there have been multiple analyses and the *p* values above are presented only as a rough indicator of the magnitude of the relationships under discussion. Also with only three students retained in this data set, one can say very little with such a small sample.

Additional Analyses

In the data analyses above, there is a potential confound that clouds the interpretation. In the refined sample, those remaining in the swami group tend to be older and to have slightly higher yogic attainment scores (YAQ). Could this be responsible for the apparent shift in psi scoring in the swami group? If so, it is in line with the hypothesis that yogic attainment level is related to psi awareness.

Additional analyses were conducted to shed light on this question. First, simple Pearson correlations were computed between the mean psi rank, age, gender, years of practicing yoga, and YAQ. The results are shown in Table 5.

TABLE 5
CORRELATIONS MATRIX FOR 2003 PSI SCORE, AGE, GENDER, YEARS OF PRACTICE, AND YAQ

	Psi	Age	Gender	Yrs. practice
Age	-.15	-	-	
Gender	.03	.30	-	
Yrs. prac.	-.11	.67*	.43	
YAQ	-.57*	.33	.25	.65*

* $p < .05$; ** $p < .01$; *** $p < .001$

TABLE 6
2004 RESULTS SHOWING GENDER, AGE, YOGIC LEVEL AND PSI SCORE FOR ALL PARTICIPANTS

Grp	*n*	Age	Min/max	YAQ	*N* sess.	Psi rank	*t*	*p**
SW	6	41.5(8.5)	26/50	10047(6002)	36	2.42(1.25)	-0.40	.692
F	5	41.2(9.4)	26/50	9993(6738)	30	2.33(1.21)	-0.75	.456
M	1	43.0(--)	43/43	10320(---)	6	2.83(1.47)	0.55	.602
SN	6	29.5(3.8)	23/34	2565(1182)	36	2.44(1.03)	-0.32	.748
F	3	32.3(1.5)	31/34	2994(765)	18	2.11(1.02)	-1.61	.126
M	3	26.7(3.2)	23/29	2136(1535)	18	2.78(0.94)	1.25	.228
ST	6	32.2(1.9)	30/35	1440(834)	36	2.36(1.10)	-0.76	.452
F	3	33.7(1.5)	32/35	2020(803)	18	2.39(1.09)	-0.43	.672
M	3	31.0(1.0)	30/32	860(286)	18	2.33(1.14)	-0.62	.542

Note: Grp = group; Min/max=minimum/maximum age; YAQ = yogic attainment questionnaire; Psi rank = unweighted group mean psi score; standard deviations in parentheses; SW = swamis; SN = sannyasins; ST = students; V = visitors; M = male; F = female; * two-tailed.

In this correlation matrix, psi score is not significantly related to age, r=.15, $t(15) = 0.59$, $p = 0.561$, two-tailed, but it is significantly related to YAQ, $r = .57$, $t(15) = 2.69$, $p = .017$, two-tailed. Higher YAQ corresponds to better psi scoring as was hypothesised. In the original sample of 31 swamis, sannyasins, and students, these correlations were nonsignificant (w/age: $r = .10$; w/YAQ: $r = .13$).

The YAQ shows a positive, though nonsignificant, relationship with age, $r(15) = .33$, $p = .19$, two-tailed, and years of practice is significantly related to age and YAQ, $r(15) = .67$, and $r(15) = .65$, respectively, both $p < .01$, two-tailed. Finally, using multiple regression to predict psi scores based upon both of these predictors, we find that the YAQ accounts for virtually all of the explained variance, and age does not contribute significantly. Thus, age of participants is not a confound in these data. Yogic attainment, as defined by the questionnaire used in this study, may be. We cannot be certain whether it accounts for the different psi scoring of swamis, sanyassins, and students with these small sample sizes.

Part II: Data from 2004

In 2004, overall, the 18 participants (108 sessions) tended toward nonsignificant psi-hitting (mean rank = 2.41, $SD = 1.12$). The 2003 overall results tended toward nonsignificant psi-missing. The difference in scoring between the two studies is not significant. Tables 6 and 7 summarize this.

TABLE 7
COMPARISON OF 2003 AND 2004 MEAN RANK PSI SCORING FOR THREE GROUPS

Year	SW	SN	ST	ALL
2003 psi rank	2.26(1.16)	2.77(1.14)	2.88(0.96)	2.60(1.13)
N(selected data)	27	30	16	73
2004 Psi rank	2.42(1.25)	2.44(1.03)	2.36(1.10)	2.41(1.12)
N	36	36	36	108

Note: Psi rank = unweighted group mean psi score; standard deviations in parentheses; N = number of trials; SW = swamis; SN = sannyasins; ST = students.

Effect Size Analysis

The comparison of the groups for 2003 and 2004 can best be viewed by effect size measure ES(r). Figure 4 compares the 2003 and 2004 group/gender breakdown.

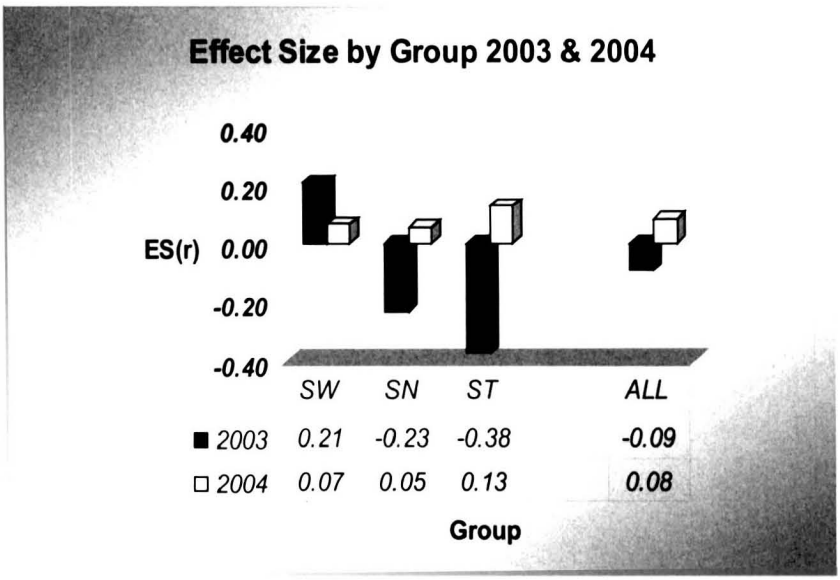

Figure 4. Effect size for 2003 and 2004

This figure shows that whereas the 2003 data was overall negative, it actually had the largest (absolute value) effect sizes. The swamis in 2003 scored at ES(r) = .21, a small but respectable positive effect, whereas the students and particularly the sannyasins were scoring rather strongly in the opposite direction. In 2004 all groups show nonsignificant scoring in the psi-hitting direction.

Figures 3 and 5 show the gender breakdown effect sizes for 2003 and 2004 data, respectively. Although males and females scored at about the same levels in their respective groups in 2003, that was not the case in 2004. Overall, in 2004 the females in all three groups scored positively, though nonsignificantly, mean rank = 2.29, E.S. = 0.19, $t(65)$ = -1.54, p = .12, two-tailed. Males in 2004 scored slightly negatively (mean rank = 2.60, E.S. = -.09). The overall male-female difference in 2004 is not statistically significant, p = .17, two-tailed.

In 2004, female sannyasins scored strongest, mean rank = 2.11, $t(17)$ = -1.61, p = .12, two-tailed. This is an effect size of ES(r) = .36, in the range often associated with "good" psi performance. With male sannyasins scoring nonsignificantly negatively, mean rank = 2.78, E.S. = -0.29, $t(17)$ = 1.25, p = .23, two-tailed, there is a significant difference between the male and female psi scoring, $t(34)$ = 2.03, p = .05, two-tailed. This gender effect does not hold for groups SW and ST, and it may be an artifact of fortuitous sampling.

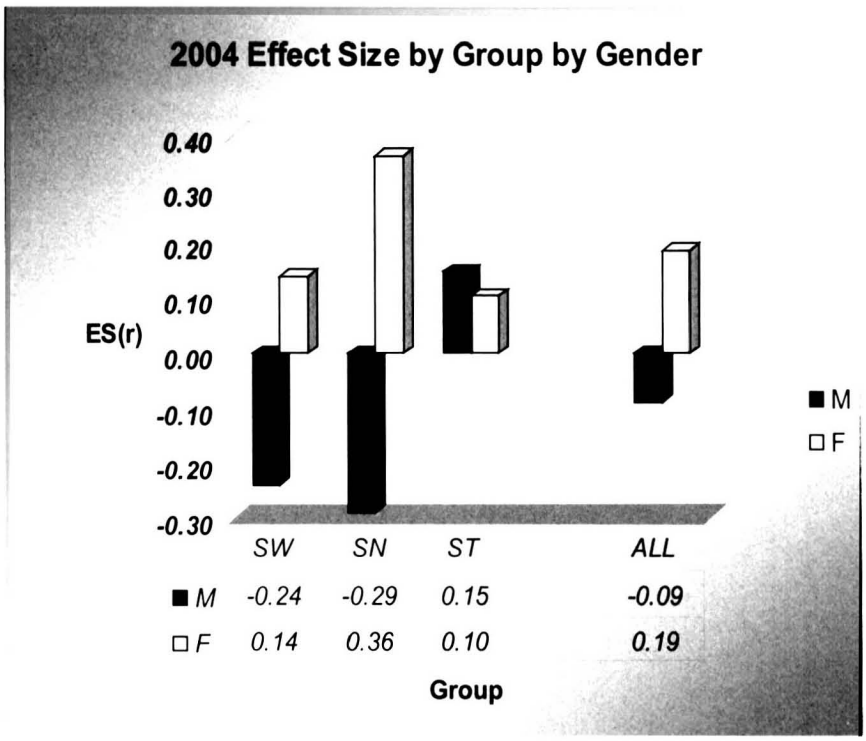

Figure 5. 2004 effect size by group by gender

The final question for the 2004 data is whether the correlation between psi score and yogic attainment score observed in 2003 was continued. The simple (Pearson) correlations among the key variables are shown below:

TABLE 8
2004 CORRELATION MATRIX FOR PSI SCORE, AGE, GENDER, AND YAQ

	Psi	Age	Gender
Age	-.10	-	-
Gender	-.34	.40	-
YAQ	.15	.71	-.31

In 2004, psi scoring is slightly correlated with gender, but near zero with YAQ and age, although both are in the hypothesised direction. Participants who were older and had higher YAQ scores tended to give more positive psi results. However, YAQ and age are correlated even more strongly in 2004 than in 2003. Thus, this is a complicated situation for which we have too little data and too many variables. The most we can hope for is to shed some light on this issue for planning our future studies. We already know from our earlier considerations that gender is a factor in this study, but now we can see that this is not entirely clear either. Gender correlates in 2004 with age (which was a potential confound in 2003) and with YAQ — female participants tend to be younger and have lower YAQ scores. (Note that we could throw "years of practice" into this porridge and almost certainly find further correlations, but we hope that age and YAQ cover that other variable sufficiently.)

Discussion

These studies have been a preliminary exploration of the hypothesis that increasing yogic attainment may be related to increasing psi awareness. In line with this hypothesis, in 2003, with participants who did at least three sessions, there was a significant difference between the swamis and the other two groups identified on the basis of yogic initiation level, which was corroborated by the significant correlation between the YAQ and psi score. This was not replicated in 2004. The significant difference in 2003 between the swamis and the other two groups occurred primarily because the other groups scored nonsignificantly in the psi-missing direction, whereas in 2004 all groups scored near chance but in the psi-hitting direction. Although the scores of the student and sannyasin groups are nonsignificant in themselves, the trend we see is a variability in scoring common to research with unselected participants. Perhaps the effect of many years of meditation is indicated by the consistency in scoring exhibited by the swamis as shown in Figures 1, 2, 3, and 4, which, although nonsignificant in these short studies, would, if sustained over a longer period, show the cumulative deviation exhibited by such studies as those of the PEAR laboratory (Jahn, Dunne, Nelson, Dobyns, & Bradish, 1997).

In the process we have found a methodology that is appropriate for an ashram situation so that controlled experiments can now be run. There was a wide range in nationalities and ages taking part in this research, so we are far removed from the typical university experiment that uses undergraduate students as participants.

The significant difference between the swamis and the other groups in 2003 occurred primarily because of the nonsignificant psi-missing of the students and sannyasins. The participants felt that they "weren't doing well," so this was addressed at a qualitative level in an effort to see what

possible reasons there might have been for this feeling. The following areas were identified and addressed:

(1) *Emotionality of targets.* Negative emotionality of targets was a contributor to some psi-missing with certain people. Though from a Western perspective the Kathy Dalton set of video clips is not particularly violent or negative, for people living in an ashram — where there are no films, television, radio, or newspapers — to see a tidal wave drowning people, or a person in battle with a monster, was a shocking experience. Swamis, who have lived in an ashram for many years, have not been exposed to modern television and films and so have a very low threshold for the emotional tension in films that most modern Western people would hardly notice. There were a number of comments in which people ranked these targets fourth just because they did not want to see them again. Therefore, in 2004 a target pool that had only positive emotional or neutral targets was drawn from the Northampton University target set. There is also a possibility that cross-cultural differences affect people's responses to the target pools. The participant pool comprised Indians from all parts of India, Australians, New Zealanders, British (both Anglo and Carribean), Swiss-Indian, Italians, Serbians, and so on. Only one Indian participant stated that he had no connection with the targets because they were outside his culture, so this factor appeared to play a minor role.

(2) *Judging.* One possible problem occurred at the judging stage. Because the participants were novices with regard to free-response methodology, SRD worked with them at the judging stage. Some participants found this intrusive and unhelpful, though many said it was helpful. This important aspect of the free-response design has not been sufficiently investigated. Free-response methodology is a two-stage process, the first stage requiring an open, holistic, intuitive, global, and dream-type cognitive mode for reception of the information; the second using the analytical, logical, and judging cognitive mode to decide whether the information is relevant to the actual target. In the ganzfeld type of design used here, participants do their own interpretation with or without assistance from the experimenter. In the remote viewing design the experimenter helps during the awareness period and someone else does the judging. Which method is preferable is open to debate, but the degree of assistance given by experimenters is rarely mentioned in reports, although it deserves to be. One early ganzfeld study that does address this issue is Palmer, Khamashta, and Israelson (1979), in which the authors compared participants' own scoring with that of independent judges.

(3) *Social and cultural dynamics.* It is possible that social and cultural dynamics were exhibited most strongly by the students: for example, age, gender dynamics, and the effect of ashram rules. The participants were working in SRD's room. The ashram has a rule that no one is allowed into anyone else's room. SRD was in the guesthouse and her room was being used as an office, and she had permission to run the experiment there.

However, some people were uncertain as to the permissibility of entering her room and there could well have been discomfort. It is also possible that, as the hypothesis was a comparison, the students unconsciously psi-missed so as to enable the swamis to score better. There is a strong element of compliance in Indian society — a desire to please — however that may manifest — in this case supporting the hypothesis by psi-missing. As discussed in the introduction, this element of compliance in a comparison design engendering psi-missing was also found by Dukhan and Rao (1973) and Roll and Zill (1981).

(4) *Experimenter effect.* An experimenter effect involving the students is also possible. SRD noticed that she was more relaxed about the psi-missing tendency of the students. However, there was tension around the psi-missing in general, and this is dealt with when the karma yoga attributes below are examined. This experimenter effect obviously has the greatest chance to affect results at the judging stage. As mentioned in Section 2 above, SRD had to help the participants at the judging stage so that they could fully understand what they had to do, especially in their first session — and some participants did only one or two sessions. At no time did she intervene in the participants' choice of target, but her presence did influence some of the participants and may well have influenced their ratings. Although SRD may at times have thought that a particular picture was the target, she made no conscious choice at any time, so there is no record of whether she was using accurate psi during this process. This is an obvious psychological experimenter effect, and there may also have been psychic influences from SRD.

(5) *Emphasis on siddhis.* Another factor is the yogic teaching stating that one must not put emphasis on the siddhis. Despite the fact that the head of the ashram gave permission for this research, there is a strong dictum that psi is a forbidden topic. This can be understood as a variant of the fear of psi (Tart, 1984) that is so prominent in Western society. Here it does not manifest as denial of psi, but psi is considered to be an unwise direction in which to focus one's intent, to the extent that people actively avoid the subject at every level. And yet in Patanjali's yoga sutras, one whole chapter is devoted to a discussion of this aspect of consciousness, and it expresses the view that one cannot gain enlightenment without having gained the siddhis. Therefore, the active avoidance of the siddhis is possibly a mistaken attitude. They give us some of our greatest problems in terms of ego and glamour; spiritual power is even more corrosive than temporal power; and to be distracted onto the path of attaining the siddhis for their own sake is fakirism rather than the path of a yogi. But one does have to deal with the problems that the siddhis raise, so to avoid them can be understood as a fear of them. It is better to be aware of that which can give rise to problems than to be in ignorance.

(6) *Ownership resistance.* Another factor is that of ownership resistance (Batcheldor, 1984). In the sessions there was a noticeable feeling

of "doing well" or of the reverse. This will be dealt with more fully in the following discussion of karma yoga. Another possible confound is that the participants were aware of the hypothesis, and this may have influenced their responses to the questionnaire. The problem of assessing the degree of yogic attainment is ongoing. Ideally, an independent measure would be preferred to a self-report scale. However, as yet there does not appear to be an adequate or reliable measure, so we have here relied on two different measures — the degree of initiation, which forms the three groups so we could assess the differences between them, and the YAQ, which is based on a self-report of their yogic practices. Neither is satisfactory.

One of the most interesting lessons to come from these experiments was the realisation that the instructions SRD was giving to participants in the pretrial discussion, and which often were discussed in the post-trial feedback, were remarkably similar to the attributes of karma yoga as defined by Sw. Niranjanananda Saraswati (Niranjanananda, 1993). He lists six attributes of karma yoga as follows:

(1) *Efficiency.* "In order to be efficient, it is necessary to be keen, to have awareness, and concentration, to be one-pointed and not distracted" (p.71). In the context of a psi session this means that one aims to become aware of the target video and not the other videos in the pool (displacement).

(2) *Equanimity.* "This means that there is balance of mind in both success and failure. If our mind becomes disturbed by failure and success, then we swing like a pendulum . . . from a positive and optimistic approach during success, to a negative and pessimistic approach during failure"(p.71). Everyone wanted to be "successful." Some came with an expectation of "failure." Learning that it is the process that is important and that whatever happens is useful was very difficult for most people, including the experimenter! Problems with equanimity and its related aspects almost certainly contributed to the psi-missing. One aspect of equanimity is the following:

(3) *Absence of expectation.* "Never think of renouncing action, only think of renouncing expectation of the results of the actions performed" (p. 72). When we do research we all have our expectations, our hopes and desires, normally outlined in the hypothesis. The experimenter holds these expectations and the participants try to perform accordingly to please the experimenter. There were some participants who, when they did not get a direct hit, would make a remark about how they were not fulfilling the expectations of the experiment.

(4) *Egolessness.* "Egolessness . . . implies that one has to be simple, sincere and desireless" (p. 72). Problems with ego were present throughout the sessions for most of the participants. Ego contributes both to lack of equanimity and to expectation. These manifested as people wanting to be successful because they were a swami, thinking they were not good enough because they were a student, and so on.

(5) *Renunciation of limited desire.* "It is understood that when we begin our journey, the motivating factor is a desire. 'I wish to' is the form of our desire. It is not elimination or renunciation of this desire but the renunciation of other limiting desires that is necessary. We must know which are the limiting desires that hold us back" (p. 73). This is an interesting factor because participants take part in research for a variety of motives. The one that seems to lead to the most positive results is one of interest in the process, in what is going on and inquiring how it works. This desire gives a motivating force that allows for equanimity. It is also a key factor in the experimenter effect, since the experimenter has the greatest desire for a particular result.

(6) *Duty, or dharma.* The final attribute of karma yoga is considering every action to be a duty. Obviously having this attitude helps in a psi experiment because with it one has complete equanimity. Most of the swamis participated solely because their guru had asked for their cooperation — out of duty to their guru. This was not so true of the students.

These attributes of karma yoga have been outlined here as possible aspects of psi functioning that are amenable to experimental testing under laboratory conditions. Through exploring these aspects we may well be able to understand better the dynamics involved in the controlled manifestation of psi. If it is true that development of meditation and associated states of consciousness are related to a learned as opposed to a spontaneous ability to become aware psychically, then this could transform parapsychology. At present we either rely on the few superstars, as in the remote viewing experiments (May, 1996), or on the uncertain results from unselected participants.

Conclusion

These studies were a preliminary exploration. Although the results are not statistically significant, they are all in the hypothesised direction, suggesting that more research is needed to explore possible relationships between years of living a yogic lifestyle and greater psi awareness. We are encouraged by the few tentative post hoc findings in the 2003 data that we have outlined in this paper. We are encouraged by the more positive atmosphere surrounding the data collection process in 2004. We are also more aware now of the pitfalls of collecting data in cross-cultural settings, of the costs of doing so, and of the numerous potential confounds to be avoided. Based upon our experience to date, we suspect that further fine-tuning of the design and procedure may yield interesting data during the next series of experiments with Tibetan Buddhist meditators.

So far, however, as most of the results have been nonsignificant, much more research will be needed to clarify the possible relationship between years of practise of yoga and meditation and the level of psychic awareness. Perhaps another reason for further research is that, as Patanjali

states in his sutras, it is only when one has attained a certain level of Samadhi that the siddhis appear. It is possible that none of the participants in this study had attained that level of meditation.

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APPENDIX A

YOGIC ATTAINMENT QUESTIONNAIRE (2004)

Name: Date:

1) For how many years have you been practising yoga:

2) During this time -

a) For how many years have you practised:

Asana

as a daily practise | as a weekly practise | irregularly

Estimate hours/day | estimate hours /week | estimate hours /year

Please circle the level of practise you are doing at the moment.

b) For how many years have you practised:

Pranayama

as a daily practise | as a weekly practise | irregularly

Estimate hours/day | estimate hours/week | estimate hours/year

Please circle the level of practise you are doing at the moment.

c) For how many years have you practised:

Meditation

as a daily practise | as a weekly practise | irregularly

Estimate hours/day | estimate hours/week | estimate hours/year

Please circle the level of practise you are doing at the moment.

d) For how many years have you practised:

Yoga Nidra

as a daily practise | as a weekly practise | irregularly

Estimate hours/day | estimate hours/week | estimate hours/year

Please circle the level of practise you are doing at the moment.

e) For how many years have you practised:

Shatkarmas (please specify the one/s you do)

as a daily practise | as a weekly practise | irregularly

Estimate hours/day | estimate hours/week | estimate hours/year

Please circle the level of practise you are doing at the moment.

3) The following questions are to get some idea of your level of attainment in antar mouna meditation. Please rate on a 1–7 scale your present level of achievement at the different stages, where 1 means not at all through to 7 meaning complete attainment of that stage.

Stage 0

1 2 3 4 5 6 7

body discomfort bothers me full kaya sthairyam

Stage 1

1 2 3 4 5 6 7

thoughts distract senses/breath awareness full concentration

Stage 2

1	2	3	4	5	6	7
senses distract		spontaneous thought/ chiddakash awareness				full concentration

Stage 3

1	2	3	4	5	6	7
difficulty creating, maintaining and disposing chosen thought/chiddakash						full concentration

Stage 4

1	2	3	4	5	6	7
difficulty in maintaining focus and disposing spontaneous thought						full concentration

Stage 5

1	2	3	4	5	6	7
difficulty in maintaining thoughtlessness						full concentration

Stage 6

1	2	3	4	5	6	7
difficulty in maintaining focus on psychic symbol						full concentration

APPENDIX B

Randomization Check

A randomness check was conducted by examining the distribution of actual target selections made in the studies in 2003 and 2004. There was no significant deviation from the uniform (expected) distribution in either year separately (ChiSquare(3) = 2.10, p = .552, n = 80; and ChiSquare(3) = 4.42, p = .219, n = 111), or combined (ChiSquare(3) = 4.15, p = .245, n = 182). The frequencies are provided below.

Randomization Check: Target Frequencies for 2003 and 2004

	TARGET				
YEAR	A	B	C	D	*n*
2003	19	16	25	20	80
2004	35	21	31	24	111
2003 & 2004	54	37	56	44	191

A PARAPSYCHOLOGICAL INVESTIGATION OF THE *I CHING*: THE RELATIONSHIP BETWEEN PSI, INTUITION, AND TIME PERSPECTIVE[1]

BY LANCE STORM

ABSTRACT: Statistical evidence was sought that an anomalous effect might be involved in the ancient Chinese system of divination known as the *I Ching*. The *I Ching* user throws 3 coins 6 times, to generate 1 of 64 possible 6-line symbols (or hexagrams) and then consults the associated divinatory reading. Initial studies by Storm and Thalbourne (1998–1999, 2001a) suggest that first-hexagram outcomes can be determined in advance of generating the hexagram to a significant degree above MCE. In the present study, it was theorized that hexagram targeting accords with a person's time perspective. Individuals who have a present time perspective (PTP) focus on immediate events and those who have a future time perspective (FTP) focus on the future. Because intuitive types are said to be future-oriented, it was hypothesized that FTP-types are more intuitive than PTP-types. It was also hypothesized that predicted hexagram outcomes are above chance; there is a relationship between pro attitude and hexagram hitting; and intuition predicts hexagram outcomes. In a sample of mostly university students (N = 200), FTP-types were not more intuitive than PTP-types. Hit-rates were above chance on second-hexagram hitting only (not significantly). PTP-types did hit more often on first hexagrams (29%) compared to FTP-types (20%), whereas FTP-types did hit more often on second hexagrams (36%) compared to PTP-types (31%), but the differences were not significant. Intuition scores did not predict hexagram outcomes. Other significant effects were found.

The *I Ching* is a form of divination that hails from ancient China. As a system of divination in book form (containing 64 unique readings), most scholars view the *I Ching* traditionally as a tool for guidance, though many Western users today would see it as a book of predictions (Whinchup, 1986; Wilhelm, 1989). Though the *I Ching* is many thousands of years old, documented evidence exists that it steadily grew in popularity over the centuries, especially from the seventh century BC onward, surviving political chaos and even book burnings in the third century BC because of the importance of divination in the Chinese zeitgeist. In modern times it has gained widespread use throughout the world (Whinchup, 1986).

The *I Ching* has been found to be methodical and well organised. For example, Covello (1977) showed that there was a rationally derived, systematic substructure to the *I Ching*, and he claimed: "One of the more fascinating aspects of the *I Ching* is that it can be viewed as a mathematically ordered cosmology. Its surprisingly systematic structure renders many of its

[1] Preparation of this article was supported by a grant from the Bial Foundation.

assertions amenable to controlled investigation" (p. 115). In the modern era, the user throws three coins six times to generate 1 of 64 so-called hexagrams (six-line symbols) with its associated reading. The reading is said to provide an answer to the user's questions, to give insight into a problem, or even to furnish the user with an ostensible forecast of future outcomes based on conditions in the present. Because the *I Ching* putatively gives such information, the possibility exists that an anomalous process which would primarily reside in the user underlies the *I Ching* process. Jung (1960, 1989) argued that chance is given a free rein in the process and that an acausal principle underlies the outcome, but his claims are driven by certain assumptions made under the rubric of synchronicity theory (see Storm, 1999). It is equally valid to argue that the rules of chance can actually be subverted by intention (conscious or unconscious) so that the effects of chance are reduced. The outcome may then be less coincidental and more "veridical" in nature. That is, the predisposed participant may introduce his or her own influence into the system so that human involvement — the crucial part of the *I Ching* process — might anomalously generate a hexagram that corresponds with a reading of some utility to the user. Thus, the system may be dependent on other than normal processes (i.e., a paranormal or otherwise anomalous process).

Experimentation with the *I Ching* may help establish statistical evidence that an anomalous process might be taking place during the use of the *I Ching* that might, by implication, reflect on the alleged efficacy of this form of divination. As previously stated, this divinatory process has been described as synchronicity (Jung, 1960, 1989) — a paranormal effect involving meaningful coincidence. It has also been described as psychopractic, an overarching term that replaces the terms ESP and PK (Storm & Thalbourne, 2001), because it is difficult to determine whether the *I Ching* effect is produced through precognition (ESP) or anomalous manipulation of the coins (i.e., PK), with or without clairvoyance (ESP).

A number of researchers have investigated the *I Ching* for its possible paranormal component (e.g., Rubin & Honorton, 1971, 1972; Thalbourne, 1994; Thalbourne, Delin, Barlow, & Steen, 1992–1993), and these studies reported mixed results (for a review, see Storm & Thalbourne, 2001). Studies by Storm and Thalbourne (1998–1999, 2001a) looked for relationships between paranormal ability in the *I Ching* "setting" and two dimensions not previously tested in any *I Ching* study: (1) personality (using Raymond Cattell's 16PF questionnaire — see Cattell, Eber, & Tatsuoka, 1970), and (2) transliminality (the tendency of psychological material to cross into or out of consciousness — see Lange, Thalbourne, Houran, & Storm, 2000). Significant hexagram hit rates were found in those studies, as well as predictors of psi (specifically, the so-called "*I Ching* effect") in some of the personality measures and in the transliminality measure, but these effects have not always been replicated (Storm & Thalbourne, 2001; Thalbourne & Storm, in press).

In the *I Ching* study, there is an additional step to the usual *I Ching* method that requires the so-called Hexagram Descriptor Form (Storm & Thalbourne, 2001, Appendix A, p. 121), comprised of 64 two-adjective descriptors (i.e., word pairs) that replace the 64 hexagrams. The task of the participant is to select 16 of the 64 descriptors that correspond to his or her feelings "lately, or right now." The participant then throws three coins six times — a process that is recorded and systematically decoded to produce a hexagram. If this hexagram corresponds to one of the 16 preselected hexagram descriptor-pairs, the outcome is regarded as a "hit." If the outcome hexagram is other than one of those preselected, it is regarded as a "miss."

As mentioned, previous studies (see Thalbourne & Storm, in press, for a review) have given tentative indications that hexagram outcomes can be determined in advance of generating the hexagram. However, second hexagrams might be targeted by participants in accordance with their time perspective (i.e., whether they are focused on the present or on the future). This orientation may determine participants' pro attitudes, or dispositions, toward hexagram outcomes. The first-hexagram reading is past-and-present focused so long as it is not "static" (i.e., not comprised of at least one so-called changing line),[2] whereas the second-hexagram reading (generated from any changing lines in the first hexagram) is future-focused, as is the static-hexagram reading, though static-hexagram readings traditionally concern past, present, *and* future (see Hazel, 1990; Wilhelm, 1989).

Hexagram Hitting

The primary paranormal task in the *I Ching* studies has been to predict or select the outcome hexagrams in advance of generating them. There are two types of hitting — first-hexagram hitting (any of 64 possible outcomes) and second-hexagram hitting, derived from the first hexagram (second hexagrams can only be one of the 63 remaining hexagrams). The binomial (exact) test is used to calculate the proportion correct (i.e., the hit rate) and the p value (a hit is designated "1" and a miss is designated "0"). Hit rates for both types of hexagram hitting in four *I Ching* studies to date are given in Table 6 in the Results section.

As can be seen from Table 6 (first four studies only), three out of four hit rates were above mean chance expectation (MCE) on first-hexagram hitting and five out of eight were above MCE for second-hexagram hitting, but only one of the eight was significant. Of those eight, the three remaining hit rates that were not above MCE were at or below chance (not significantly) — see Study 2 (22%), Study 3 (25%), and Study 4 (23%). In

[2] Changing lines are derived from coin throws of three-of-a-kind — i.e., HHH or TTT. The changing line, as the name suggests, changes a line in the first hexagram from "broken" to "unbroken" or vice versa, thus resulting in a second hexagram (any or all of the six lines in the first hexagram can be changing lines).

total, 8 independent measures of hexagram hitting out of 12 such measures (i.e., 67%) were above MCE (p = .194). Thus it was hypothesized for the present study that it is possible to generate above-chance hit rates on first hexagrams and second hexagrams.

It is assumed that psi hitting on first hexagrams is the result of conscious intention and is therefore most likely the consequence of a compliant pro attitude (see Hypotheses 10 and 11). In contrast, Thalbourne and Storm (in press) conjectured that second-hexagram hitting was an exclusively noncompliant effect (unintentional, unconscious, and even a form of displacement) because in previous studies the experimenters were interested only in outcomes on first-hexagram hitting, so second-hexagram hitting was not considered a genuine target and was therefore irrelevant — especially as second-hexagram generation is semidependent on the first-hexagram outcome. Also, as a safeguard against noncompliance (particularly from skeptics) and as a means of circumventing displacement, it has never been part of standard procedure to inform participants about the possibility of targeting second hexagrams. But it is possible that psi hitting on second hexagrams may *also* be indicative of a compliant pro attitude. On the one hand, for those participants who know about second hexagrams from prior use, second-hexagram hitting, insofar as it is an *I Ching* effect, would be conscious and intentional. On the other hand, participants who do not know about second hexagrams may unconsciously and unintentionally use GESP (telepathy/clairvoyance) to find out about them. Because the measures in the present study are all of the self-report type (i.e., explicit) and we do not have measures of the implicit kind, we are not in a position to test any claims about noncompliance, unconscious motives, or unintentional effects. We will merely assume that significantly above-chance hitting on first and second hexagrams are forms of psi (*I Ching* effects) underscored by some kind of pro attitude that is measurable to the degree that it is conscious (hence, Hypotheses 10 and 11).

Predicting Hexagram Outcomes

Zimbardo's Time Perspective Inventory and the Singer-Loomis (1996) Type Deployment Inventory. Historically, psi in the lab is usually a weak effect and in the *I Ching* process where there can be two outcome hexagrams, the number of outcome hexagrams that a participant can paranormally target (consciously or unconsciously) and produce in any given trial may be delimited by the nature of the psi process. This "economy" of psi possibly explains Thalbourne and Storm's (in press) result in which there was a lower than usual hit rate on first hexagrams (not significantly below MCE) and corresponding relatively higher hit rates on second hexagrams (above MCE in one case, but not significantly). The question that needs answering is: "If there has to be a choice between hexagrams, can (and do) participants prefer one over the other?" In this article, an

answer to that question is sought. By tradition, the first-hexagram reading is past-and-present-focused (except for static hexagrams, which are to a minor degree past-and-present-focused but mainly future-focused), but the second hexagram reading (generated from changing lines found in the first hexagram) is purely future-focused. If PTP-types and/or "low-intuitive" types are focused on immediate events whereas FTP-types and/or "high-intuitive" types are interested in what fate has in store for them, it was proposed that inventory scores that identify these types might serve as predictors of hexagram outcomes.

Scales used in this study are the Singer-Loomis (1996) Type Deployment Inventory (SL-TDI), which is based on Jung's (1987) personality types (and thus includes two subscales that measure Intuiting), and Zimbardo's (Zimbardo & Boyd, 1999) Time Perspective Inventory (ZTPI), which provides categories for understanding time perspectives and their psychological ramifications. Zimbardo has found that those with a present-time perspective (PTP) — so-called "present-minded" individuals — can be hedonistic or fatalistic and tend to be focused on immediate events whereas those with a future-time perspective (FTP) live in a world of abstraction and ideals and tend to be more interested in what the future has in store for them. Thus, it was proposed that time perspective may influence hexagram outcomes because a participant's interest in the present or the future may predispose him or her to paranormally target present- or future-oriented information in the form of a much needed or desired *I Ching* reading. It was also proposed that Intuiting subscale scores on the SL-TDI are related to these time perspective types and that Intuiting scores might predict hexagram outcomes. The ZTPI has not yet been used to predict paranormal processes. It was hypothesized that PTP-types and "low-intuitive" people hit more often on first hexagrams that have changing lines than do FTP-types and "high-intuitive" people, who are hypothesized to hit more often on second hexagrams and static hexagrams (which have no changing lines).

The Pro Attitude Scale. The Pro Attitude Scale (PAS; Thalbourne & Storm, in press) measures participants' pro attitudes towards a given task outcome. A favourable pro attitude is said to be necessary to achieve a desired outcome (Storm & Thalbourne, 2000), and there is some evidence that PAS scores predict hexagram outcomes (Storm, 2003). Specifically, Storm (2003) found that PAS scores (Items 4 and 5 only) correlated negatively with first-hexagram scores, $r(30) = -.31$, $p = .042$, one-tailed. The reason for this somewhat counterintuitive finding has to do with Heath's (2003) observation that the attitude of those successful at psi tasks "seemed to be one of caring about what happened combined with trust that things would work out as they should" (p. 303). As was surmised by Storm (2003):

> We might expect that the more participants shift from "some interest" to thinking a hit was "very important," the

> less we might expect them to hit. It was hypothesised that, as long as participants have *some interest* in getting a hit, but they do not think that it is *very important* either, there is a negative relationship between pro attitude and the *I Ching* effect. That is, the strongest overall hitting effects are likely to be found in those who merely trust in the process, rather than care too much. (pp. 148–149)

In order to eliminate the effect of extreme scores, which represent extreme attitudes (i.e., caring too much or caring too little), Storm (2003) used only midrange scores (i.e., scores of 3, 4, and 5). Storm's (2003) finding of a significant negative relationship between the two-item PAS score and hexagram hitting thus indicates that the more participants tended to shift from "some interest" in getting a hit to thinking a hit was "important," the less they tended to hit. This finding is exactly what we would expect according to Heath's theory. The same effect is sought in the present study.

The Australian Sheep-Goat Scale. The Rasch-scaled (Lange & Thalbourne, 2002) version of the Australian Sheep-Goat Scale (ASGS; Thalbourne, 1995) replaces the two belief questions that have historically accompanied the cover sheet of the *I Ching* Hexagram Descriptor Form because it is a more accurate measure of paranormal belief. ASGS scores may predict psi success (specifically hexagram hitting) because the relationship between paranormal belief and success at psi tasks is a reasonably consistent one (see Lawrence, 1993). Depending on the results of the hypotheses (Hypotheses 8 and 9), data will be analysed (post hoc) for a sheep-goat effect.

Hypotheses

The following hypotheses were proposed:

H1. PTP-types have lower Intuiting scores than FTP-types.
H2. First-hexagram hitting is at a rate greater than MCE.
H3. For those who are first-hexagram "hitters," second-hexagram hitting is at a rate greater than MCE. For those who are first-hexagram "missers," second-hexagram hitting is at a rate greater than MCE.
H4. Present-time perspective types (i.e., PTP-types) correctly predict more first hexagrams (excluding static hexagrams) than types with a future-time perspective (i.e., FTP-types).
H5. FTP-types correctly predict more second hexagrams than PTP-types.
H6. Those with "low-Intuiting" scores correctly predict more first hexagrams (excluding static hexagrams) than those with "high-Intuiting" scores.
H7. Those with "high-Intuiting" scores correctly predict more second hexagrams than those with "low-Intuiting" scores.

H8. There is a positive relationship between paranormal belief and first-hexagram hitting.
H9. There is a positive relationship between paranormal belief and second-hexagram hitting.
H10. There is a negative relationship between pro attitude and first-hexagram hitting.
H11. There is a negative relationship between pro attitude and second-hexagram hitting.

Method

Participants

Two hundred participants from the population of University of Adelaide students volunteered to participate in the study. There were 76 males (38%) and 124 females (62%). Average age was 22 years (*SD* = 7 years). Based on previous findings, this many participants would be needed to ensure a reasonable chance of significant results given the smallest subgroup used (i.e., second-hexagram hitters); second hexagrams are produced by approximately 75% of participants ($n = 150$).

Measures

(1) Thalbourne and Storm's (in press) eight-item Pro Attitude Scale with two items, numbers 4 and 5, specifically about pro attitude. Items use a graduated scale ranging from 1 to 7 — for example, Item 4: "I'm not at all interested in achieving my assigned goal" [score = 1] to "I'm extremely interested in achieving my assigned goal" [score = 7]; Item 5: "It's not at all important to me that I achieve my assigned goal" [score = 1] to "It's of utmost importance to me that I achieve my assigned goal" [score = 7]. The remaining six items — 1, 2, 3, 6, 7, and 8 — are about various motivations. Scale descriptive statistics reported in the Results section are based on the use of scores of 3, 4, and 5 only (extreme scores of 1, 2, 6, and 7 were excluded for reasons given in the above section, Predicting Hexagram Outcomes). Thus, the theoretical range for the two-item scale is between 3 and 10 inclusive. (2) Lange and Thalbourne's (2002) Rasch-scaled Australian Sheep-Goat Scale (ASGS; 18 items, each scoring 0, 1, or 2 points, where 0 = false, 1 = uncertain, and 2 = true; Raw range is 0 to 36; Raw $M = 18$). The ASGS data are then top-down purified to eliminate age and gender bias from the scale (Lange & Thalbourne, 2002), and this procedure alters the scoring range and mean. The Rasch-scaled theoretical range is 8.13 to 43.39, and the Rasch-scaled theoretical mean is 25.51; Cronbach's alpha = .92. (3) The *I Ching* Descriptor Form (see Storm & Thalbourne, 2001, p. 121). (4) The Singer-Loomis (1986) Type Deployment Inventory (TDI; Extraverted Intuiting [EN] and Introverted

Intuiting [IN] subscales only). The theoretical range for both scales is between 20 and 100 inclusive. Cronbach's alpha is .73 for both EN and IN (Kirkhart & Kirkhart, 1998, p. 7, Table 1). (5) Zimbardo and Boyd's (1999) Time-Perspective Inventory. There are five ZTPI scales: (i) Past Negative (PN), (ii) Past Positive (PP), (iii) Present Hedonistic (PH), (iv) Present Fatalistic (PF), and (v) Future (F). The theoretical range for all five scales is between 1 and 5 inclusive. For the five scales, Cronbach's alpha ranges from .74 to .82, and test-retest reliability ranges from .70 to .80 (interval: 4 weeks). Only the two PTP scales and the single FTP scale were used to test three relevant hypotheses (i.e., Hypotheses 1, 4, and 5). Participants were assigned to a time perspective category (i.e., PTP or FTP) on the basis of scale scores (i.e., if F scores were greater than PH or PF scores, participants were classed as FTP-types, otherwise participants were classed as PTP-types).

Procedure

Participants first completed two of the four scales (i.e., PAS and ASGS). Participants then preselected 16 of 64 descriptor pairs that epitomize the meanings underlying the corresponding six-line symbols (i.e., hexagrams). Participants' choices are made in response to their emotional and cognitive states of mind, in accordance with the statement: "Lately, or right now, I feel . . ."

Participants then threw three coins six times to generate the six lines of the first hexagram. The coins may show three-of-a-kind on some occasions, and these throws produce changing lines, which partially generate the second hexagram (unchanging lines in the first hexagram remain the same in the second hexagram). If the first hexagram matches 1 of the 16 preselected hexagrams it is deemed a "hit" (MCE = 16/64 = 1/4 = .250), and if the second hexagram matches 1 of the 16 preselected hexagrams it is also deemed a hit. Those participants who already obtained a hit on their first hexagram have a reduced chance of getting a hit on the second hexagram (P_{MCE} = 15/63 = .238), but those participants who did not get a hit on their first hexagram have a slightly better chance of getting a hit on their second hexagram (P_{MCE} = 16/63 = .254).[3] The effect size measure for hexagram hitting is π, where $\pi = P\,(k-1)/[1 + P\,(k-2)]$, P is the proportion of hits correct, and k is the number of choices (see Rosenthal & Rubin, 1989, pp. 332–334). Bem and Honorton (1994, p. 8) point out

[3] Out of a total of 64 hexagrams, 16 are preselected by the participant. If one of the 16 is a hit, there are 15 left that could also be a hit, but only 63 chances left of getting a second hit because it is impossible for the first hexagram to be regenerated (changing lines change the first hexagram to a new hexagram). The probability of a hit is 15/63. If one of the 16 is not a hit the first time, then all 16 go back into the draw, so to speak, for a second chance. As before, the first hexagram that came up (even though not a hit) cannot be regenerated, so the whole pool of available hexagrams is still 63 but the probability of a hit is slightly improved to 16/63.

the advantage this measure has in providing a "straightforward intuitive interpretation" of the effect size, because π is the "proportion correct, transformed to a two-choice standard situation" so that while $P_{MCE} = .25$, the effect size $\pi_{MCE} = .50$ (Rosenthal & Rubin, 1989, p. 333). Note that π values calculated from second-hexagram hit-rates are estimates. Participants were not to be told whether their first hexagram was a hit.

Finally, participants completed the remaining two of the four scales (i.e., SL-TDI and ZTPI).

Precautions

The *I Ching* study requires certain precautions so that undesired effects are reduced or eliminated. The major precaution is the use of individual testing as opposed to group testing, which is deemed not conducive to psi (see Storm, 2002). Also, administration of the PAS and the ASGS was *prior to* the psi task so that the procedure and process of the *I Ching* task did not influence responses to the pro attitude and paranormal belief items. The lengthy SL-TDI and ZTPI measures were administered *after* the psi task to eliminate the problem of possible fatigue and boredom effects during the psi task (no hexagram feedback was given to participants prior to completion of the SL-TDI and the ZTPI as such feedback might influence responses to those inventories).

Methods of Evaluation

Raw data were analysed statistically using SPSS (*Statistical Package for the Social Sciences*) and the online *VassarStats* Exact Binomial Calculator (Lowry, 1998–2006). Statistical testing procedures included Pearson's *r* and the independent samples *t* test.

Results

Scale Scores

Pro Attitude Scale. The eight-item PAS is a test of pro attitude and general motivation toward the psi task. As well as "importance of" and "interest in" a paranormal effect (Items 4 and 5, respectively), which tests pro attitude, the eight-item scale covers various states of mind: relaxation (Item 1), tension (Item 2), general capacity to achieve goals (Item 3), confidence (Item 6), task know-how (Item 7), and focus on the task (Item 8). (Note that these six items will not be analysed in the present study, but it is planned to use that data in a followup article.) The mean two-item PAS score was 6.58 ($SD = 2.40$).

Australian Sheep-Goat Scale (ASGS). The Mean ASGS (Rasch-scaled version) score was 24.99 ($SD = 5.89$; min. = 8.13; max. = 43.39). Note that

these sample minimum and maximum scores are the same as the theoretical minimum and maximum scores, respectively.

Singer-Loomis Type Deployment Inventory (SL-TDI). The Mean Intuiting scores were: Extraverted Intuiting, $M = 62.12$ ($SD = 8.14$; min. = 44; max. = 87; Cronbach's alpha = .60); Introverted Intuiting, $M = 64.69$ ($SD = 8.87$; min. = 34; max. = 90; Cronbach's alpha = .69). These alpha values are considerably lower than those reported by Kirkhart and Kirkhart (1998). On average, the sample was introverted — the difference between EN and IN scores was significant, paired-samples $t(199) = -4.48$, $p < .001$ (two-tailed). Median-split scores were calculated (EN = 62; IN = 65), and the sample was subsequently divided into low-Intuiting extraverts (scores < 62) and high-Intuiting extraverts (scores ≥ 62), and low-Intuiting introverts (scores < 65) and high-Intuiting introverts (scores ≥ 65) scorers.

Zimbardo and Boyd Time Perspective Inventory (ZTPI). The mean PH score was 3.60 ($SD = 0.52$; min. = 1.93; max. = 5.00; Cronbach's alpha = .79); the mean PF score was 2.68 ($SD = 0.58$; min. = 1.22; max. = 4.22; Cronbach's alpha = .66); the mean F score was 3.33 ($SD = .56$; min. = 1.46; max. = 4.92; Cronbach's alpha = .76). (Though the PN and PP scales are not used, the Cronbach's alphas for PN and PP were .76 and .74, respectively.) There were 128 PTP-types, and 72 FTP-types.

Planned Analyses

Hypothesis 1. On the Extraverted Intuiting measure, the mean score for PTP-types, $M = 63.54$ ($SD = 8.24$), was not lower than the mean score for FTP-types, $M = 59.60$ ($SD = 7.36$). On the Introverted Intuiting measure, the mean score for PTP-types, $M = 65.60$ ($SD = 8.55$), was not lower than the mean score for FTP-types, $M = 63.25$ ($SD = 9.30$).

Hypothesis 2. First-hexagram hitting was not greater than chance (where $P_{MCE} = .25$), $P = .24$ (48 hits out of 200), exact $p = .654$. The effect size π is used to measure the strength of the effect for all hexagram outcomes. When expressed as an effect size π, first-hexagram hitting was not above MCE either, $\pi = .49$. where $\pi_{MCE} = .50$.

Hypothesis 3. (1) For first-hexagram hitters, second-hexagram hitting was greater than chance (where $P_{MCE} = .238$), but the hit rate was not significant, $P = .33$ (13 hits out of 40), exact $p = .135$, effect size $\pi = .60$, where $\pi_{MCE} = .50$. (2) For first-hexagram missers, second-hexagram hitting was also greater than chance (where $P_{MCE} = .254$), but the hit rate was not significant, $P = .30$ (34 hits out of 113), exact $p = .150$, effect size $\pi = .56$, where $\pi_{MCE} = .50$.

Hypothesis 4. Table 1 shows that PTP-types (29%) successfully predicted more first hexagrams (excluding static hexagrams) than FTP-types (20%), but the difference was not significant, $t(151) = 1.20$, $p = .116$, one-tailed.

TABLE 1
FIRST-HEXAGRAM HIT RATES: PRESENT-TIME PERSPECTIVE (PTP) VERSUS FUTURE-TIME PERSPECTIVE (FTP)

Time perspective type	*N*	Hits	*P**	Exact *p*	π**
PTP (excluding static hexagrams)	99	29	.29	.191	.55
PTP (including static hexagrams)	128	32	.25	.534	.50
FTP (excluding static hexagrams)	54	11	.20	.826	.43
FTP (including static hexagrams)	72	16	.22	.748	.46

* $P_{MCE} = .25$; ** $\pi_{MCE} = .50$

Hypothesis 5. Table 2 shows that FTP-types (first-hexagram hitters only) did correctly predict more second hexagrams (hit rate: 36%) than PTP-types, whether the PTP-types were first-hexagram *hitters* (31%) or *missers* (30%). The difference on second-hexagram hitting between FTP-types (first-hexagram hitters) and PTP-types (first-hexagram hitters) was not significant, $t(38) = -0.31$, $p = .378$, one-tailed, and the difference on second-hexagram hitting between FTP-types (first-hexagram hitters) and PTP-types (first-hexagram missers) was also not significant, $t(79) = -0.42$, $p = .338$, one-tailed.

Hypothesis 6. Table 3 shows that low-Intuiting extraverts did *not* correctly predict more first hexagrams (excludes static hexagrams) than high-Intuiting extraverts. As the hypothesis is one-tailed, the difference was not tested.

TABLE 2
SECOND-HEXAGRAM HIT RATES: PRESENT-TIME PERSPECTIVE VERSUS FUTURE-TIME PERSPECTIVE

Time perspective type	*N*	Hits	*P*	Exact *p*	π†
PTP — 1st-hexagram-hitters	29	9	.31*	.237	.57
PTP — 1st-hexagram-missers	70	21	.30**	.225	.56
FTP — 1st-hexagram-hitters	11	4	.36*	.254	.63
FTP — 1st-hexagram-missers	43	13	.30**	.283	.56

* $P_{MCE} = .238$; ** $P_{MCE} = .254$; † Values of π are approximate and based on $\pi_{MCE} = 50$.

If data for static hexagrams are included in the counts, low-Intuiting extraverts correctly predicted *more* first hexagrams (26%) than high-Intuiting extraverts (23%), but this result runs counter to the theory proposed about static hexagrams (see Table 3).

Table 3 shows that low-Intuiting introverts did correctly predict more first hexagrams (31%; excluding static hexagrams) than high-Intuiting introverts (22%; excluding static hexagrams), but the difference was not significant, $t(198) = -0.93$, $p = .177$, one-tailed.

TABLE 3
FIRST-HEXAGRAM HIT RATES: "LOW-INTUITING" VERSUS "HIGH-INTUITING"

Personality type	*n*	Hits	*P**	π**
Low-intuiting extraverts (excluding static hexagrams)	73	20	.21	.44
Low-intuiting extraverts (including static hexagrams)	99	25	.26	.51
High-intuiting extraverts (excluding static hexagrams)	80	20	.25	.50
High-intuiting extraverts (including static hexagrams)	101	23	.23	.47
Low-intuiting introverts (excluding static hexagrams)	72	22	.31	.57
Low-intuiting introverts (including static hexagrams)	96	26	.27	53
High-intuiting introverts (excluding static hexagrams)	81	18	.22	.46
High-intuiting introverts (including static hexagrams)	104	22	.21	.44

* $P_{MCE} = .25$; ** $\pi_{MCE} = .50$

Again, if data for static hexagrams are included in the counts, low-Intuiting introverts correctly predicted more first hexagrams (27%) than high-Intuiting introverts (21%), but this result also runs counter to the static hexagram theory.

Hypothesis 7. Table 4 shows that high-Intuiting extraverts did *not* correctly predict more second hexagrams than low-Intuiting extraverts. The table also shows that high-Intuiting introverts did *not* correctly predict more second hexagrams than low-Intuiting introverts.

TABLE 4
SECOND-HEXAGRAM HIT RATES: "LOW-INTUITING" VERSUS "HIGH-INTUITING"

Personality type	*n*	Hits	*P**	π†
Low-intuiting extraverts	73	26	.36	.63
High-intuiting extraverts	80	21	.26	.51
Low-intuiting introverts	72	23	.32	.58
High-intuiting introverts	81	24	.30	.56

† Values of π are approximate and based on $\pi_{MCE} = .50$.

Hypothesis 8. The relationship between paranormal belief (ASGS scores) and first-hexagram hitting was positive, though very weak and not significant, $r(198) = .10$, $p = .090$, one-tailed.

Hypothesis 9. A positive relationship was found between paranormal belief (ASGS scores) and second-hexagram hitting, but it was weak and not significant, $r(151) = .08$, $p = .163$, one-tailed.

Hypothesis 10. A very weak negative relationship was found between pro attitude (PAS scores on the two-item PAS scale) and first-hexagram hitting, but it was not significant, $r(130) = -0.02$, $p = .416$, one-tailed. The hypothesis was not supported.

Hypothesis 11. The relationship between pro attitude and second-hexagram hitting was weak and negative, and it *was* significant, $r(100) = -.20$, $p = .021$, one-tailed. The hypothesis was supported. Second-hexagram hitting tended to occur among those with *low* scores on pro attitude (i.e., hitting tended to occur if there was "some interest" but no great "investment" in the outcome).

Only one participant who had used the *I Ching* previously scored a second-hexagram hit, so that the hit rate for second-hexagram hitting was an effect produced almost entirely by nonusers (i.e., those unfamiliar with the *I Ching*).

Post Hoc Analyses

Static hexagrams. It should be pointed out that the tested differences in hit rates on first-hexagram hitting between PTP-types and FTP-types (see test results for Hypothesis 4) did not include static hexagrams, but hitting on static hexagrams should be taken as some form of paranormal outcome resulting from time perspective. It is argued that static hexagrams should be included in the count for second hexagrams on the assumption that static-hexagram readings are mainly future-oriented, as if serving a proxy function similar to second-hexagram readings. Thus, hit rates for future-oriented hexagrams are given in Table 5, which is a modified version of Table 2 but which includes static hexagrams. Note that the p values for the various hit rates are not given in the table as these would be meaningless because the various test statistics (P_{MCE}) for each kind of hitting are incommensurable.

Table 5 shows that when static hexagrams were included in the counts, the hit rate on future-oriented hexagrams is 32% for FTP-types and 26% for PTP-types. These outcomes are in the expected directions, but the difference between the two hit rates is not significant, $t(198) = 0.60$, $p = .548$, one-tailed.

Median-split analyses on ASGS scores. Given the near-significant outcome of the test of Hypothesis 8 (on first-hexagram hitting) and given that the sheep-goat variable is a consistent predictor of psi hitting, a median-split analysis was conducted to determine first-hexagram hit rates for sheep

and goats under the assumption that sheep scored more hits than goats. The median score for the ASGS was 25.51. "Low-scorers" or goats (n = 95) scored below 25.51 (Mean = 20.55, SD = 4.36), and "high-scorers" or sheep (n = 105) scored at or above 25.51 (Mean = 29.00, SD = 3.85). Sheep (30 hits; 29%) did score more hits than goats (18 hits; 19%), and the two hit rates were significantly different, $t(198) = 1.60$, $p = .05$, one-tailed.

TABLE 5
HIT RATES FOR SECOND HEXAGRAMS + STATIC HEXAGRAMS: PTP-TYPES VERSUS FTP-TYPES

Time perspective	*N*	Hits	*P*	$\pi^{\dagger}$
PTP — 1st-hexagram-hitters	29	9	.31	.57
PTP — 1st-hexagram-missers	70	21	.30	.56
PTP — static hexagrams	29	3	.10	.25
Subtotal	128	33	.26	.51
FTP — 1st-hexagram-hitters	11	4	.36	.63
FTP — 1st-hexagram-missers	43	13	.30	.56
FTP — static hexagrams	18	6	.33	.60
Subtotal	72	23	.32	.58
Total	200*	56	.28	.54

Note: All static hexagrams + all second hexagrams = total number of participants in the sample (N = 200) because number of second hexagrams = number of first hexagrams with changing lines. † Values of π are approximate and based on π_{MCE} = .50.

Decline effects. Declines in *I Ching* effects were suspected toward the end of testing the sample. Initially, on the one hand, student volunteers came from a variety of disciplines and year-levels — they completed volunteer slips, deposited them in a "ballot box" in the university library, and were subsequently contacted to arrange a time and date for attendance. On the other hand, the School of Psychology offers credit to first-year psychology students (a 5% contribution to their overall grade) for participation in any experiments conducted by researchers within the school. Although motivation seemed adequate at first,[4] perhaps on account of the fact that the sample was primarily comprised of ballot-box participants (i.e., genuine volunteers), the experimenter suspected that the motives of the first-year psychology students — especially toward the end of the academic year — were dubious to say the least. Many of these students were probably stressed because they had assignments due or upcoming exams. Nevertheless, they also wanted the 5% credit so they did not stay away.

By the end of the year, it was suspected that an *I Ching* decline effect (first-hexagram hitting only) might have resulted from a decline in

[4] See Stanford (1977) for a review on motivation in parapsychology.

motivation — the obtaining of credit by "late-comer" first-year psychology students seemed to supersede any desire or interest in producing a paranormal effect. Not having cause to anticipate decline effects at the start of the study, the experimenter participated in the school's credit program, which involved testing students who made on-line bookings with the experimenter. Students had booked many weeks in advance in most cases, so their requests to participate could not be denied. Due to a shortfall in numbers toward the very end of testing, more ballot-box participants were sought, but these more desirable types later proved to be too few in number to make a difference in experimental outcomes. A comparison between the two types of participants was not possible because online bookings were tabulated in advance in weekly online diaries, which have long since been deleted by the School of Psychology (the School does not keep these records after they have fulfilled their purpose). There was therefore no possibility, at a later date, of distinguishing ballot-box students from "online" students.

To test for the two-fold possibility of (1) a decline in *I Ching* effects, and (2) a decline in motivation, the sample was first divided into four groups of 50 participants each. The hit rates on first hexagrams for the four groups were 30%, 24%, 22%, and 20%, respectively, indicating a decline, though the group difference was not significant when the data were tested using a linear trend ANOVA, $F(1, 196) = 1.39$, $p = .120$, one-tailed. Nevertheless, this ostensibly "chance-like" decline confirms the experimenter's suspicions. Though the group effect was not significant, it would have been sufficient in itself to bring about a nonsignificant hit rate on first-hexagram hitting.[5]

The general attitude of first-year psychology participants toward the paranormal task (i.e., their motivation) was assumed to be psi-inhibitive. It was conjectured post hoc that the full eight-item PAS might be used to test general motivation as pro attitude also indicates motivation (e.g., Item 6, "I am not confident that I will achieve my assigned goal" [score = 1] to "I am confident that I will achieve my assigned goal" [score = 7]; Item 8, "I am not thoroughly focussed on the task at hand" [score = 1] to "I am thoroughly focussed on the task at hand" [score = 7]). There was a decline in mean motivation scores (43.02, 42.42, 41.82, and 41.76) across the four groups, but again the group difference was not significant when the data were tested using a linear trend ANOVA, $F(1, 196) = 1.45$, $p = .115$, one-tailed.

Cumulative record. To bring the *I Ching* cumulative record up to date, it is noted that first-hexagram hitting across the five *I Ching* studies ($N = 643$; 171 hits) is above chance, $P = .27$ (exact $p = .187$, one-tailed; $\pi = .53$). Second-hexagram hitting for first-hexagram hitters ($n = 138$; 39 hits) is also above chance, $P = .28$ (exact $p = .130$, one-tailed; $\pi = .54$), as is second-hexagram hitting for first-hexagram missers ($n = 371$; 101 hits), P

[5] Note that modeling a first-hexagram hit rate on a theoretical P value of 30% (the hit rate for the first of the four groups, $N = 50$) yields $p = .06$ ($N = 200$), which approaches significance.

TABLE 6
HEXAGRAM HIT RATES FOR THE FIVE STUDIES (N = 643)

Study	1st Hexagrams				2nd Hexagrams (1st hexagram hitters)				2nd Hexagrams (1st hexagram missers)			
	N	Hits	% [a]	p	n	Hits	% [b]	p	n	Hits	% [c]	p
1. Storm & Thalbourne (1998–99)	93	30	32	.070	27	9	33	.173	52	15	29	.333
2. Storm & Thalbourne (2001)	107	37	35	.017	27	6	22	.649	52	15	29	.333
3. Storm (2002)	43	11	26	.523	7	2	29	.525	28	7	25	.591
4. Thalbourne & Storm (in press)	200	45	23	.815	37	9	24	.533	126	30	24	.691
5. The present study	200	48	24	.654	40	13	33	.135	113	34	30	.150
Totals	643	171	27	.187	138	39	28	.130	371	101	27	.226

Note: p values are exact [a] P_{MCE} = .250; [b] P_{MCE} = .238; [c] P_{MCE} = .254

= .27 (exact p = .226, one-tailed; π = .53). See Table 6 for other results. The cumulative record also shows that 10 independent measures of hexagram hitting out of 15 (67%) were above chance (p = .151).

Discussion

Hexagram Hitting

It is clear from the planned analyses that the majority of the hypothesized effects, though in the right direction, were not statistically significant. It was hypothesized (post hoc) that decline effects may explain some of the nonsignificant results, if not all, but there was no statistical evidence in the two linear trend ANOVAs. Should an experimenter be the type who not only keeps an eye on his/her data but also on participants, and there *is* a suspicion of decline effects in motivation and/or paranormal effects, the only way of avoiding these effects is to withhold from testing participants (usually students) during demanding periods of the academic year. Unfortunately, any other form of selection management (e.g., turning away participants on the basis of the experimenter's perception/assumption of poor attitudes) may be unethical, offensive to students, and impractical for the experimenter. Nevertheless, it was hypothesized that appropriate motivation (and positive attitude in general) may be a key factor conducive to *I Ching* effects, so these issues are important.

In the present study, *I Ching* effects were generally too weak overall, or the subsamples were too small, for the tests to produce significant results, but it may still be too early to state with certainty how strong the effects actually are in the population, as the sample included a significant number of introverted students (not renowned for producing psi in the lab) who may also have had ulterior motives. Ertel (2005) refers to the need for experimenters to "unravel motives" (p. 153) of students, and such unravelling will be another key issue of parapsychological research in the future. Until safeguards are implemented to ensure that students enter into an experiment with appropriate motives, consequent declines in psi effects may always be present. Notwithstanding lack of knowledge about the strength of the *I Ching* effects, it is certain (all things being equal), that even if the individual effects remain as weak as they currently appear to be, they will eventually reach significance anyway (given a sufficiently large N in the cumulative record), assuming they are real effects (i.e., not the consistent effect of Type I error).

Time Perspective

Regarding the other findings (see test results for Hypotheses 4 and 5), there is no statistical evidence that PTP-types prefer *I Ching* readings that are to be read in the context of the present time, nor that FTP-types

prefer readings that are to be read in the context of how things will turn out. An important observation to be made here is that the hit rate for PTP-types *declined* when static hexagrams were included, whereas the hit rate for FTP-types actually *increased* when static hexagrams were included (see Table 1). Recall that static-hexagram readings are to be read in the context of the future, so that static hexagrams should be preferred by FTP-types and avoided by PTP-types. Overall, this four-fold finding is in keeping with the experimenter's expectations.

Intuition

No claims can be made for intuition as a predictor of hexagram outcomes either (see test results for Hypotheses 6 and 7). In spite of these discouraging outcomes, an unexpected trend emerged in the data — hit rates on first hexagrams for high-Intuiting types (extraverts *and* introverts) *decreased* when static hexagrams were included (the opposite effect of which was found for FTP-types), whereas hit rates *increased* for low-Intuiting types (extraverts only) when static hexagrams were included (the opposite effect of which was found for PTP-types; see Table 3). Therefore, the hypothesized directional effects failed to be confirmed in three out of four analyses, but these results are not unexpected given the outcomes of Hypothesis 1, which now seem unsurprising since high-Intuiting types tend to be PTP-types rather than FTP-types (as hypothesised), or put another way, low-Intuiting types tend to be FTP-types (see results for Hypothesis 1). We might therefore have expected (1) hit rates for high-Intuiting types to mirror those of PTP-types, and (2) hit rates for low-Intuiting types to mirror those of FTP-types (though only for low-Intuiting extraverts). However, these hypotheses contradict Jung's theoretical premise about intuition, and they may well be false, unless significant test results indicate otherwise. It may well be that Singer and Loomis's (1996) measures of Intuiting are unreliable — Kirkhart and Kirkhart (1998) report high alphas for both EN and IN (.73 for both), but the present study did not (EN = .60; IN = .69). Thus, for the moment, there is no statistical precedent to suggest that Jung's theory is wrong.

Belief in Psi and Pro Attitude

Scores on the Rasch-scaled ASGS did not predict hexagram hitting (either kind; see the test results for Hypotheses 8 and 9), which may be unusual given that sheep-goat scales have a long tradition of sorting out sheep from goats as far as their psi capacity is concerned. The relationships were very weak, but at least there was the suggestion of a relationship of ASGS scores with first-hexagram hitting. In fact, the post hoc finding was more encouraging — a significant sheep-goat effect was found. Sheep scored a high 29% hit-rate on first-hexagrams whereas goats recorded a very low 19%.

Conclusion

Though the cumulative record does not indicate statistically significant trends in hexagram outcomes yet, a replication study is planned for 2007 with the aim of rectifying that situation. Suffice it to say, the significant sheep-goat effect does suggest that *I Ching* usage does involve some kind of paranormal process. There was also no statistical evidence that hexagram outcomes depend on one's time-perspective typology as measured on Zimbardo's Time Perspective Inventory. Finally, scores on the pro attitude scale have successfully predicted hexagram outcomes in two independent studies thus far. As Heath (2003) has already proposed, the possibility of an inverse (i.e., negative) relationship between the degree of importance of getting a psi effect and the subsequent psi outcome may be just another one of those counterintuitive challenges to our long-held beliefs about psi that parapsychologists can resolve only at some future time.

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PSYCHIATRY, THE MYSTICAL, AND THE PARANORMAL

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ABSTRACT: In this paper the author defines and discusses mystical and paranormal experiences in themselves, in relation to each other, and in relation to the psychiatric conditions mania, depression, schizotypy, and dissociation. It is argued that mystical and paranormal experiences are not necessarily pathological, though they may be associated with these disorders and indeed are more prevalent in these disorders. A single underlying factor called transliminality ("psychological material crossing thresholds into consciousness") illuminates the observed correlations between mystical, paranormal, manic, and schizotypal experiences. The 29-item true/false Rasch Revised Transliminality Scale is available to measure this individual difference.

Τα μεγιστα των 'αγαθων 'ημιν γιγνεται δια μανιας,
θειας μεντοι δοσει διδομενης.
"Our greatest blessings," [says Socrates,] "come to us by way of madness,
provided the madness is given us by divine gift."
Plato, *Phaedrus* 244A.
(E. R. Dodds, 1951, p. 64)

I understand psychiatry to be that branch of medicine that deals with mental disturbance and its treatment by drugs and psychotherapy. (I further understand that clinical parapsychology is that aspect of psychical research that deals with psychiatric issues inasmuch as they are related to belief in, and alleged experience of, the paranormal.) Though I have no *formal* training in psychiatry, my qualifications to speak about it are several: I have taken counseling and psychotherapy as part of my Honours degree in psychology; I have some background in psychoanalysis and abnormal psychology; and, in addition to my professional qualifications, I have severe bipolar disorder, experience of which I believe affords me a number of insights into discussion of this particular mental condition. I would suggest that this background has equipped me well to do research specifically in the area of bipolar disorder, and I have four publications on this topic, one in the *British Journal of Clinical Psychology* and two in coauthorship with my then-psychiatrist, Darryl Bassett (Lange, Thalbourne, Houran, & Lester, 2002; Thalbourne & Bassett, 1998; Thalbourne, Delin, & Bassett, 1994; Thalbourne & Houran, 2005). I have a number of publications in which experience of mania, depression, schizotypy, and dissociation were measured by questionnaire[1] and related to each other and to other variables

[1] One referee was quite critical of the methodology used exclusively in this paper, questionnaires. I agree that "such measures represent reports of experiences, not the experiences as such." He or she continues that "more meaningful results can be

(e.g., Thalbourne & Delin, 1994). It is on two of these other variables that I would like to concentrate in this paper, namely, mystical experience and belief in, and alleged experience of, the paranormal. I have carefully defined these two concepts and will give those definitions.

The Mystical

First, mystical experience is:

> An experience which . . . consists of a majority of the following features: it tends to be sudden in onset, joyful, and difficult to verbalize; it involves a sense of perceiving the purpose of existence; an insight into "the harmony of things;[2]" a perception of an ultimate unity — of oneness; transcendence of the ego; an utter conviction of immortality; and it tends to be temporary, authoritative and to be attributed supreme value. Some people interpret the mystical experience as an experience of unity with God. (Thalbourne, 2003, pp. 74–75)

Perhaps the most famous account of mystical experience was given by the Canadian psychiatrist — or alienist as he was called then — Richard Maurice Bucke. The following quote is from Bucke's book *Cosmic Consciousness* (Bucke, 1901/1969). Note that the author speaks of himself in the third person:

> It was in the early spring, at the beginning of his thirty-sixth year. He and two friends had spent the evening reading Wordsworth, Shelley, Keats, Browning, and especially Whitman. They parted at midnight, and he had a long drive in a hansom (it was in an English city). His mind, deeply under the influence of the ideas, images and emotions called up by the reading and talk of the evening, was calm and peaceful. He was in a state of quiet, almost passive enjoyment. All at once, without warning of any kind, he found himself wrapped around as it were by a flame-colored cloud. For an instant he thought of fire, some sudden conflagration in the great city; the next, he knew

found by combinations of methods." Again I agree, and in my latest questionnaire study I am using clinical data in conjunction with it.

[2] "But I find that, after every questioning and test, [these highest experiences that I have of God's presence] stand out to-day as the most real experiences of my life, and experiences which have explained and justified and unified all past experience and all past growth." J. Trevor, quoted by William James (1902/1982, p. 397); "and all these woes will serve / For sweet discourses in our times to come" (Romeo and Juliet, III, v).

> that the light was within himself. Directly afterwards came upon him a sense of exultation, of immense joyousness accompanied or immediately followed by an intellectual illumination quite impossible to describe. Into his brain streamed one momentary lightening-flash of the Brahmic Splendor which has ever since lightened his life; upon his heart fell one drop of Brahmic Bliss, leaving thenceforward for always an aftertaste of heaven. (pp. 9–10)

Robert M. May (1991) comments that "the basic fact of Cosmic Consciousness, implied by its name, is the consciousness of the cosmos as a living presence. It involves the immediate perception of the immortality of one's soul. It is what the Hindus of the East call the 'Brahmic Splendor' " (p. 33).

> Bucke goes on to say:
> Among other things he did not come to believe, he saw and knew that the Cosmos is not dead matter but a living Presence, that the soul of man is immortal, that the universe is so built and ordered that without any peradventure all things work together for the good of each and all, that the foundation principle of the world is what we call love and that the happiness of every one is in the long run absolutely certain. He claims that he learned more within the few seconds during which the illumination lasted than in previous months or even years of study, and that he learned much that no study could ever have taught. (p. 10)

The author has quoted Bucke's experience at length in order to illustrate what mystical experience can be like, and because it is of interest that a psychiatrist should experience it, as psychiatrists are usually very dismissive of it (see, e.g., Group for the Advancement of Psychiatry, 1976).

The Paranormal

I now turn to the word *paranormal.* "A phenomenon is paranormal if it refers to hypothesized processes that in principle are physically impossible and outside the realm of human or animal capabilities as presently conceived by conventional scientists . . . often used as a synonym for "psychic," "parapsychological," "attributable to psi," or even "miraculous" (though shorn of religious overtones). From the Greek *para,* meaning "alongside of" (Thalbourne, 2003, pp. 83–84). Before the term *paranormal* was coined, sometime in the 1920s, researchers spoke of the *supernormal* but never of the *supernatural,* and *paranormal* is widely used today both in everyday life and in research.

Relationship Between Reports of the Mystical and of the Paranormal

The first thing to note is that reports of experiences of the mystical and reports of the paranormal are positively correlated. For example, significant positive correlations were reported by Kennedy, Kanthamani, and Palmer (1994, p. 368) and Kennedy and Kanthamani (1995a, p. 253), and by Kennedy and Kanthamani (1995b, p. 338) in four out of four samples. A few years later, I reviewed the literature on the correlation between paranormal experience and mystical (or "transcendent") experience and found a median correlation of +.45 (Thalbourne, 1998-99, p. 82): they thus have at least 20 to 25% of the variance in common. For some reason, more recent studies have given correlations much *higher* than this median value: Thalbourne, Johnson, Ashe, and Storm (in press) found a correlation of $r(305) = .73$, $p < .001$. In recent unpublished data, I found a correlation of $r(31) = .71$, $p < .001$. A referee wondered whether similarities in wording in measures of the two variables might account for the relationship, but I have examined the wording of the items and find that it is not consistent with this hypothesis (see, for the Rasch-scaled Australian Sheep-Goat Scale, Lange & Thalbourne, 2002, and for the Rasch-scaled Mystical Experience Scale, Lange & Thalbourne, 2007).

Mystical Experience and Psychopathology

I now ask the question "Are these two phenomena — the mystical and the paranormal — related in any way to concepts of *psychiatric* interest?" The answer is that they are. Table 1 gives correlations between mystical experience and four clinical scales. Let us deal with the correlational evidence one clinical scale at a time:

(1) Manic experience: Measures of mystical experience correlate positively with experience of mania,[3] sometimes in excess of .50 (Thalbourne & Delin, 1994, pp. 17–19). (It should also be mentioned parenthetically that mystical experience correlates significantly positively with the Hypomania Scale of the MMPI: .37 with university students and comparably with patient groups, Thalbourne & Delin, 1994, pp. 17–19.) The seven correlations ranged from .18 to .57, with a moderate median of .41.

(2) Depressive experience: Again, the measure of mystical phenomena correlates positively (but in this case rather weakly) with experience of depression. Table 1 gives correlations of between .12 and .37; and the median was a low .18.

(3) Rasch-scaled Manic-Depressiveness Scale (RMDS): This scale is highly correlated with depressive experience. Inspection of Table 1 shows

[3] The word for "madness" in Greek is μανια, meaning both "madness, frenzy" and "enthusiasm, inspired frenzy."

TABLE 1
PEARSON CORRELATIONS BETWEEN FOUR INDICATORS OF PSYCHOPATHOLOGY AND THE RASCH MYSTICAL EXPERIENCE SCALE

Study	Sample	*N*	Manic experience		Depressive experience		RMDS		Magical ideation	
			r	*p*	*r*	*p*	*r*	*p*	*r*	*p*
Thalbourne & Delin (1994), Sample 1	Students	241	.48	< .001	.37	< .001	.44	< .001	.50	< .001
Thalbourne & Delin (1994), Sample 2	Manic-depressives	86	.56	< .001	.20	.071	.37	.001	.53	< .001
Thalbourne & Delin (1994), Sample 3	Schizophrenics	38	.57	< .001	.18	.299	.37	.031	.66	< .001
Thalbourne, Bartemucci, Delin, Fox, & Nofi (1997)[a]	Students/ general public	370	.41	< .001	.19	< .001	n.a.	–	.46	< .001
Thalbourne (1998)	Students	242	.18	.005	.12	.071	.18	.006	.38	< .001
Thalbourne, Keogh, & Crawley (1999)	Students	250	.27	< .001	.16	.013	.28	<.001	.49	< .001
Thalbourne (2004)	Students	227	.26	< .001	.13	.046	.19	.005	.46	< .001

[a] 22-item Mystical Experience Scale (i.e., non-Rasch)
Manic experience, Depressive experience, Thalbourne, Delin, & Bassett (1994); Thalbourne & Bassett (1998)
RMDS: Rasch Manic-Depressiveness Scale, Lange, Thalbourne, Houran, & Lester (2002)
Mag. ideation: Magical ideation, Eckblad & Chapman (1983)

that all six correlations between RMDS and the Rasch Mystical Experience Scale are positive and significant, ranging from .18 to .44, with a median of a moderate .33.

(4) Magical Ideation: According to Eckblad and Chapman (1986), the Magical Ideation Scale (Eckblad & Chapman, 1983), measures "the tendency to believe that occult forces operate in everyday events (p. 216)." This is a somewhat unfortunate description. I would rather define it as "the tendency to believe in forms of causation that are considered invalid by conventional scientists." If magical ideation is considered to be an index of schizotypy, then the correlations between magical ideation and mystical experience are both positive and moderately high, the correlations in Table 1 ranging from .38 to .66, with a moderately high median of .49, and these correlations remain high even when obviously parapsychological items are removed from the Magical Ideation Scale (Eckblad & Chapman, 1983; Thalbourne, 1985).

Paranormal Experience and Psychopathology

I presented Table 1 regarding mystical experience and clinical variables because virtually none of the correlations had been previously computed or published and I therefore had to find the original relevant studies and calculate them. In contrast, reviews of correlations between paranormal experience and three of these same clinical variables have been published: for mania, see Thalbourne (2004), and for depression and manic-depressiveness, see Thalbourne (2005). For mania, the median correlation with paranormal belief/experience over 10 analyses (all of which were positive) was a weak $r = .275$. For depression, the combined weighted mean was .135 for the Depressive Experience Scale and a slightly higher .170 for the Rasch Manic-depressiveness Scale — both values being significantly greater than zero but very low.

For correlations between paranormal belief/experience and magical ideation (Eckblad & Chapman, 1983; full scale and reduced), see Table 2.

There are two versions of the Magical Ideation Scale because examination of its items reveals that 8 of the 30 are clearly parapsychological in theme, and given this fact, correlations with paranormal belief will be spuriously high. Thus, a version of the scale called Magical Ideation (Reduced) and containing just 22 items was created so as to have a fairer test of the correlation. For the full 30-item scale, the 14 correlations ranged from .46 to .83 with a mean of .62 and a median also of .62. For the reduced scale, the 12 correlations ranged from .40 to .80 with a mean of .55 and a median of .54. Note that where data exist for the two versions ($n = 11$ studies), the difference between the two mean correlations was highly significant, $M_{diff} = 0.10$, $t(10) = 5.63$, $p < .001$, with the reduced version showing a significant drop. Be that as it may, the median correlations are

TABLE 2
PEARSON CORRELATIONS BETWEEN MAGICAL IDEATION, MAGICAL IDEATION (REDUCED), AND VARIOUS MEASURES OF THE SHEEP-GOAT VARIABLE

Study	Sample	Sheep-Goat measure	*N*	30-item Magical Ideation Scale		22-item Magical Ideation (Reduced) Scale	
				r	*p*	*r*	*p*
Thalbourne (1985)	Students	$ASGS_{13\text{-}FC}$	99	.62	< .001	.40	< .001
Anderson (1988)	Mediums/ nonmediums	$ASGS_{15\text{-}FC}$	20	.83	< .001	.80	< .001
"	"	PBS	"	.73	< .001	.69	< .001
Tobacyk & Wilkinson (1990)	Male students	PBS	145	.47	< .01	n.a.	–
	Female students	"	137	.46	< .01	n.a.	–
Thalbourne (1994)	Students	$ASGS_{13\text{-}FC}$	45	.54	< .001	n.a.	–
Thalbourne & Delin (1994)	Students	Rasch ASGS	241	.67	< .001	.59	< .001
"	Manic-depressives	Rasch ASGS	86	.62	< .001	.59	< .001
"	Schizophrenics	Rasch ASGS	38	.59	< .001	.45	.007
Thalbourne & French (1995)	Students	$ASGS_{18\text{-}FC}$	114	.65	< .001	.58	< .001
Thalbourne, Dunbar, & Delin (1995)	Students	$ASGS_{10\text{-}FC}$	169	.58	< .001	.44	< .001
"	"	PBS	"	.66	< .001	.55	< .001
Thalbourne, Bartemucci, Delin, Fox, & Nofi (1997)	Students/ general public	$ASGS_{18\text{-}VA}$	370	n.a.	–	.52	< .001
Thalbourne (1998)	Students	Rasch ASGS	242	.61	< .001	.51	< .001
Thalbourne, Keogh, & Crawley (1999)	Students	Rasch ASGS	250	.59	< .001	.49	< .001

n.a.: not available; ASGS: Australian Sheep-Goat Scale; subscript indicates number of items;
FC = Forced Choice; VA = Visual Analogue; PBS: Paranormal Belief Scale (Tobacyk & Milford, 1983)

quite substantial. The interpretation of this state of affairs is that believers/experients of the paranormal are rather likely to report beliefs and experiences of a schizotypal nature, that is, suggestive of the prodromal stage of schizophrenia.

Among other potentially psychiatric states related to reports of the paranormal is dissociative experience (Whitlock, 1978). The author has knowledge of seven relevant studies, and Table 3 displays their characteristics. Note that the two measures of dissociation — the Dissociative Experiences Scale (DES) (Bernstein & Putnam, 1986; Carlson & Putnam, 1992) and the Questionnaire on Experiences of Dissociation (QED) (Riley, 1988) — correlate $r(237) = .64$ (reanalysis of Thalbourne, 1998), and may therefore be considered to be equivalent.

TABLE 3
PEARSON CORRELATIONS BETWEEN DISSOCIATIVE EXPERIENCE AND VARIOUS MEASURES OF THE SHEEP-GOAT VARIABLE

Study	*N*	Dissociation measure	Sheep-Goat measure	*r*	*p*
Richards (1991)	184	DES	Richards	.52	. 001
Ross & Joshi (1992)	502	DES factor	Ross & Joshi	.20*	.007
Zingrone & Alvarado (1994)	55	DES	QPE	.31	< .001
Irwin (1994)	100	QED	PBS	.38	< .001
Pekala et al. (1995)	413	DES	$AEI_{experience}$	.40	< .001
"	"	"	AEI_{belief}	.22	< .001
"	"	"	$AEI_{ability}$	.29	< .001
Wolfradt (1997)	269	DES	PBS	**	–
Thalbourne (1998)	235	DES	Rasch ASGS	.22	.001
"	"	QED	Rasch ASGS	.30	< .001

*: Beta weight **: Correlations given for subscales only
DES: Dissociative Experiences Scale (Bernstein & Putnam, 1986; Carlson & Putnam, 1992)
QPE: Questionnaire of Psychic Experiences (Zingrone & Alvarado, 1994)
QED: Questionnaire of Experiences of Dissociation (Riley, 1988)
PBS: Paranormal Belief Scale (Tobacyk, 1988)

Seven correlation coefficients (i.e., excluding the beta weight) are available for analysis, all positive, all significant, and ranging from a low of .22 to a high of .52 with a median of .31, which may be considered small to moderate.

The relationship between dissociation and mystical experience has been much less studied. Zingrone and Alvarado (1994) report that, in their sample, DES scores were significantly higher in mystical/spiritual experients compared with nonexperients (d = .62; p. 496) and higher in persons with *multiple* mystical experiences versus nonexperients, $t(50)$ = 3.56, p = .0001, pp. 497–498). Thalbourne (1998), in a reanalysis of his data, noted that the Rasch Mystical Experience scale was significantly positively related to the DES, $r(238)$ = .22, p = .001, and also to the QED, $r(241)$ = .26, $p < .001$. However, these relationships are relatively weak.

Clinical Implications of the Correlational Evidence

I suggest that many psychiatrists would conclude, after hearing about these correlations, and though those correlations are in general relatively weak, that mystical experience, paranormal belief, and paranormal experience are to be found most often in pathological states such as bipolar or schizophrenic episodes. And that belief is what we tend to find in the *Diagnostic and Statistical Manual* (American Psychiatric Association, 1994). For example, the happiness induced by a mystical experience may seem to qualify for "a distinct period of abnormally and persistently elevated, expansive, or irritable mood, lasting at least 1 week" (p. 332), although it must be said, as William James (1902/1982) pointed out, that "Mystical states cannot be sustained for long. Except in rare instances, half an hour, or at most an hour or two, seems to be the limit beyond which they fade into the light of common day" (p. 381). Again, the American Psychiatric Association lists "inflated self-esteem or grandiosity" as characteristic of a manic episode, and in mystical experience one does have an injection of self-esteem (though not of ego inflation) and is likely to perceive oneself in a new and constantly refreshing relationship to something greater than oneself, whether that be all of humanity, the cosmos, or God. Parenthetically, my view is that this part of the mystical experience may be a temporary dissolution of ego boundaries in a sense of oneness with all things, which superficially looks like something a psychiatrist is needed to correct (e.g., Neppe, 1988, p. 3; see also Thalbourne & Neppe, submitted). Richards (1996) found that self-rated success at a psi-task correlated significantly with "thinness" of boundaries as described by Hartmann (1991). Thalbourne and Neppe (submitted) argue that such boundary-dissolution *may* be psychopathological but is not necessarily so. My one-time psychiatrist always said that when I spoke of "my being him and of him being me" that I had boundaries which were more fluid than those of most other people. This seems to me to be the appropriate way to view most experiences of boundary dissolution.

When a person in the boundless state says something like, "I am the sun. I am the moon. I am the galaxies," is the person showing the manic characteristic of "expansive mood" (American Psychiatric Association, 1994, p. 332)? Perhaps, but perhaps not. The person is not deviant in *mood*: rather, he or she is asserting *expansive propositions* about the true nature of reality. One of those propositions is that our individual "small" self is a part of, and in some sense identical with, a not-normally-cognized larger Self (with a capital S), and becoming conscious of this fact is called Self-Realization. This assertion can be misinterpreted by psychiatrists with a too-literal interpretation of the *DSM*'s word "expansive," or for that matter, of the phrase "delusion of grandeur." If someone said, "I suddenly became conscious of the fact that I am a part of, and in some sense identical with, the whole human race," that would not be taken to be a psychiatric phenomenon. And it must be remembered that boundlessness extends *downward* also, so that people recognize their ultimate identity with viruses and bacteria, and with atoms and quanta. Are these "delusions of petiteness," to coin a phrase? Very likely not. People must simply face the fact that mystics appear to perceive some invisible common denominator underlying all of the visible universe, and whatever that common denominator is — and consciousness has been proposed as it — that perception leads to a sense of unity in diversity. It boils down ultimately to a paradox: I am All, and I am *not* All, and both of these propositions are true, under different circumstances, depending on when and where one draws the boundaries. It is not a verbal sleight of hand but is experienced as ontological fact.

That being said, how can the correlation between mystical experience and mania be accounted for? I argue that the two variables are not identical, but that, for a reason I will address shortly, the two conditions can be found together. Hence David Lukoff's (1985) attempt to introduce the diagnosis of "mystical experience with psychotic features" (MEPF) and also his work on mystical dimensions of manic psychosis (Lukoff, 1988). Two things can be said about this situation. First of all, mystical experience usually involves ecstasy, sometimes experienced directly after great privation and suffering in what is traditionally called the "dark night of the soul."[4] Speaking from personal experience, I must caution readers that people with mystical experiences — either uncomplicated or with psychotic features — are usually *totally* against attempts to eradicate the experiences by hospitalization and medication. Such people will feel misunderstood and will strongly resist attempts made upon them by psychiatrists. Sometimes one's mystical experience can be so precious — recall that I defined it as having supreme value — that one will avoid the psychiatrist in question — in my own case, I ran halfway around the *planet* to get away from a pathologizing doctor. I suggest that the doctor should probe to find out whether there are *other* symptoms of a manic episode

[4] The psychiatrist Paul Horton (1973) describes three cases in which mystical experience acted as a suicide preventive. Unfortunately, he denigrates the experience as being merely a "transitional object."

that are not typically present in uncomplicated mystical experience. If one has a case of "mystical experience with psychotic features," then the doctor needs to tread very carefully and perhaps to emphasize that the goal is to get rid of only the *bad* aspects of the experience (of which there are undoubtedly some); the doctor can also communicate to the person that having mystical experience is not incompatible with being on medication such as lithium. If this approach is taken, then a collaborative partnership should ensue. At the moment, conventional psychiatrists are not trained in these issues and can show little empathy with those who are brought before them.

Much the same could be said for the claim of paranormal experience (or what Neppe, 1981, prefers to call "subjective paranormal experience"). Psychiatrists tend not to accept the veridicality of the experience but dismiss it as due to chance or "error some place" (Honorton, 1975) and consider diagnosing schizophrenia or schizotypal personality disorder — "(1) ideas of reference . . . (2) odd beliefs or magical thinking that influences behavior and is inconsistent with subcultural norms (e.g., superstitiousness, belief in clairvoyance, telepathy, or 'sixth sense' " (American Psychiatric Association, 1994, p. 645). The nub of the matter is that psychiatrists themselves tend to belong to a subculture in which mystical and paranormal experiences are almost completely absent. They would be very well advised that careful population surveys have shown the level of belief and alleged experience to be very high indeed, and it is the *psychiatrists* who are in the minority. Acquaintance with the survey literature should have a high priority in psychiatric education. The next section gives a very brief overview of this area of research.

Surveys on Subjective Paranormal Experience

Reports of personal paranormal experiences such as apparent clairvoyance, telepathy, and precognition (in waking and dream states) are common throughout the world (Targ, Schlitz, & Irwin, 2000, pp. 222–223). In the United States, for example, a 1987 survey published by the University of Chicago's National Opinion Research Center canvassed nearly 1,500 adult Americans, of whom 67% claimed to have had paranormal experiences. In most countries where surveys have been conducted, paranormal experiences have been reported by over half the population. This level of prevalence has been found in surveys undertaken in North America; Great Britain; other countries in Europe, especially Iceland; the Middle East; Brazil; South Africa;[5] Asia; and Australasia. The most common paranormal experiences involve apparent telepathy (acknowledged by about a third, and sometimes as much as half, of the population) or clairvoyance (in about a fifth of the population). Reports of psychokinesis or mind-over-matter effects are much less frequent (between 5% and 10%) in relative incidence, and I can vouch for that from my own questionnaire data from selected samples.

[5] Neppe (1981) and Swiel & Neppe (1986).

The systematic study of spontaneous paranormal experiences has proceeded also through the study of numerous collections of individual case reports. The compilation of case collections began in the late 1800s and continues to the present day. The vastness of these collections might be taken to support the view of paranormal experiences as widespread in the general population (adapted from Targ, Schlitz, & Irwin, 2000, pp. 222–223).

But there is a potential problem: just because an experience is widely reported doesn't mean that the experience is genuine and reported correctly. This is the "flat earth" argument: at one time *everyone* believed the earth was flat, and they were *wrong*. These surveys certainly demonstrate that paranormal experiences are not confined to the mentally ill, and 50% of a given population surely cannot *all* be wrong — cannot *all* be deluded. But it is possible to erode the incidence figures by citing deception, misremembering, misperceiving, cognitive biases, inadequate documentation, and other reasons to reject an account as being of a genuinely paranormal event, but these counter-explanations are sometimes more implausible than the original account itself.

Even phenomena that psychiatrists regard as truly pathological have been found to have a surprisingly high level of incidence in the general population. I quote here from hallucination researcher Richard Bentall (2000):

> The first systematic attempt to determine whether hallucinations might occur in people without physical or mental illness was conducted in Great Britain at the end of the 19th century by the Society for Psychical Research (Sidgwick, 1894). In total, 7,717 men and 7,599 women were interviewed by a large team of collaborators to the project. Although no attempt was made to obtain a truly random sample, anyone with obvious signs of mental or physical illness was excluded from the study. Of the total sample, 7.8% of men and 12% of women reported at least one vivid hallucinatory experience, the most common type being a visual hallucination of a living person who was not present at the time of the experience. Hallucinations with a religious or [paranormal] content also were recorded, and auditory hallucinations were found to be less common than visual hallucinations. Hallucinations appeared to occur most commonly in people between 20 and 29 years of age, a period that approximately corresponds to the subsequently established high-risk period for psychotic illness. (p. 94)

This study was followed up by a much less extensive survey conducted by the Society more than 50 years later (West, 1948).

Questionnaires were distributed to the general public by the "Mass Observation" survey organization. Many of the questionnaires either were not returned or were completed inadequately. Of the 1,519 adequate responses, 217, or 14.3%, reported a history of hallucinations. Again, visual hallucinations were more commonly reported than auditory ones, and women respondents were more likely to have experienced hallucinations than men (p. 94).

Bentall details further surveys with results broadly similar to those of Sidgwick. The fact that the SPR's nineteenth-century study is still cited by hallucination researchers such as Bentall and by parapsychologists such as Irwin (2004, p. 31) and Rhine (1977, pp. 63–64) testifies to the perceived importance of the findings, namely, that about 10% of normal people have experienced a hallucination.

Wrote Frederic Myers (1892):

> One of the causes of this ignoring of the true significance of hallucinations has been . . . the fact that when they occur spontaneously it is often in connection with morbid states. Inquiry into human vital phenomena has usually been undertaken with a therapeutic and not with a purely scientific purpose; and consequently the morbid aspect of hallucination, although really accidental, has been insisted upon in preference to its absolute psychological significance. . . . Frequently accompanying insanity, [hallucinations] have been discussed as though they were simply an indication of insanity. (p. 342)

Before leaving the topic of hallucinations, I would like to report some relevant incidence figures from two studies, by Thalbourne and Delin (1994: first three rows of Table 4) and Thalbourne and Fox (1999: last two rows of Table 4).

Hallucinations tend to be reported by between 18% and 28% of the panic attack group, of their caregivers, and of students (though we do not know whether some of these experiences occurred in the presence of drugs). However, the incidence is much higher for people with manic-depression and higher still for people with schizophrenia.

As to hearing an inner voice, again the two panic disorder groups and the students were on a par (between 14% and 19%), and again the participants with manic-depression or schizophrenia were much higher.

Finally, a type of paranoia was reported at about 10% for students and for the two panic disorder groups but at quite a high level for participants with manic-depression or schizophrenia.

Note that these three psychiatrically relevant items intercorrelated somewhat erratically (e.g., as high as .50 in one case) but often significantly, as if due to a common antecedent condition.

TABLE 4
INCIDENCE FIGURES FOR "TRUE" RESPONSE FOR THREE PSYCHIATRY-RELEVANT EXPERIENCES

	N	Hallucinations	Heard inner voice	Paranoia
Students	239	28%	19%	10%
Manic-depressives	85	58%	37%	41%
Schizophrenics	38	63%	68%	50%
Panic attack group	62	18%	15%	11%
Carers of P. A.	51	19%	14%	10%

Sources: Thalbourne, 1994 (first 3 rows); Thalbourne & Fox, 1999 (rows 4 and 5)
Original wording:
"Hallucinations": "Have you ever experienced hallucinations while in the waking state?"
"Heard inner voice": "Have you ever heard a voice that was talking to you in a meaningful way and which was not simply your own internal voice?"
"Paranoia": "Have you ever felt that people were trying to kill you?"
"Carers of P. A.": Carers of persons in panic attack group.

I now raise the question of whether mystical and paranormal experience are related to these three single items, first considering the correlations with mystical experience in Table 5.

TABLE 5
PEARSON CORRELATIONS BETWEEN THE RASCH MYSTICAL EXPERIENCE SCALE AND THREE PSYCHIATRY-RELEVANT EXPERIENCES

		Hallucinations		Heard inner voice		Paranoia	
	N	1994	1999	1994	1999	1994	1999
Students	239	.21		.42		.15	
Manic-depressives	85	.43		.35		(.20)	
Schizophrenics	38	(.19)		(.28)		(.11)	
Panic attack group	61		.38		.26		(.10)
Carers of P. A.	52		.37		.37		(.04)

Sources: Thalbourne & Delin, 1994 (first 3 rows); Thalbourne & Fox, 1999 (rows 4 and 5).
For full wording of items, see Table 4.
Note that parentheses indicate correlations not significant at the .05 level.

First, mystical experience appears to be related at a weak to moderate level to reported experience of hallucinations. The same conclusion may be drawn with respect to hearing an inner voice, whereas the results for the paranoia item are almost uniformly nonsignificant. But hallucinations definitely occur, and:

> . . . the great mystics themselves . . . are unanimous in warning their disciples against the danger of attributing too much importance to "visions" and "voices," or accepting them at their face value as messages from God. . . . Nevertheless, these visions and voices are such frequent accompaniments of the mystic life, that they cannot be ignored" (Underhill, 1911/1974, p. 268)

But:

> Pathology and religion have both been over-hasty to snatch at these phenomena [visions and voices] for their own purposes. . . . Some are morbid hallucinations: some even symptoms of insanity. . . . Some test, then, must be applied, some basis of classification discovered, if we are to distinguish the visions and voices which seem to be symptoms of real transcendental activity from those which are only due to imagination raised to the *n*th power, to intense reverie, or to psychic [psychological] illness. That test, I think, must be the same as that which we shall find useful for ecstatic states, namely, their life-enhancing quality. (Underhill, 1911/1974, pp. 269–270)

Table 6 contains correlations with paranormal belief/experience that may be said to be a microcosm of those in Table 4, but at a more frequently nonsignificant level.

In summary, mystical experience shows a low-moderate relationship with the three single items, whereas paranormal experience shows mostly low or nonsignificant correlations. The evidence for a relationship from these data between mystical and paranormal experience on the one hand and psychopathology on the other is not at all strong, but this null finding must be replicated in studies where the single-item measures are perhaps more precisely phrased.

The Philosophical Biases of Psychiatry

Though I have not done a proper survey, my experience with psychiatrists is that their philosophical biases *tend* to be antireligious, metaphysically materialistic, and heavily biological. For example, they

will point to the commonness of religious themes in mental illness. They are also inclined to discount reports of the paranormal, such as unusual coincidences, which, researchers point out, are more common in mental illness; one just has to think of schizophrenia for examples of paranormal-type telepathic beliefs.

TABLE 6
PEARSON CORRELATIONS BETWEEN THE RASCH AUSTRALIAN SHEEP-GOAT SCALE AND THREE PSYCHIATRY-RELEVANT EXPERIENCES

		Hallucinations		Heard inner voice		Paranoia	
	N	1994	1999	1994	1999	1994	1999
Students	239	.21		.34		.18	
Manic-depressives	85	(.14)		(.18)		.23	
Schizophrenics	38	(.12)		(.20)		(.22)	
Panic attack group	61		.26		(.13)		(.13)
Carers of P. A.	52		.44		(.15)		(.16)

Sources: Thalbourne & Delin, 1994 (first 3 rows); Thalbourne & Fox, 1999 (rows 4 and 5).
For full wording of items, see Table 4.
Note that parentheses indicate correlations not significant at the .05 level.

The upshot is that the average psychiatrist tends to think that the information supposedly gained in mystical and paranormal experience is not valid knowledge. But if researchers think even for a minute that "there might be something" in some of these knowledge claims, they are confronted with the spectacle of an epistemological quagmire in which the person claims veridical knowledge yet at the same time may be suffering from certain delusions (although these delusions may be metaphors for important themes). There is such a thing as "subjective paranormal experience psychosis" (Neppe, 1984, p. 7): ". . . by virtue of the unique loss of ego boundaries in [subjective paranormal] experiences, and also because of the inability to validate or substantiate the reality of their 'feelings,' these people may sometimes become acutely psychotic.") "The situation may be further complicated by the subjective paranormal experient believing that outside agencies, such as dead spirits or a higher power, are guiding him" (Neppe, 1988, p. 2). Neppe (1984, p. 8) — himself a psychiatrist-parapsychologist — lists 14 criteria for differential diagnosis from schizophrenia and depressive illness. The psychiatrist-parapsychologist Bruce Greyson (1977) published a paper called "Telepathy in Mental Illness: Deluge or Delusion?" It is easier to adopt the stance that all such knowledge claims are false than to sift through the wheat and separate it

from the chaff. The latter course of action must surely be a difficult task for psychiatrists who, in most cases, believe they have never had mystical or paranormal experience themselves.

Transliminality

I have most recently defined *transliminality* as "a hypersensitivity to psychological material emanating from the unconscious, and, simultaneously, a hypersensitivity to stimulation from the external environment." Factor analysis showed that there is an underlying factor for nine variables (Thalbourne, 1998: paranormal belief/experience, mystical experience, creative personality, magical ideation, manic experience, absorption, fantasy-proneness, hyperaesthesia, and positive attitude toward dream interpretation, though it is important to acknowledge that the variables are different from each other in various ways as well). I posit that individuals differ in the degree to which they possess transliminality: those *high* in transliminality tend to have cross into supraliminal awareness (from either the subliminal region or the external environment) large quantities of imagery, ideation, affect, and perception, and they are thus prone to experiencing psychological material from the unconscious (e.g., material for paranormal coincidences, creative impulses, and mystical cognition, as well as manic ideas); those *low* in transliminality tend to have thresholds that are relatively impervious to material from the unconscious or the external environment (e.g., they do not have a hypersensitivity to bright light, sound, and smell). An early study on transliminality (Thalbourne & Delin, 1994) showed that it was significantly higher in people with manic-depression or with schizophrenia, although it must be said that the effect was not strong and needs to be replicated using the Rasch-scaled Transliminality Scale (Lange, Thalbourne, Houran, & Storm, 2000; Houran, Thalbourne, & Lange, 2003). This model implies that an uprush of material into consciousness or an inrush of material from the environment may be seen in cases of psychiatric illness, whereas people with low transliminality are relatively immune from mental illness, though at the same time they miss out on the positives of mystical, paranormal, and, it must be said, creative experience.

Being curious about the level of transliminality in psychiatrists, I once tested a group of just seven trainee psychiatrists to whom I had access, and despite the very small sample, the mean score for transliminality was *below* the population average ($M = 25$) to a highly significant degree, $M = 18.67$, $SD = 3.92$, $t(6) = 4.27$, $p = .005$. These results suggest that psychiatrists have a somewhat greater resistance to mental illness themselves while at the same time they are debarred from the mystical, the paranormal, and the creative, all of which makes it that much harder for them to empathize with their patients, who, as we have noted, show some tendency to be *high* on transliminality.

From this standpoint, the task for the willing psychiatrist is to remove the negatives from the highly transliminal person (see, for example, Thalbourne & Houran, 2005) while attempting to allow those characteristics such as mystical and paranormal experience to flower and flourish rather than immediately suppressing them with medication.

Underhill's (1911/1974) comments are appropriate in this context:

> Since it is implicit in the make-up of the mystical temperament, that the subliminal consciousness should be active and rich — and since the unstable nervous organization which goes with it renders it liable to illness and exhaustion — it is not surprising to find that the visionary experience even of the greatest mystics is mixed in type. . . . The perceptive power and creative genius of mystics, as of other great artists, sometimes goes astray. That visions or voices should sometimes be the means by which the soul consciously assimilates the nourishment it needs, is conceivable: it is surely also conceivable that by the same means it may present to the surface-intelligence things which are productive of unhealthy rather than of healthy reactions. (pp. 270–271)

As a final note it should be mentioned that although dissociation is not a part of transliminality (however, absorption is), in a large sample transliminality correlated positively, significantly, and moderately with both the Questionnaire of Experience of Dissociation, $r(242) = .47$, $p < .001$, and the Dissociative Experiences Scale, $r(242) = 58$, $p < .001$. However, factor analysis demonstrated that dissociation was not a part of transliminality (Thalbourne, 1998).

A Final Remark

I will close by citing the fact that Sigmund Freud, at the age of 65, in a letter to Hereward Carrington, stated as follows:

> I do not belong with those who reject in advance the study of so-called occult phenomena as being unscientific, unworthy or harmful. If I were at the beginning of my scientific career, instead of at the end of it, as I am now, I might perhaps choose no other field of study — in spite of its difficulties. (Mitchell, 1989, p. 25)

It is out of research into the psychological correlates of belief in the paranormal, such as mystical experience, mania, and magical ideation,

that the concept of transliminality emerged, and I commend it to clinicians as a more appropriate way of coming to terms with reports of mystical and paranormal experience than current approaches.

In closing, perhaps the best view of the relationships between the variables that we have discussed is that the evidence is statistical: thus, although *some* people who report paranormal experience also have a psychiatric condition, that is not to say that *all* such reporters have that condition. The statistical correlations are by no means perfect — a fact we should always bear in mind — and consequently we must (perhaps often) allow for exceptions to the tendencies of those correlations, for such exceptions there certainly are.

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[*Editor's Note:* The following letter appeared originally in *Quadrant: The Journal of the C. G. Jung Foundation for Analytical Psychology* (VIII: **2**, Winter 1975, pp. 73–75) and is reproduced here with the kind permission of the Foundation. We felt that the letter would be of considerable historical interest to readers of the *JP.*]

JUNG AND RHINE

BY WILLIAM SLOANE

The publisher John Farrar arranged a luncheon party in October of 1937 at which J. B. Rhine, the pioneer in experimental ESP research, and Jung, who was in the United States for his Terry Lectures at Yale, first met. William M. Sloane (1906 – 74), an associate editor at Farrar and Reinhart, had just finished work on Rhine's New Frontiers of the Mind *and was soon to begin editing a collection of Jung's Eranos Lectures to be published under the title* The Integration of the Personality *(1939). Before they met, Jung had read Sloane's novel* To Walk the Night, *which was first written as a play in 1932. It contained so true a portrait of the anima's immortal aspect that, in the words of Mrs. Wm. Sloane, "the great man couldn't believe Bill had never read a word of his and was delighted to have his anima theory borne out of that fashion." Jung cited Sloane's novel in "The Psychological Aspects of the Kore" (CW 9, i, par. 356), and Toni Wolff wrote an extensive commentary on the novel a few years later.*

To Joseph C. Sloane

October 31, 1937

. . . I was . . . at a lunch arranged by John Farrar in honor of Dr. Rhine and Dr. Jung. I sat at the right hand of Jung, and we talked a good deal during the meal. He is a very great man in his person, in his inner stature, in the authority, range, and architecture of his mind. With such men, whether they are right or wrong does not matter. I thought at once of Uncle Will.[1] Jung is a bigger man — I can give no higher praise — and a mellower and merrier one, and of course, he is one of the men who have laid the intellectual foundations of the modern age. His concepts are a part of our everyday speech, and along with Freud and Adler he has established an entirely new view of man. It was exciting to watch him and Rhine together, and to contrast their greatnesses — Jung the cosmopolite, the man of enormous erudition (He quoted Chinese thought-patterns next to a Tantric text in the original Tibetan?), the old man, wise, and too

[1] William Mulligan Sloane (1850 – 1928) professor of history at Princeton University

simple and direct to be either a braggart or a [shrinking] violet. Rhine, on the other hand, is a man whom only America could have produced — quiet, low-spoken, intense, with that slow-burning fuse of humor innate in his speech, gravely deferential to Jung, putting his problems before Jung without any plea for help, and servility, and expectation of praise, with the obvious feeling that the problem of man and his nature was so sacrosanct and vital a one that Jung was obligated to help him, as he was to tell Jung what he knew.

The two of them spoke for almost two hours together, with a few remarks from some of the important psychiatrists and others at the lunch — there were about ten of us. As I am quite positive that the table contained two out of the four men in the whole world who are most destined to color the thought of the future (Freud, Jung, Einstein, Rhine), I might have had the buck fever had not what they said been so intensely interesting. Jung told us that he was speaking off the record, and saying what was in his inmost heart and mind, without paying attention to its scientific credibility, or our attitude. He said that we would understand that nothing he said was meant lightly or for publication either, but in quoting him to you I may not have grasped his full meaning in many places, as his English, though good, tended to be a little inaccurate in an oddly confusing way — "incommensurable" when he meant "indefinite as to extent or outline," for example.

He began by talking about astrology, and the Chinese method of divination by what he called "rune sticks." He pointed out that both these methods had something in common, that they represented another sort of science, one which began with the fixation of the present instant as a method of understanding. Both the fall and the division of the Chinese fortune-telling sticks, and the arbitrary (and astronomically inaccurate) star descriptions and locations of the astrologers are a method of fixing an event in time and holding its pattern for examination. In such science, he observed, the aim is not to determine how, causally, an event occurs but rather what the pattern of the event itself is, what its meaning is in terms of the larger patterns around and after it. Such science was not interested in how we all came to be at the lunch party today, but in what it meant that we were there, and if there was a relation to the future that relation was not causal. Rhine remarked that he knew a brilliant young psychologist who had taken all the military men in *Who's Who*, cast their horoscopes, checked their careers against the indications, and discovered certain patterns of relationship which could not be attributed to chance. I asked Rhine what the lad was going to do with the study. Rhine remarked that he was waiting to become either old or rich prior to publishing it.

Jung went on to talk about the question of futurity, which was presented by Rhine's account of his ESP work on prophecy, the positive results of which are completely astonishing. Jung's metaphysics was this:

There is a Common Unconsciousness, which in each of us is concentrated into our individual unconsciousness. Our conscious minds, by the warmth of their interest or other causes not yet known, can "warm," "heat," or excite certain sections of this Common Unconsciousness into consciousness, to begin with, and into other things, as will appear. Since the basic aspect of life is that it is energetic, he set forth this conscious-Unconscious energy as a great stream, moving across the frozen and lifeless expanse of matter — of potential and actual actuality. The former I'll try to describe later, but the latter is what we call the "interest-heated" conscious-Unconscious brings to reality as we perceive it, and our perception of actual actuality is through what he calls a "slit" in the conscious-Unconscious field of awareness. The motion of this peephole across the plane of reality gives us the sense of time. Time is thus an attribute of our mental life moving in the great stream of the Common Unconscious,

In certain special cases — we'll take prophecy first as the easiest — the "warmed" Unconscious may extend itself beyond the peephole of time, and thus report certain future or past actualities. Of these, a great many are *potential actualities*, things which may or may not happen. Some few actually do occur. This accounts for many psychic phenomena, including clairvoyance and telepathy both present, past, and future. More important to most people, it provides a working theory for dealing with many cases of non-organic insanities — delusive and schizophrenic. The question of whether the warming power of the aroused conscious-Unconscious mind has any power to influence the creation of actual actualities is at the core of the paradox. Neither man could say positively the answer to it, though Jung asserted that it was a paradox caused by the fact that we *have* to think in either causal or non-causal terms, and that this paradox is the end of the road for causal thinking.

...

Jung went on to talk about the ability of the Unconscious to telescope time and space under certain liberating conditions, thus making possible the phenomena of telekinesis, psycho-kinesis, or call it what you will. He described certain experiments of his own, of a "séance" nature but so far as I could judge scientifically impeccable, which established psycho-kinesis; Rhine told of his work in this field, and what few experiments I myself have conducted suggest that both men were right as regards the existence of the phenomenon. Jung also talked about various psychic experiences of his own which were fascinating illustrations of his theory, at least to him. I myself and I think several of the other men there were not so sure that they proved his theories — they merely fitted in with them. Somebody suggested something of the sort and Jung smiled. "You may be right," he said, spreading his hands, "my theory is only a theory, gentlemen, but it is the only one I have been able to construct which fits the phenomena and," he sighed, "I have been thinking about these things a long, long time."

There is no reply to that. I doubt, indeed, if the men who will be able to reply to it are even born, for Jung is a long, long time ahead of, and outside, his scientific age.

He said many other things, explanations of metaphysical problems posed by Rhine and others, and in some cases I did not understand the question. I think I am right in boiling down what he said about the powers of the stimulated Unconscious to bring potential actuality into true actuality to this: His experiences and experiments indicate that one has the power to influence the behavior of matter (psycho-kinesis or "the power of mind over matter") but that neither he nor any man knows how it may be applied, or to what extent. He cited the lifting and ringing of a dinner bell by a medium, without the use of hands, as an "extension of force," extruded, if you like, by the medium. "He lengthened his fingers," as Jung put it. That might or might not be potential actuality converted by the Unconscious to actual actuality. He pointed out that the notion of causality interfered with definite thinking on this point. A man with cancer, he said, has a potential death within him. Born in 1800, it becomes a real death. Operated on successfully today, it becomes "a death in his living past," a potential death never realized in the here and now. (Odd how so many of the old folk sayings suggest themselves in connection with what he said — the phrase "on borrowed time" is a tacit recognition of something like this, just as "mind over matter" is a tacit recognition of psycho-kinesis.) Similarly, the delusion of a patient he had treated (and believe he had saved from insanity this morning) illustrated the point. This woman dreamed, with terrible, unquestionable intensity that a great meteor fell on the city of New York and destroyed everyone in it. Appalled by the horror of what she felt sure was a prophetic vision, she insisted upon warning everyone of the doom (Cassandra). Jung told her that her dream was a true one, but not for this time and place. He said it was a "true event in the realm of potential actuality," and told her that it had or would happen in the place "unknown of this world," as he put it to her. Her dream was real but *not* for the here and now. (I could not help hearing a little voice inside me that said, "We shall see if he is right about *that.*") The faint pressure of that meteor is over my shoulders as I write.

Dr. Rhine I think was deeply moved by what Jung had to say. I believe that with him, as with every other great or noble person I have met, the awareness of being alone is strong. To think great thoughts, to work nobly, patiently, carefully in a world full of people incomprehensibly indifferent to the importance of the work one is doing, is a terrible thing. I think Rhine saw what mill Jung had been through, and understood what he has got to face, perhaps for the rest of his life. Jung is old, and few believe him — perhaps the group of us there today would be one of the few in the whole world that would listen to an old man talk about Chinese luck sticks, astrology, tantrism, physics, psychology, the Common Unconscious,

psycho-kinesis, telepathy, clairvoyance, and insanity as various loopholes onto a vista of truth, without feeling either pity or scorn. Rhine is in the last stronghold of the Old World of human thought, the academic. It will largely fall, as the young men behind its walls come into power, but at present he is bucking the flood tide of it, and it is hard.

...

Your loving son, Bill

OBITUARY

JOHN BELOFF
1920–2006

By Richard S. Broughton

John Beloff was born in London in 1920, the fourth of five children of Jewish immigrants who had come to England shortly before the First World War. His father was a successful businessman, and the children of this close-knit family all went on to distinguish themselves in various ways. John often described himself as the least distinguished of the family, though those whose lives he touched would beg to differ.

An early interest in art led his parents to push him toward a career as an architect, and he began formal studies in that field. As the Second World War broke out, John joined the army, but after two and a half years, just before his battalion shipped out to Italy, he developed an illness sufficiently serious to cause him to be invalided out of the army (possibly saving his life, he was later to recall). During his time in the army he had time to read, gravitating toward books on psychology, and one book in particular left a strong impression. It was J. B. Rhine's *Extra-sensory Perception* (Rhine, 1934).

John eventually completed his architectural studies, but a few short jobs in architectural offices convinced him that he was not suited to that profession, and he started all over again as a psychology student, first at Birkbeck College and later University College. At University College, A. J. Ayer's weekly philosophy seminars captured John's attention. Although John remained unconvinced by Ayer's philosophy, he admired the great philosopher's intellect and saw his taut writing style as a model to emulate. Around that time he also came under the influence of a fellow student, whom he married shortly after graduating, and for the next 54 years, Halla was to be "the most important person" in his life.

After a year working with Raymond Cattell at the University of Illinois, the Beloffs returned to Britain, where John took a job teaching psychology at Queen's University in Belfast. During this period both John and Halla obtained their PhD degrees. Although John's PhD was based on research in visual perception that grew out of his interest in art, his interest in psychical research and parapsychology also grew. His first foray into experimental research was prompted by the interest of a young physics student, Leonard Evans, and together they conducted the first-ever

experiments that attempted to demonstrate PK on radioactive emissions. It was, however, a more philosophical work that brought John some measure of academic prominence. To counter the continuing dominance of the behaviorist school of thought, especially that represented by Gilbert Ryle's *The Concept of Mind* (1949), John published *The Existence of Mind* in 1962 (Beloff, 1962). In this short work John argued the case for a radical dualist understanding of mind, adding that there was a growing body of experimental support for such a position coming from the field of parapsychology. Dualism was quite intellectually unfashionable at the time, but the strength of his arguments caught the favorable attention of several important thinkers of the day, including Michael Polanyi, Karl Popper, John Eccles, and Arthur Koestler.

In 1962 both John and Halla were offered lectureships in psychology at the University of Edinburgh, which they took up in the winter of 1963. For both, the University of Edinburgh was to remain their professional home for the rest of their careers. Edinburgh proved a congenial home for parapsychological research, and John began a modest but often very innovative research program. In addition to experiments investigating training techniques that were reported to elicit evidence of psi, he explored the use of an early automated ESP tester with a built-in electronic random number generator and automated direct scoring of mass ESP tests, and using the galvanic skin response as an indicator of telepathy.

Alas, impressive psi results proved to be an infrequent visitor to John's lab. He was not afraid to admit that his own experiments did not have any large impact on the field as a whole, but they did have an important side effect. John's creative and technologically sophisticated parapsychology research program sparked renewed life in the aging and nearly moribund British parapsychological establishment. Soon, in the early 1970s, he began to have a steady stream of graduate students from Britain and abroad, and around the same time a few academics at other universities felt emboldened to accept graduate students with a parapsychological interest. In 1977 the Society for Psychical Research began to have annual conferences so that the increasing research — largely generated by graduate students — could be reported and discussed.

For those who were fortunate enough to be one of John's graduate students, it was an exciting and intellectually challenging experience, but it typically started with a letter from John in which he tried hard to discourage the prospective student from embarking on a career in parapsychology, primarily due to the lack of any real career path in that field and because of the difficulty in obtaining good results. For those who remained undeterred by his efforts, John provided firm but unobtrusive guidance regarding the special demands of parapsychological research and a possible career in an especially controversial field. John gave his students free rein to follow whatever path seemed appropriate, even when that path led in directions counter to his own philosophical inclinations. He never imposed his ideas

on his students as to what research should be done, but he expected them to defend their choices and methods, and to adhere to the highest standards in methodology and scientific integrity. Successful results were welcomed enthusiastically, but null results were not scorned, just considered part of the challenge of psi research.

The revival of academic parapsychology in Britain did not go unappreciated. When the writer and intellectual Arthur Koestler (then terminally ill) and his wife Cynthia committed suicide in 1983, they left their estate to establish a chair of parapsychology at a British university. Koestler's interest in parapsychology was well known, and John had been in contact with him over the years. They also shared an interest in voluntary euthanasia, but John was most surprised to find himself named as one of the executors of the Koestler will. As the only one of the executors who was knowledgeable about parapsychology, it was left to John to find a home for the Koestler chair. The search consumed nearly a year as the leading universities of the country were consulted. In some cases the universities were not interested or not willing to take the risk, in others the universities wanted an inappropriate definition of parapsychology or too much control over the appointments. In the end it went to John's own University of Edinburgh, where it was welcomed by the principal of the university, John Burnett, and the head of the Department of Psychology, David Vowles, though John had indeed reserved this option to last lest any hint of conflict of interest emerge.

Undoubtedly the main reason why Edinburgh was comfortable with accepting the Koestler chair was that for two decades the University and the Department of Psychology had seen parapsychology as practiced by John Beloff and the students he supervised. In due course John was also instrumental in selecting Bob Morris to occupy the chair, which led to the flourishing of academic parapsychology in the UK that continues to this day. At the time of Bob Morris's untimely death in 2005, Bernard Carr, President of the Society for Psychical Research, had counted no fewer than 32 PhD students supervised by Morris, many of whom have gone on to academic positions in the UK. This remarkable achievement would not have been possible without the foundation laid by John Beloff.

Though in later years John was content to leave the laboratory to his students, he remained productive well into retirement, authoring or coauthoring a number of books, editing the *Journal of the Society for Psychical Research*, and frequently contributing to journals and edited volumes. His penultimate book, *The Relentless Question: Reflections on the Paranormal* (Beloff, 1990), was a selection of his papers that, combined with his commentary, was very much a reflection on his career in parapsychology. Though he was exceptionally modest about his achievements, his contributions were recognized by his colleagues. He was elected to the council of the Society for Psychical Research in 1964 and served that organization for the rest of his life, including a term as its president in 1974. The SPR awarded him its

highest honor — the Myers Medal — in 1997. He was twice elected to the presidency of the Parapsychological Association and served on its board of directors for several years. In 2003 that association awarded him the PA Lifetime Achievement Award.

For his friends, colleagues, and students, John Beloff the academic could not be separated from John Beloff the man. His integrity and sense of fair play, his generosity, and his deep humanity imbued all of his activities, in the academy and outside, and those who encountered him knew that they were dealing with a good man in every sense of the word. By achievement and by example, John Beloff profoundly influenced and enriched the field of science that he loved and the lives of many who labor in that field.

John Beloff was born on April 19, 1920 and died on June 1, 2006. He is survived by his wife of 54 years, Halla, who continues in a distinguished psychology career; a son, Bruno; and a daughter, Zoe. John did not wish to have a funeral and donated his body to the Edinburgh University medical school. He donated his collected papers to the Duke University Library.

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BOOK REVIEWS

ENTANGLED MINDS: EXTRASENSORY EXPERIENCES IN A QUANTUM REALITY by Dean Radin. New York: Paraview Pocket Books, 2006. Pp. 357. $14.00 (paperback). ISBN 1-4165-1667-8

In *Entangled Minds,* as in his earlier book *The Conscious Universe,* Dean Radin gives us a fine synthesis of clear storytelling and sophisticated scientific argument. The book is a keeper not only because of its comprehensive reportage of the evidence from lab and field explaining the subtitle, "Extrasensory experiences in a quantum reality," but also because the author is a deeply committed scholar who reads and talks to people who are creating the growing edge of physics, psychology, parapsychology, and other sciences, as well as philosophy and epistemology. His notes and references constitute a rich, deep survey of intellectual achievement useful for anyone with serious interest in the extended capabilities of mind and consciousness.

I should note in the interest of full disclosure that the book presents and discusses my research with care and grace, so I might be especially disposed to a positive view. Actually this gives me a sharply focused insight into the quality of Radin's reportage and the accuracy of his perspective. This is important because this book is really about bringing a powerful and potentially illuminating theoretical perspective into discussion. It is an attempt to connect the mystery of psi (extraordinary mental capacities) to the developing front of physical modeling. Psi researchers have collected a volume of excellent evidence that the mind can reach out for information and interaction through space and time, but there are no satisfactory models or theories to explain this. Radin suggests that entanglement, the linkage of quantum entities, may provide a vehicle for understanding psi. His book is a persuasive invitation to examine this possibility.

Radin is concerned about organized skepticism regarding psi research and about why high quality research is ignored, making it difficult to maintain support for good work in this field. His thoughtful assessments, based on empirical findings in social and experimental psychology, are helpful in thinking about the problem. He discusses the "rational man" fallacy and "confirmation bias" as possible explanations, but he cannot offer an ultimate solution. He is not discouraged by skepticism, however, and follows a simple but powerful approach, namely to continue to do and report clean, solid research on well-formed questions. This book is a testimony to the validity of this path; it synopsizes a remarkable historical body of evidence that provides (to an unbiased eye) important contributions to understanding human consciousness and its place in the physical world.

An especially pleasing, informative aspect of Radin's book is that he looks outside parapsychology to find illustrations of his points. For example, in discussing decline effects found in psi meta-analyses, he notes that a comprehensive survey of the technique applied in other fields finds that declines are ubiquitous to a significant degree. He shows a graph of the results of an antiparasite treatment on milk production from dairy cows that looks exactly like the long-term effect size changes in psi research. But sometimes he stretches his metaphors: looking for a similar example in physics, he shows a graph of the declining estimate of neutron weak coupling ratios. This, of course, is not a decline in a treatment effect, which is our concern. To be sure, Radin does say he doesn't want to push such comparisons too far, but I would prefer to see examples that exhibit appropriate substance and not just the patina of form or appearance.

As another example of how effective this book is, the chapter on "presentiment" traces the development of a paradigm for studying responses to what will shortly happen, showing that the mind and body may see a little into the future and respond a few seconds early to pictures or other stimuli that arouse emotions. Radin surveys the history and details the multiple perspectives that constitute the independent replications needed for solid science. His own experiments model the development of good evidence using sophisticated equipment and designs, but these are enhanced and extended by other researchers, who look at different stimuli and technologies. He ends the chapter saying,

> When you step back from the details of these studies, what you find is spectacular bodies of converging evidence. . . . These studies mean that some aspect of our minds can perceive the future. Not infer the future, or anticipate the future, or figure out the future. But actually *perceive* it. (p. 179)

The title of the book promises a look at how entanglement might help to explain psi research findings. But it is not until well past the middle of the book that Radin gets to that central topic, and even then, he proceeds with a gentle and progressive education. The first part of the book is all about evidence, sound scientific reasons to think there is a problem in search of a solution. It is a comprehensive presentation summarizing more than a thousand studies in a dozen different paradigms showing anomalies associated with consciousness. Then, to prepare us to consider various potential explanations, he provides clear, concise introductions of physical constructs and the history of the "queen of sciences" leading to quantum physics.

With descriptions of the conundrums, and progress dealing with puzzles via the scientific combination of experiment and theory, Radin brings us to the most current thinking in physics with the observation that

while quantum theory is preposterously precise, it is "equally preposterous that there is no widespread agreement yet over what it *means*." (p. 222) His short summaries of competing interpretations flesh out this statement and lead up to an elegantly instructive discussion of entanglement. This in turn, at least to me, becomes the foundation for a compelling argument that, despite authoritative negativity from various quarters (pronouncements that entanglement is *only* a quantum-level, microscopic phenomenon), subtle qualities of entanglement may operate to link mind and matter. Entanglement may be a bridge that allows serious people to look at experimental evidence for psi without the prejudice that it is impossible according to the laws of physics.

Entanglement is not easy to grasp, and application of the concept to difficult questions about the far reaches of human potential takes both courage and creativity. Radin brings both to the task, along with his uniquely comprehensive experience as a researcher and major contributor to the scientific literature of parapsychology. His explanation of how it might work is clear, and it is obvious that from his own expert perspective this is the best of a series of progressively more sophisticated models attempting to explain psi effects both in the lab and naturally occurring in human experience. As a test of the notion, he poses a dozen or so questions and ill-understood scientific findings to see how entanglement might fare as an explanation for such conundrums as decline effects and unreliability, or for the mystery of enhanced performance from special participants and altered states of consciousness. The reader might argue some of the points, but this "application" not only helps with the exposition but offers worthwhile possible solutions for some profoundly mystifying aspects of psi research.

Radin's new book earns shelf space in the library of anyone with serious interest in understanding consciousness and its place in the world. It has the substance to become a favorite resource for students and scholars, and it presents a solid and intriguing step toward a workable theory, ensuring that *Entangled Minds* will become a classic.

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THE SURVIVAL OF HUMAN CONSCIOUSNESS: ESSAYS ON THE POSSIBILITY OF LIFE AFTER DEATH edited by Lance Storm and Michael A. Thalbourne. Jefferson, NC: McFarland, 2006. Pp. vii + 311. $45.00 (paperback). ISBN 0-7864-2772-8.

The Survival of Human Consciousness is a puzzling book. The quality of its chapters differs greatly, two of them are reprints from years-old sources,

while quantum theory is preposterously precise, it is "equally preposterous that there is no widespread agreement yet over what it *means.*" (p. 222) His short summaries of competing interpretations flesh out this statement and lead up to an elegantly instructive discussion of entanglement. This in turn, at least to me, becomes the foundation for a compelling argument that, despite authoritative negativity from various quarters (pronouncements that entanglement is *only* a quantum-level, microscopic phenomenon), subtle qualities of entanglement may operate to link mind and matter. Entanglement may be a bridge that allows serious people to look at experimental evidence for psi without the prejudice that it is impossible according to the laws of physics.

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THE SURVIVAL OF HUMAN CONSCIOUSNESS: ESSAYS ON THE POSSIBILITY OF LIFE AFTER DEATH edited by Lance Storm and Michael A. Thalbourne. Jefferson, NC: McFarland, 2006. Pp. vii + 311. $45.00 (paperback). ISBN 0-7864-2772-8.

The Survival of Human Consciousness is a puzzling book. The quality of its chapters differs greatly, two of them are reprints from years-old sources,

and there are crucial omissions. Let me start with the last. Despite Stephen Braude's acclaimed and thoughtful addition to the literature (2003), neither he nor the members of the two labs carrying out programmatic research on mediumship (e.g., Beischel & Schwartz, 2007; Roy & Robertson, 2004) have contributing chapters. There is only a passing reference to such recent research in Bill Roll's chapter (p. 157). Braude is mentioned elsewhere, especially in a contentious and not especially clear (more on that later) final chapter by co-editor Lance Storm. I also wish that a well-informed and well-intentioned skeptic (such as Dodds in 1934) would have provided a counterpoint to many of the interpretations in the book.

After a brief foreword (by James Houran) and preface (by the editors), the book is divided into sections: "Historical," "Theoretical and Experimental," "Evidential Issues," and "Conclusions." The book starts on a very wrong footing with a chapter by Keith Chandler exploring beliefs in the afterlife from the Neanderthals to our times, all in 22 pages! I do not know if anyone could do justice to the history of humans' attitudes toward death in this span, but Chandler definitely cannot. Part of the problem can be seen in the list of references, 22 items including three books by Chandler himself, all published by a "vanity" press. In the notes about the contributors, there is a reference to his "graduate studies" (unspecified) and his being an "independent scholar," but no actual description of his field of expertise. Rather than providing a clear overview, his chapter rambles around his sympathies (e.g., Shakespeare's *Hamlet*, Jane Fonda) and antipathies (e.g., physical fitness, Becker's important treatise on denying death). He makes outrageous statements, such as denying that Paul Tillich, arguably the most important theologian of the twentieth century, would know anything about spirituality, all of them supported only by his opinion, not by a literature review, research, or careful argumentation.

The book recovers some of its footing in the second chapter, "Mystical Experience and the Afterlife," in which Christopher Moreman, a professor of religious studies, surveys the mystical traditions within various religions and supports a type of survival in which individuality is absorbed into a kind of Universal Mind within which everything is interconnected. He maintains that individuals do have value in adding meaning to that all-encompassing totality. I found myself in sympathy with his argument, as I agree with him that psi phenomena can be reconciled with the mystical view of interdependence. I would, however, argue with his statement that near-death experiences (NDEs) are "almost entirely culturally determined" (p. 33; cf. Athappilly, Greyson, & Stevenson, 2006) and wish that he had discussed recent empirical work on mysticism (cf. Wulff, 2000). Nonetheless, his position needs to be reckoned with in any consideration of survival.

Psychologist Douglas M. Stokes also disagrees that our everyday personality can survive without a body. He brings to bear evidence from various areas of psychology and the neurosciences to support the notion that we are much more than our conscious self, which to an extent is an

illusion. In a well argued chapter, he proposes instead that what might endure are "fields of consciousness," which may act through clairvoyance and psychokinesis on the brain, along the lines of the "shin" theory articulated by Thouless and Wiesner (a position also held by Tart, 1993).

William Braud, a very successful contributor to the study of consciousness and psi, provides a creative chapter in which an "alter-ego" of his discusses with an interlocutor various conundrums about survival research. He disagrees with the received wisdom that good data for survival can be explained only through super-psi or actual survival and embraces a model that includes both, depending on the case studied. Like Moreman and Stokes,, and following the Indian sage Sri Aurobindo, he is not supportive of the survival of our personality but of something that may underlie it.

Editor Michael A. Thalbourne offers what reads more like a journal article than a book chapter. I wish he had presented more contextual information on the background of his research and why it is relevant to survival studies. In any case, he presents the results of two correlational studies in which the proneness to have hallucinations has only a weak relationship with holding paranormal beliefs; the relationship disappears when "absorption" (full deployment of attentional and other cognitive resources to an internal or external stimulus) is statistically controlled for. In another data-centered chapter, reprinted from a 1997 book, John N. Boyd and Philip G. Zimbardo present their findings that having a "transcendental-future time perception" (i.e., the possibility of one's survival after death) is a specific personality trait that may explain individuals' behavior (e.g., engaging in life-threatening activities) better than a more general religious stance.

The section on "Evidential Issues" opens with a chapter by David Fontana, past president of the Society for Psychical Research, who recently published a book on survival. He bases his positive conclusion about survival mostly on a review of paranormal "physical phenomena" (e.g., physical mediums such as D. D. Home, and "instrumental transcommunication"). Although the chapter was an interesting read, I found myself in agreement with a recent review by Emily Williams Kelly (2005) of Fontana's book in which she was skeptical about the relevance of physical mediumship to survival and about the strength of the instrumental transcommunication data. Fontana's assertion that Home's belief that spirits were responsible for his performances is good evidence for survival is weak on two counts. First, it may indicate only an unwarranted causal attribution on Home's part (and humans are chock-full of wrong attributions as to what causes their behavior). Second, and more damaging, if physical mediumship is mostly caused by the dead, we should have obtained by now far more evidence than that culled in Home's, Palladino's, and a few other cases, if nothing else because the deceased would like to assuage our uncertainty concerning death (Dodds, 1934).

The following chapter, by William Roll, on the evidence for survival from apparitions and mediumship is, to a large degree, a shorter and updated version of some sections of his thorough and excellent previous chapter (Roll, 1982). Probably no one knows this literature better than Bill Roll and it is good to have his work in a more accessible venue than his earlier chapter, but I wish that he had spent more time discussing recent developments, such as the current research programs on mediumship or any updates on the "omega" project he described in 1982. Roll's conclusion is not dissimilar to that of other authors in the book, advocating a "field" rather than a "personality" notion of what survives, and also pointing out that physical, not only psychological, systems are part of that field.

Predictably, the contribution by Stanley Krippner on "After-death Communication Experiences" is scholarly and well written. He first describes a dream and an auditory experience conveying to him that a friend had died before he had actually found this to be the case. Regardless of the ontological nature (e.g., super-psi?, survival?, mere fantasy?) of these communications, Krippner makes a good case that these exceptional or anomalous experiences can soothe the grieving and deserve to be better understood, if nothing else to help the mourning process and provide a comprehensive view of reality.

The chapter by Erlendur Haraldsson is a reprint of a 2000 article on a good case supporting a claim for at least previous-life memories if not outright survival. There are some impressive aspects to the case, including birthmarks on a girl (Purnima Ekanayake) that correspond to injuries that were left on the identified deceased person by a bus that ran over him, and a majority of accurate and not obvious statements offered by the girl. Although the case has the weakness that the girl's statements were not written down before she contacted her "previous" family, it is nonetheless difficult to explain in conventional terms. Mills and Lynn (2000) have provided methodological suggestions that may strengthen the design of research on reincarnation.

The fourth section, on sociological and phenomenological issues, starts with a chapter by Pamela Rae Heath and Jon Klimo (a world authority on channeling) on channeled material of people having committed suicide. Although the authors state that their material is not proof-oriented and that they are interested in the nature of the experience of the channelers rather than in issues of survival as such, they do not consistently follow that caveat and at times conclude that consistency in reports shows four stages in "the afterlife experience" (as contrasted with *reports about* the afterlife experience). I also missed in their chapter concrete methodological information and analyses that would have made me believe that, for instance, "blind" raters would arrive at the same conclusions as the authors regarding the consistency of the material.

In contrast, although Robin Wooffitt transcribes only a few samples of his data, his Conversation Analysis of interactions between mediums

and clients clearly shows that mediums often exhibit a pattern in which tentative information is retrospectively confirmed as being solid from the start, depending on the client's reaction to the initial statement. Wooffitt states that his analysis does not address the validity of the mediums' communications, but it is difficult not to conclude that at least a number of their apparently accurate statements may be more the result of their interaction with their clients than with deceased individuals.

James McClennon describes authoritatively the historical, cross-cultural literature on NDEs as part of his interesting evolutionary "ritual healing theory." He proposes that individuals with "dissociative/hypnotic" ability have a propensity to have anomalous experiences and beliefs and an evolutionary advantage because of the benefit they may derive from shamanic rituals. I think he is correct in pointing out that shamanic phenomenology may derive from spontaneous experiences of highly hypnotizable individuals (Cardeña, 2005), and there is some data supporting his contention that shamans may have more children than a comparison group (Van Ommeren et al., 2004), but he fails to consider that the common elements of NDEs that he has found in his and others' data do not necessarily have to be explained by a biological etiology. A case can be made that the commonality of the experiences could be the product of universal human experiences (e.g., birth, experiencing the passage of time), cultural dispersion, or some other factor. Also, McClennon should make a distinction between dissociative and fantasy types of hypnosis (Barret, 1990) and discuss more how his theory can account for the finding that these traits can be evolutionary *dis*advantageous (e.g., Kluft, 1990).

The final section of the book, "Conclusions," contains two essays by co-editor Lance Storm. In the first, he summarizes the previous 13 chapters; in the second, he provides what he considers a solution to the information reviewed, namely radical survivalism. I will have to confess to being at a loss to understand why two chapters by the same author were not really just a single chapter. More troubling to me, though, is that I found Storm's writing and reasoning meandering and obtuse. Consider just one among various similar sentences:

> If we accept that the synchronistic process (information reception via ESP or PK) requires the existence of absolute knowledge (after Jung) with access via (magic-wand) super-psi (after Braude) or psychopraxia (after Thalbourne), and if we regard action (normal or paranormal) as being goal oriented (after Thalbourne), we can say that the agency (activity and intervention) involved in survival experiences (NDE, OBE, visitation by discarnate entity, etc.) is primarily the same thing as *manifested access to an ostensibly unlimited pool of information, experience, actions, and events, which fall under the super-ordinate category of absolute knowledge* (cf. the

key theoretical arguments of Moreman and Roll in their respective chapters). [italics in the original] (p. 299)

In sum, this book is a strange concoction, with ingredients of varying quality and some previously used. In parting, I can mention two recurring themes in some of the best chapters of the book. One is that what may survive death is not likely to be our ordinary personality but something that underlies that self, or perhaps a field of shared consciousness that may include physical objects. The other is that findings in research on various anomalous experiences (e.g., NDEs, OBEs) remain very pertinent to our understanding of what may or may not survive after we become dust.

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AUTISM AND THE GOD CONNECTION. REDEFINING THE AUTISTIC EXPERIENCE THROUGH EXTRAORDINARY ACCOUNTS OF SPIRITUAL GIFTEDNESS by William Stillman. Naperville, IL: Sourcebooks, 2006. Pp. xiv + 240. $14.95 (paperback). ISBN-10: 1-4022-0649-6.

Autism and the God Connection is a combination of autobiography, information, and support for caregivers of autistic children, and anecdotal psychic experiences of autistic children and their caregivers. I found the book most compelling in reading about the variety and types of psychic experiences that autistic children have reported.

Neither Louisa Rhine's files of anecdotal reports sent to her by the lay public nor the scientific parapsychological literature to date reports more than a few anecdotal reports regarding this population. Consequently, the reader is given an interesting and unique window into children's experiences by a special population. In fact, the author states that his purpose for pursuing this topic "is to enlighten others about a unique and glorious facet of the autistic experience" (p. 12), as well as to shatter "myths and stereotypes about such experiences being a product of intellectual impairment or mental illness" (p. 12).

The author categorizes himself as having autism, specifically Asperger's Syndrome, which is at the higher end of the autism spectrum.

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The author categorizes himself as having autism, specifically Asperger's Syndrome, which is at the higher end of the autism spectrum.

Such individuals often have high intelligence and good verbal skills but also experience learning disabilities and gross and/or fine motor difficulties, along with social and behavioral difficulties. Autism as the author defines it is "a neurological difference in how the brain is 'wired'" (p.1). There is no definitive cause for autism, although genetic and environmental factors come into play. Autism affects the ability to communicate effectively and understandably, with pervasive developmental delays across physical, emotional, and social realms (p.2). At the lower end of the autism spectrum, intellectual ability and the ability to communicate verbally are significantly impaired, along with significant physical impairment necessitating use of a wheelchair. These children require the use of special communication boards to help facilitate contact.

Stillman chronicles his experiences growing up with Asperger's, and the ensuing social/relational difficulties he encountered that resulted in significant emotional trauma for him. But he also chronicles the successes he has had in spite of his difficulties. He has been able to use his experiences to help others with autism and to consult with professional educators, trying to sensitize them to the needs of those they work with.

The author also allows us to share in his journey and experiences with the spiritual side of his life, as well as the spiritual/psychic experiences of other children and adults with autism and Asperger's. His empathic understanding of others with autism and his compassion and caring make this a special book. The reader sees and feels the experiences of the autistic children presented through the eyes of the author and through direct quotes from the children. He gives us an opportunity to better understand autism along with the spiritual/psychic experiences both he and the children encounter.

As a consultant specializing in counseling "teams challenged in understanding those with different ways of being, including autism" (p. 6), Stillman recounts many anecdotal stories of psychic experiences from others encountered over the years, as well as his own experiences. It is here that the book becomes relevant for those interested in parapsychological phenomena. That is when *Autism and the God Connection* comes alive and captivates the reader. The categories of psychic experiences that are reported in this book include telepathy, precognition, visions of grandparents and other loved ones who have passed away (and even angels), and an unspoken bond with animals (pp. 6-7).

For example, Brenda, who has mild autism, had the following experience at age 12, reported by her mother. Brenda and her family were on a friend's boat to watch fireworks. Her mother reported:

> Suddenly, Brenda got upset and told Bill, the captain, "Move back." She continued saying it until he moved far enough back to suit her. Finally, she yelled at him, "Move back now." He unhappily complied to keep her calm.

> Needless to say, we were all amazed that the fireworks show never went off because there was a misfiring with the first rocket and a fire flashed horizontally on the deck sending debris right near where we originally had been. In addition to my family, there were five other people on the boat who witnessed that. (p. 90)

Another interesting example is that of Boone, a gifted 5-year-old boy with autism whose mother reported that 6 months prior to the terrorist events of September 11, 2001, her son drew a series of over 100 clocks. Each clock was set to the time 9:11. He also drew a ball of fire in the sky over a wooded area, and "smoke billowing from tall buildings with many windows" (p. 91). Boone's mother also reported other premonitions her son has had, such as when the family was traveling to Atlanta from their suburb of Albany, Georgia. Her son began having a fit, crying and insisting that his mother stop. Although they had traveled only an hour, the mother decided to stop for lunch at a McDonald's and stayed for 45 minutes. Once back on the road, barely an exit later, they came upon a huge accident involving many badly damaged cars. Boone's mother felt strongly that had she not listened to her son and stopped, they would have been in the middle of the accident.

In trying to comprehend why those in the autistic community might be able to display such abilities, the author considers "this 'higher-vibration' capacity of the senses" that is "consistent with the acute, often over-whelming autistic sensitivities to sight, smell, taste, touch, and hearing" (p. 7). He makes clear that he does not intend to imply that every person with autism is psychic or has "multisensory abilities" (p.9), but that there appear to be quite a few who share this common thread. And indeed, there is extensive research by W. G. Roll on recurrent spontaneous psychokinesis (RSPK) exhibited by adolescents, which seems to occur at that developmental time due to shifting hormonal and emotional states that make them more vulnerable and open to their psychokinetic energy. And perhaps those with autism have a certain unquestioning openness to such phenomena, which young children also have, that allows them to experience and accept psychic occurrences more readily. I have received a few anecdotal psychic reports from parents of young adults with Down syndrome. Down syndrome, like autism, has a range of functioning, including lower intellectual ability and physical handicaps. The psychic experiences reported are those of being able to see and communicate with discarnate spirits, and these abilities are not due to any mental illness on the part of the young adult. Thus, it may be that those with certain conditions, such as autism or Down syndrome, might exhibit a higher sensitivity to paranormal events and may be a population worthy of further study regarding their experiences.

This book is in no way a scientific study nor a rigorously executed analysis of the anecdotes. However, the author does refer to some research

material, notably from the books of Raymond Moody, and provides an extensive bibliography for the reader. But Stillman fully believes the reports he has accumulated, along with his own personal experiences. He states that "we have no reason to believe that their stories are not authentic," and accepts them at face value (p.13). He does add: "I realize that spiritual giftedness in people with autism is a delicate and controversial subject" (p.13). And indeed, there is no available research showing that children or adults with autism are more psychically gifted than any other group in the population. Although the book is not presented in a scientific manner and was not meant to be written in such a way, it is still a useful addition to the paranormal field, for it does offer us a body of anecdotes from a special and understudied population.

Louisa Rhine collected over 15,000 letters of anecdotal psychic experiences of adults during their life, as well as a much smaller number from children and adolescents. Her collection gives us insight into everyday occurrences of psychic experiences. Her large body of data allows for scientific analyses of trends and classifications of experiences. Perhaps Stillman might consider continuing to gather reports of such spiritual and psychic experiences, whereby he or others might be able to classify and analyze the material further for trends compared to other populations. Such data would help to add to the scientific body of knowledge about parapsychology in general, as well as add to the sparse data on autistic children and their psychic experiences. In the meantime, this book gives the reader valuable insight into the spiritual and psychic lives of autistic individuals.

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To the Editor:

Emily Kelly's review of my book *Is There an Afterlife?* (*JP*, **69**, 390–395) raises a number of points that require a reply. I list these points with my responses to them.

1. *Typing errors and the omission of some references.* No one was more concerned about these copyediting errors and the omissions of references for the NDE and OBE chapters than I was. I was working abroad when the book was in press, and the copyediting and proofreading were done by the publishers in my absence. I have written more than 30 books, and I have never allowed publishers to do this before and never will again. It was possible to include some corrections in the subsequent reprints, and the publishers have now corrected the remainder and reinstated the missing references in the new edition now in preparation. However, it is relevant to point out that inefficient copyediting did not prevent the book from being awarded the joint Scientific and Medical Network Book Prize for 2006.

2. *Omission of any mention of the "misgivings [raised by] highly informed, sympathetic investigators such as Alan Gauld and Anita Gregory" about the Enfield Poltergeist case.* I am puzzled by Emily's criticism. Alan visited Enfield only once and never published a report on the case. And far from being "highly informed," Anita Gregory had no experience of poltergeist phenomena, and her "misgivings", set out most fully in her PhD thesis, were considered so ill-informed that the thesis was withdrawn from the SPR Library. Surely I cannot be expected to repeat material of this kind.

3. "*[My] primary interest, clearly, is in physical phenomena and 150 pages are devoted to these.*" This claim by Emily is incorrect. I kept a careful balance in the book between the phenomena of mental and of physical mediumship, with 128 pages devoted to the former and 122 to the latter (not 150 as she suggests). In any discussion of research into survival of physical death, significant evidence has been yielded by both forms of mediumship and they deserve equal weight.

4. "*The chapter on electronic voice phenomena (now often called Instrumental Transcommunication, or ITC) . . . seem[s] to summarize the current state of this research . . . experiments have not been carried out under conditions controlled and observed by outside observers. . . . Perhaps the most pressing need is for independent observers to listen to recordings — without of course, being told what is purported to be on the tape — and report what they hear.*" First, it is incorrect to equate electronic voice phenomena (EVP) with ITC. As I made clear in the book, ITC is a broad term proposed by Ernst Senkowski to cover anomalous communications received through all forms of electronic devices, whereas

the term EVP is specific to the audiotape method pioneered by Friedrich Jurgenson and Konstantin Raudive. Second, independently designed and controlled experiments were in fact carried out on Jurgenson's "voices" by no less an expert than Hans Bender, using all the safeguards that I describe in the book (Bender concluded that the voices were paranormal but preferred to attribute them to PK from the living). In my own experience, I have never met any objection from ITC researchers to any suggested controls. Third, independent listening panels were also used over 40 years ago, this time in experiments with Raudive's results. Some 300 people were involved, including Bender, who reported that of the 150 "voices" to which he listened, 50 could be heard "very clearly" and 57 "clearly." However, modern research has moved beyond listening panels and the unreliable human ear and now focuses on acoustic analysis aimed at comparing the vocal characteristics of the voices with those of normal human speech and (whenever possible) with the voices of the alleged communicators recorded during their lifetimes.

5. "*Fontana admits that he and his coinvestigators in the Scole case were unable to introduce the control conditions they wanted, such as infrared cameras . . .*" I admit no such thing, and to claim that I do seriously misrepresents me and materially undervalues our investigations at Scole and the work of the Scole group themselves. What I say in the book is that we were unable to "introduce *all* the controls that we deemed necessary if critics were to be satisfied." [italics added] In the book and more fully in *The Scole Report* (Keen, Ellison, & Fontana, 1999, p. 220), details are given of the wide range of controls we used. Incidentally, the reason we were asked not to bring infrared cameras was not the "usual excuse," as Emily calls it, "that light is somehow damaging." The Scole Group accepted our explanation that infrared viewers do not introduce light but simply respond to energies already present. The objection by their "communicators" to infrared cameras was that their use would be diversionary and "inhibit" the group harmony required for successful phenomena. We disagreed and were keen to use infrared, although we recognised that sceptics consider infrared cameras to be of limited value in detecting fraud on the basis that skilled conjurors can deceive investigators even in broad daylight.

6. *After a reference to the Scole investigation as evidence for survival, Emily writes that I made "no mention of Batcheldor or of his suggestion that the success of his sitter groups in generating physical phenomena . . . was because of the group dynamic."* No one to my knowledge who has studied the 302 pages of the *Scole Report* or even the summary in my book or who was present at Scole has seriously suggested that the phenomena we witnessed (which included materialisations, dematerialisations, lights, music, "spirit hands," and pictures and writing on film in sealed tubes) were similar to the much more restricted results produced by Batcheldor's experiments or were a consequence of the PK that may have been responsible for his findings.

7. *Still on the subject of darkness at physical séances, Emily writes that "If Home could do it in good light why not others?"* The simple answer is that in mediumship — as in all areas of human performance — abilities apparently vary. Home seems to have been without parallel, but the point is often ignored that semidarkness did in fact play a significant part in his work. In virtually all the Home séances reported by Crookes in the SPR *Proceedings* and in his papers in the SPR archives, the sittings were held in the evening and by candlelight and firelight (see, e.g., the collection of Crooke's reports compiled by Medhurst, Goldney, & Barrington, 1972). The Home sitting that Crookes described as "the most exciting and satisfactory meeting . . . I have ever known (p. 157)" (that of April 12, 1871) took place in complete darkness. The same emphasis upon semidarkness is true of the Home sittings reported by Lord Adare (later the Earl of Dunraven; Dunraven, 1924) in which details of lighting are given. In addition, the Home materialisations reported by Lord Adare all occurred at night and in the absence of artificial light. Speculations as to why darkness or semidarkness appears to assist the production of physical phenomena abound but without clear conclusions, although it is perhaps worth noting that some of the activities in nature — such as the germination of certain seeds — also require darkness.

8. *Emily tells us she has "grown quite tired of and exasperated by . . . long discussions defending the paranormality of many individual events and phenomena, particularly in the Scole case."* I agree that such discussions may be wearisome for some of those familiar with the subject (they are even more wearisome to write) but *Is There an Afterlife?* is intended not only for the knowledgeable minority but for those new to the subject who find that such discussions help them arrive at their own conclusions.

9. *"Fontana . . . laments the suspicion [toward physical phenomena] of those . . . 'who have never experienced these phenomena for themselves'. . . . That, however, is exactly what science is for — to provide evidence sufficient to convince those who have not experienced something for themselves."* Indeed I do "lament" the suspicions of those who have never experienced the phenomena for themselves, and in the book I give my reasons. In addition, the kind of criticism that parapsychology has attracted over the years has indicated not only that most critics are unfamiliar with the relevant research literature but that they have no personal experience of this research, whether laboratory-based or carried out in the field. This inexperience is one of the reasons why a century of careful research evidence has still failed to gain general scientific acceptance for the subject. Personal experience helps inform any kind of criticism, and this is doubly so for research experience in physical phenomena, the existence of which, if proven, offers a particularly strong challenge to existing scientific paradigms.

10. *"Fontana says that 'we have a large number of audio tapes of the [direct] voices' of Leslie Flint, but unfortunately he doesn't say who 'we' are, where these tapes are, and who has listened to and evaluated them."* This comment by

Emily surprises me. I used the term "we" to apply to the public domain, as tapes of Flint's voices have been publicly available since 1966. The whole collection can be obtained from the Leslie Flint Educational Trust (www.leslieflint.com), and many tapes can also be downloaded free from www.survivalbooks.org. I make no claims for the tapes, as they can be "listened to and evaluated" by anyone with sufficient interest in doing so.

11. "*The chapters on NDEs, OBEs, and reincarnation research seem almost an afterthought. They are brief, and virtually none of the citations in the text of the NDE and OBE chapters have corresponding items in the reference list.*" In fact I devote 30,000 words to these topics — approaching half the length of an average book. Hardly "brief" and most certainly not an afterthought! As mentioned earlier, the references for these chapters omitted by the copyeditor are reinstalled in the new edition.

In a field as vast as survival research (I have over 600 books on the subject on my own bookshelves alone, plus a century and more of SPR *Proceedings* and numerous other journals and first-hand records), it is inevitable that one has to be selective. I could easily have made the book three times as long, and it is inevitable that others will have alternative views on some of what should have been included. Emily, for example, criticises my chapter on poltergeists for neglecting to give a sense of "the numerous reports of poltergeist and haunting cases" (but then supports her case by referring to four books, all of which are in fact specialist works on poltergeists — hardly a fair comparison). Nevertheless, the first draft was sent for review to 12 people noted for their work in the field and all points raised by them were incorporated.

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To the Editor:

I will make just a couple of brief general comments on David's objections (above) to my review.

First, I am sorry that he encountered problems in the publication process, but in a field such as ours, we cannot afford to go public — whether in writing or in speech — with anything less than complete, accurate, and fully documented accounts of our observations and research. Anything less only encourages the assumption that people interested in or engaged in research on these controversial topics are second-rate scientists — or worse, — and therefore that the research can be safely ignored. "Complete" does not and cannot, of course, mean addressing everything written on a topic, especially one with such an enormous and varied body of data as survival research. But it does mean giving a balanced presentation of the material one is discussing. In my view, David overemphasized areas and cases for which the evidence is, so far, less than compelling, and he gave insufficient coverage of research that is on much more solid ground.

Second, scientists who have directly experienced the phenomena they are studying may come to their research with more understanding of, and conviction about, what it is they are studying, but I can only repeat here the point I tried to make in my review: Experience is subjective, whereas science is the process of translating that subjective experience into objective knowledge available to all, experiencers and nonexperiencers alike. We are all painfully aware of the prejudices and ignorance with which many people outside our field react to psychical research, and even within our field many of us have similar prejudices about certain cases or certain phenomena. Our best — really our *only* — course of action in the face of unfriendly and even friendly skepticism and criticism is, not to re-hash the same old arguments pro and con, but to keep working toward improving our evidence: by finding and reporting more and better cases, by continuing to improve the conditions under which we observe phenomena, and — perhaps most importantly — by situating what has been observed in the larger context of related phenomena.

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To the Editor:

In her recent paper in the *Journal (JP*, **69**, 215–231), Watt (2005) mentioned the participation of members of the Society for Psychical Research (SPR) in the Second International Congress of Experimental Psychology held in London in 1892. Following on the prominent role of the SPR in the first congress described elsewhere (Alvarado, 2006), there were further SPR presentations in the second congress on such topics as hallucinations (H. Sidgwick, 1892b) and thought-transference experiments (Mrs. H. Sidgwick, 1892). As Watt stated, Henry Sidgwick, the SPR's President, was also the President of the Congress. Furthermore, Frederic W. H. Myers was the congress's Secretary.

The presence of the SPR in the congress and the fact that Sidgwick was entrusted with its direction indicated that psychical research had attracted the attention of psychologists. Some of the participants at the congress, listed in its proceedings (*International Congress of Experimental Psychology*, 1892), included Alexander Bain, Alfred Binet, Hermann Ebbinghaus, Cesare Lombroso, Charles Richet, and Edward B. Titchener, among many others. In addition, the list of Vice-Presidents included James Mark Baldwin, Hippolyte Bernheim, Joseph Delboeuf, and Eduard Hitzig, and David Ferrier, Francis Galton, John Hughlings Jackson, and Herbert Spencer were part of the Committee of Reception.

But presence by no means meant acceptance of the topic. One only needs to be aware of the negative view many psychologists had of psychical research during the latter part of the nineteenth century (e.g., Hall, 1887; Wundt, 1892/2000). Some, like physician Albert Ruault (1886), explained mental suggestion through unconsciously perceived sensory information, and psychologist Edward W. Scripture (1897) affirmed: "The objections to psychical research lie in its unscientific methods of experimentation and in the air of occultism in which the whole is enveloped" (p. 69). As William James briefly summarized the state of the matter: "'Psychical Research' has . . . many enemies, fair and foul, to elude before she gets her scientific position recognized. . . ." (James, 1896, p. 649).

That SPR leaders were well aware of the resistance of psychologists to psychical research was evident from Sidgwick's Presidential Address at the congress. Before the congress, Wilhelm Wundt had suggested that with Sidgwick as President the congress would probably have clairvoyance as the main topic but disguised as statistics of hallucinations (Wundt, 1892/2000, p. 24). In his address, Sidgwick (1892a) stated that Wundt was misinformed and that the congress was to include all the important areas of psychology, not only those related to psychical research. Furthermore, in his private correspondence Sidgwick stated his worries of having "the delicate and difficult task of persuading the orthodox psychologists to regard 'Psychical Research' as a legitimate branch of experimental psychology!" (Sidgwick & Sidgwick, 1906, p. 513).

In a report of the congress cited by Watt, Sidgwick and Myers (1892) gave an optimistic, but qualified message. They were aware that not every psychologist accepted the claims of psychical researchers. But still, they felt that

> the severe taboo long imposed upon the subjects with which we deal has been tacitly removed; and that although little or no scientific credit may yet attach to our special researches, yet they are no longer generally regarded as invalidating or depreciating such claim to attention as work in other departments may have secured for any inquirer . . . (p. 601).

They also believed that the SPR had successfully "claimed a place for their special investigations, as a recognised department of the scientific study of psychology, and have had their claim admitted without opposition" (p. 601). Although there is some truth to this to the extent that the SPR was allowed to take an important part in the congress's program, I feel that both Sidgwick and Myers overestimated the general acceptance of psychical research as a part of psychology.

Historical studies have shown that psychologists, who were fighting for their own scientific recognition and for professionalization, were generally scornful of psychical research and rejected their claims in many ways. Coon (1992) has stated that some psychologists saw psychic phenomena as a "malevolent ghost preventing public confidence in scientific naturalism" (p. 149). The psychological establishment clearly did not accept psychical research as part of its subject matter, at least not that part of psychical research that made claims extending beyond accepted sensory functions and subconscious mechanisms.

The issue needs to be considered in the context of several congresses and not only the 1892 one. It may be argued that the response of psychologists to the participation of psychical research in the psychology congresses held in 1889 (Paris), 1892 (London), 1896 (Munich), 1900 (Paris), and 1905 (Rome), when taken *as a whole*, represents the desire of many psychologists to separate psychical research from their discipline (Paicheler, 1992). From a beginning with the appearance of acceptance, psychical research eventually disappeared from the congresses, with a marked decline after the 1900 congress, which brought together psychical researchers, spiritists, and occultists, and included the airing of many protests by the skeptics about the presence of psychic topics in the congress (Janet, 1901). One of the most prominent of the critics in the 1900 congress, Hippolyte Bernheim (1901), asked for clarifications between facts and theories, and stated that he was not convinced that relevant sources of error had been adequately controlled.

Although this is not the place to go into the details of these rejections — this is something I discuss in a work in preparation — we need

to be aware that the simple presence of psychical research in a respectable forum is not enough evidence to claim general acceptance by psychologists. In fact, an examination of other indicators such as the treatment of the field in psychology textbooks and journals provides evidence for a general negative view towards psychical research.

Events such as the participation of psychical researchers in the psychology congresses should be viewed cautiously in terms of evaluating the acceptance of parapsychology by psychology and by science at large. Of course this does not mean that the SPR or psychical research in general had no effect whatsoever on the field of psychology. As Watt pointed out in her paper, psychical researchers made significant contributions during the nineteenth century to the development of the concepts of the subconscious mind and of dissociation (e.g., Alvarado, 2002; Crabtree, 1993).

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