PA Convention 2002 Abstracts

INDEX

PSYCHIC PHENOMENA AND THE BRAIN: AN EVOLUTION OF RESEARCH, TECHNOLOGY, AND UNDERSTANDING

Cheryl H. Alexander
Life Quality Resources
Raleigh, NC, USA

ABSTRACT: For decades now, scientists have been examining the relationship between psychic phenomena and the human brain. As technology has advanced, more sophisticated methods have been used to study both the brain and psychic (psi) phenomena. The advancement of technology has advanced our understanding of how psi phenomena are mediated by the brain. This paper will provide an overview of the research conducted in this area beginning with the early references scientists made to the possible connection between psychic phenomena and the specialized functions of the right cerebral hemisphere. Next, the experiments that were conducted examining the relationship between brain hemisphere differences and ESP performance are reviewed. The results of studies conducted from the 1950s to the 1970s, when scientists began using the electroencephalograph (EEG) to explore a possible relationship between the proportion of Alpha (a brainwave frequency between 8 – 12 Hertz) and the number of correct guesses on an ESP task, are discussed. Following this period, the development of computerized or quantitative electroencephalography (QEEG) has allowed scientists to more accurately record, process and analyze the results of raw EEG data. Studies that have used QEEG to more precisely localize the dominant brain electrical activity of selected participants during psi tasks are reviewed. An analysis of QEEG data using a normative reference database, which has further advanced our understanding of how a selected participant's brain compares to a group of individuals representing the normal population, is reported and discussed. Finally, the results of the only known published study utilizing single photon emission computerized tomography (SPECT) to study a selected participant's brain during a baseline and psi task are reviewed. The importance of more research being conducted using QEEG, normative reference databases and other sophisticated brain imaging technologies such as SPECT, positron emission tomography (PET), and functional magnetic resonance (fMRI) on both selected and unselected participants during different types of psi tasks is asserted.

ANOMALOUS ANTICIPATORY BRAIN ACTIVATION PRECEDING EXPOSURE OF EMOTIONAL AND NEUTRAL PICTURES

Dick J. Bierman and H. Steven Scholte
University of Amsterdam, Roetersstraat 15, 1018 WB Amsterdam, Netherlands

ABSTRACT: The present study examined the neural substrates of anticipation in conjunction with functional magnetic resonance imaging (fMRI). Ten subjects were scanned while 48 pictures were presented. Each stimulus sequence started with the 4.2 seconds presentation of a fixation point before and during which the anticipation was measured. After the exposure of the stimulus picture which lasted also 4.2 second there was a period of 8.4 seconds during which the subject was supposed to recover from the stimulus presentation.

It is found that large parts of the visual cortex do show larger activity after emotional stimuli than after calm. All brain regions that show a difference have also a response on calms except for regions that are at or near the amygdala. Here violent and erotic stimuli do generate a response but the response on calm stimuli is flat.

Anticipatory effects tend to influence baseline values and hence influence the response values. This might be a problem if the subject is guessing the upcoming stimulus condition correctly but with proper randomization this is theoretically impossible. Great care was taken to randomize stimulus conditions with replacement while using different pictures for each stimulus presentation.

Results suggest that, in spite of proper randomization, anticipatory activation preceding emotional stimuli is larger than the anticipatory activation preceding neutral stimuli. For the male subjects this appeared before the erotic stimuli while for the female both erotic and violent stimuli produced this anomalous effect. Possible normal explanations of this apparent anomaly, also called 'presentiment', are discussed. Most notably the possibility that this effect is just a result of 'fishing' for the right analysis out of many possible analyses. Exploratory results are presented dealing with differential effects in the responses to emotional stimuli and calm visual stimuli.

A Computerized ESP Test for Children: Is Age a Factor for ESP?

Robert L. Bourgeois & John Palmer
Rhine Research Center

ABSTRACT: Over the years researchers have noted that children have the same types and frequency of psi phenomena as adults, and thus they often wondered if age was a possible factor in psi ability. Many experiments were conducted in past decades to test children, and schools often were used for participant recruitment. Unfortunately, this research has declined in recent years. In the current study, children of ages 5-10 completed 3 runs of 25 trials each on an ESP computer game in which the child was to find hidden or lost fictional characters or animals. Some were tested in their homes and others at the Rhine Research Center. No overall significant ESP was observed, $z = -0.040$, and the remaining two hypotheses were also not confirmed: younger participants did not score significantly higher than older participants, $F(5, 114) = 0.736$, and female participants did not score significantly higher than males, $t(118) = -0.478$. However, an interaction effect was observed between the age and the race of the participants, $F(1, 110) = 8.807$, $p = .004$, with significant psi-missing among older African-American children, $t(19) = 2.973$, $p < .01$. Learned cultural differences and an experimenter effect were considered as interpretations of this latter finding.

Temporal lobe paroxysmal EEG activity in Near-Death Experiencers: results of a single overnight sleep study

Willoughby B. Britton and Richard R. Bootzin
University of Arizona, Department of Psychology

P.O. Box 210068, Tucson, AZ 85721
Address correspondence to:
Willoughby Britton, University of Arizona
Department of Psychology
email: wbritton@u.arizona.edu

ABSTRACT: Introduction: About half of all individuals that survive a life threatening situation react with horror and fear and go on to develop post traumatic stress disorder which is characterized by nightmares, flashbacks, anxiety and other psychiatric symptoms like depression and substance abuse. A quarter of trauma survivors have a near-death experience and experience their trauma as euphoric and transcendental. This type of reaction is almost always followed by dramatic spiritually inclined personality changes that are similar to those of temporal lobe epileptics. Methods:In order to determine if the near-death experiences and subsequent personality changes are associated with temporal lobe paroxysmal activity, 23 near-death experiencers and non-traumatized age and gender-matched controls were screened for paroxysmal EEG discharges during an overnight EEG sleep study. Twenty seven channels of digitized EEG were sleep stage scored and screened for paroxysmal activity by visual and automated scoring that was independently rated by a registered EEG technician. Subjects also completed the Dissociative Experiences Scale, the Civilian Mississippi Scale for PTSD, a temporal lobe symptom questionnaire, the COPE, the Anomalous Experiences Inventory, and a dream questionnaire. Results: Near-death trauma survivors were found to have more temporal lobe paroxysmal activity and reported significantly more temporal lobe ($p<.005$) and partial complex epileptic symptoms ($p<.001$) than controls. Paroxysmal activity in the left temporal lobe was associated with the near-death experience ($p<.05$), but not PTSD or history of head trauma. Near-death experiencers also showed differences in sleep patterns: they slept significantly less than controls ($p<.05$) and had longer REM latency ($p<.05$). REM latency was significantly associated with the near death experience ($p<.05$), even after sleep reduction was accounted for. The near-death group were marginally more dissociative ($p<.1$) but were no different than controls on measures of PTSD. Conclusion: Three physiological markers that are associated with the near-death experience were discovered in this study: left temporal lobe paroxysmal activity, reduced sleep time and increased REM latency. These physiological differences were not associated with maladaptive trauma responses, but rather positive coping styles.

A COMPUTATIONAL EXPECTATION BIAS AS REVEALED BY SIMULATIONS OF PRESENTIMENT EXPERIMENTS

Jan Dalkvista, Joakim Westerlund[1] & Dick J. Bierman[2]
[1]Department of Psychology, Stockholm University, Sweden
[2]University of Utrecht & Amsterdam, The Netherlands

ABSTRACT: Using computer simulations, it is shown that experiments aimed at demonstrating "presentiment" by showing arousal to be higher prior to arousing stimuli than prior to calm stimuli presented in a randomised (with replacement) order run the risk of being afflicted with a computational bias. The bias is based on the (false) expectation that the likelihood of an arousing stimulus being presented grows as the number of consecutive calm stimuli increases (the gambler´s fallacy). When group means are calculated across individual means, they become larger prior to activating stimuli than prior to calm stimuli, with an effect size of about 10% for "realistic" experiments and various reasonable models of expectation growth. The effect remains when subjects are pooled before averaging, but tends to become much smaller (typically around 0.01 %), although the maximum effect (regardless of model) may be larger. The bias decreases as the length of the sequence increases and approaches zero as the length of the sequence approaches infinity.

The bias is shown to be attributable to inappropriate calculations of means: for sequences of consecutive calm stimuli, the first stimulus in each sequence is entered into the denominator, even though it is not preceded by an expectation of an arousing stimulus.

Various possible strategies for attempting to get rid of the bias are discussed, but none of them is judged to be fully satisfactory.

It is argued that the bias may occur in various other types of experiments, both within and outside parapsychology. It is also argued that numerous previous experiments need to be checked for the occurrence of the bias.

Paranormal Belief and Interpretations of Sleep Paralysis

Christopher C French[1], Nicholas J Roseh[1] & Susan J Blackmore[2]
[1]Anomalistic Psychology Research Unit, Department of Psychology, Goldsmiths College,
University of London
[2]Department of Psychology, University of the West of England, Bristol

ABSTRACT: Sleep paralysis (SP) is a benign sleep disorder which involves the frightening experience of being unable to move at sleep onset or upon awakening, often accompanied by hypnagogic or hypnopompic hallucinations. While sleep paralysis is one of the symptoms of narcolepsy it also occurs in normal individuals (incidence estimates vary between 5% and 58%). A total of 196 cases of SP were collected and coded into a database of features associated with the experience. From the categories developed for

the case collections, items for a questionnaire were created. This questionnaire was given to a mixed sample of 379 respondents. Along with the incidence for a number of experiential features, a principal components analysis was carried out to identify types of SP within the sample. Four components are identified and interpretive labels are suggested for each. The four were: 'Visionary' Experience, involving lots of ostensible ESP-type perceptions coupled with some kind of 'revelation' (either finding a solution to a problem or receiving guidance), seeing a tunnel of light was also associated with this component as were unexpected sexual feelings; Levitation Dream, which appears to be a false awakening involving the sensation that you are floating accompanied by buzzing noises in the head, bodily shaking, pain and migraine-like symptoms and seeing strange lights; Spiritual Assault (Old Hag) involved the presence of a hostile entity (commonly attributed to being a ghost or spirit), pressure on the chest, intense fear and tactile hallucinations all over the body; the final component has been labelled Panic Attack as the combination of the feeling you might be about to die, accompanied by the feeling that you cannot breathe, appears similar to the symptoms of a panic attack. Believers in the paranormal who had experienced SP reported more ostensibly paranormal features (and more features overall) during the episode than non-believers. Believers in the paranormal who had not personally experienced SP were more likely to interpret a description of the experience as reflecting a paranormal event and less likely to accept sceptical interpretations.

Investigating telepathy by means of the startle eye-blink modification paradigm

Cornelia Herbert, Gabriela Boehm and Werner Plihal
Department for Clinical and Physiological Psychology
Institut für Grenzgebiete der Psychologie und Psychohygiene e.V., Freiburg, Germany

ABSTRACT: The present study aims to evaluate the usability of the so-called startle eye-blink modification paradigm for studies of telepathy. Telepathic connections most frequently are experienced between emotionally intimate persons - lovers, parents, children - and are often observed in the context of existential life situations such as divorce, separation, danger or death. In the form of sudden intuitions the concerned persons apparently feel that another person is in an emotionally or existentially extreme situation. In the present investigation of telepathic abilities, we operated with couples in deep love, where the partners were placed in separate, electromagnetically shielded rooms. While one partner was viewing a selection of positive pictures (erotic photos and sport events), neutral pictures (landscapes, household objects), and negative pictures (shocking photos of accidents and disasters), the other partner was viewing only harmless, neutral pictures at the same time. By means of an induced startle reaction, we examined whether indicators of the startle amplitudes of both partners were correlated. The human startle reflex is reliably modified by both cognitive and emotional processes and yields valuable information about human attentional and affective processes, which might be of interest for telepathic processes as well. In this pilot study we used two measures of the evoked startle response, the elicited blink reflex and the startle event-related potential (ERP), while individuals viewed pictures, that varied in pleasure (valence) and arousal. In the data available so far, we observed no indications of

telepathic influence in the startle eye blink. Analysis of the startle-related ERP components at single electrode positions revealed that both partners showed similiar arousal patterns, when one of the partners was confronted with positive slides. These results must be considered carefully and need further investigation. However, the present paradigm may offer some advantages for the study of telepathy that are discussed briefly.

A PILOT EXPERIMENT WITH EVOKED PSYCHOKINETIC RESPONSES: CIRCUMVENTING COGNITIVE INTERFERENCE?

Joop M. Houtkooper

Center for Psychobiology and Behavioral Medicine
Justus Liebig University of Giessen
Otto-Behaghel-Strasse 10, 35394 Giessen, Germany
email: joop.m.houtkooper@psychol.uni-giessen.de

ABSTRACT: RNG-PK experiments have tended to employ the continuous influence of subjects in normal states of consciousness, in contrast with the early PK experiments with dice. Cognitive disturbance, ownership inhibition and lack of transparancy of computer programs might play a role in the lack of reproducibility of RNG-PK experiments. The present pilot experiment was an attempt to circumvent the influence of these possibly disturbing factors by shortening the time-scale of the experiment; an enduring element of surprise consisted in keeping the first half of the runs invisible and keeping the subject unaware of the target direction until the visible half of the run started. A total of 189 sessions were carried out, each consisting of 30 runs of 100 trials each. Duration of each run was about 5 seconds. This meant that the subject was quite occupied during the 2.5 s of the visible run-half with little time for reflection. Six hypotheses were formulated before the analysis was started: Two hypotheses turned out to be significant: First, the correlation between the deviations in the visible and invisible run-halves turned out to be negative and significant ($r = -0.0252$, $N = 5670$, $p=.028$, one-tailed), implying that the visible run-halves balanced to some extent the invisible run-halves. Secondly, the intertrial variance was significantly higher in the visible run-halves than in the invisible run-halves ($p=.027$, two-tailed).

Exploration of the data concerned the data structure at different time scales: Chronological declines over the whole experiment, effects of the time-of-day, differences between sections of the session and patterns within the visible half of the runs. Starting with the latter, scoring turned out to be positive in the first and in the last part of the visible run-half, with scoring opposite to the target direction in the middle part. This amounted to a U-curve pattern, which turned out to be significant ($t=2.79$, $p=.005$, two-tailed). This scoring pattern, which occurs within 2.5 seconds, might be called an "evoked psychokinetic response" (EPKR).

Structure within the session turned out to be significant with regard to the variance effect: The first 10 and the especially the last 10 runs had higher intertrial variance in the visible run-halves, the opposite was the case in the middle 10 runs. The chi-square between these sections was significant (p=.007). Moreover, the difference between run-halves with regard to scoring in the target direction revealed a decline over the session, with a significant (p=.03) chi-square between the three sections of the session. Some dependencies on the time-of-day were found: The U-curve (EPKR-) pattern was significantly present in the morning (p=.006) and in the afternoon sessions (p=.005), whereas the EPKR-pattern was inverted in the evening sessions. The chi-square between parts of the day was significant (p=.02). Finally, runs which had been preceded by two runs with target high revealed significantly higher scoring in the visible than in the invisible run-halves (p<.001), whereas those runs which had been preceded by two low runs revealed a significant difference in the opposite direction (p=.025). Surprisingly, this difference in scoring level was accompanied by positive EPKR-curves in both conditions. In conclusion, the stratagem to avoid cognitive interference appears to have been successful, calling for replication of these findings.

Anomalous phenomena and the innocuous past

Peter Lamont
Koestler Parapsychology Unit
University of Edinburgh

ABSTRACT: In 1979, Jule Eisenbud complained of those who dismissed evidence for phenomena such as D. D. Home's levitations by consigning it to the "innocuous past". For the Victorians, however, such evidence was not in the past, and was therefore far from innocuous. There was, at the same time, a debate about the evidence for Christian miracles which, for an avowedly Protestant nation, were very much in the past. How the Victorians compared the evidence for these anomalous phenomena past and present is the subject of this paper. Biblical miracles enjoyed a unique status in terms of continued popular beliefs in their authenticity. As they came to be increasingly challenged by scientific thinking, their authenticity was increasingly defended in terms of internal rather than external evidence, that is, by an appeal to religious rather than scientific authority. The question of scientific versus religious authority on such matters was raised in the contemporary discussion about the efficacy of prayer. But if the debate about the efficacy of prayer reflected scepticism about ongoing Divine intervention, such scepticism was towards contemporary suspensions of natural law. It did not necessarily reflect scepticism about Biblical miracles and, alongside the ongoing theological debate, most individuals presumably held to a conventional Christian position that what the Bible said was true, and such a position arose from a Christian culture that continued to stress the historicity of Biblical miracles. When contemporary miracles were reported to be occurring in seances around the country, it was not long before they were being compared to the miracles of the Bible. The evidence for contemporary seance phenomena, however, was presented by spiritualists primarily in scientific language, and it was regularly admitted in the mainstream periodical press that the evidence for seance phenomena was better than

that for Biblical miracles. Spiritualists also defended seance phenomena in terms of their spiritual value, though the mainstream press dismissed them as trivial and worthless. Non-canonical miracles, such as those associated with Roman Catholicism, received similar treatment. Nevertheless, the growing awareness that the evidence for seance phenomena was superior to that for Biblical miracles challenged the unique status of Biblical miracles and prompted discussion about the subjective nature of belief. The fact that beliefs in Biblical miracles continued, while evidence for seance phenomena was overwhelmingly rejected, suggests the majority were simply adopting the cultural norm, rather than basing their beliefs on the evidence. Yet the tendency of Victorians to associate a variety of anomalous phenomena with areas beyond their own modern urban society suggests that such phenomena were deemed not only less problematic, but also more plausible, when kept at a safe distance.

DOCUMENTARY -- THE ART OF COMMUNICATION?

MIRIAM MOSS
KOESTLER PARAPSYCHOLOGY UNIT, UNIVERSITY OF EDINBURGH

ABSTRACT: This paper forms part of a PhD thesis on media and the paranormal, which aims to develop awareness of psychic phenomena within the public domain. It attempts to explore the linkage between the multiplicity of sociocultural debates around this subject as well as the relationship between its public representation and the interpersonal domain of the individual. This paper focuses specifically on television documentaries on the paranormal and how various debates surrounding the role and practice of the documentary, can be brought to bear on the debates surrounding both the actuality of paranormal phenomena and the practice of parapsychology as a science. I draw on both applied and academic sources from outside of psychology with which to illustrate the arguments. I focus on the role between audience and communicator and how institutional practices as well as social preconceptions inform the representational practices that are adhered to by the programme makers. I aim to draw out potential theoretical issues that pertain to documentary practice as they relate to the paranormal. I additionally aim to consider how they might be interpreted positively in a way that would benefit those of us attempting to present a view of the subject that attempts to navigate a course away from sensationalism and simplicity and provide coherent narratives of the material at hand. I particularly emphasise the role of the visual image and how it can be employed to provide alternative readings by differing audiences and how that ability is essential for programme makers in order to maximise their potential ratings figures. I am interested in exploring how it is possible within given media practices to allow space for scientific representation of a topic that is potentially placed outside such ambits - namely, the paranormal. I end by exploring the subtopic of realism in documentary, drawing out the dilemmas regarding categorising audiences of paranormal centred media material and how such dilemmas could impinge on programme content and representation as well as interpretative strategies employed by different groups within the audience. Included within this category, is the concept of psychological realism, which specifically focuses on social psychological dynamics prevalent within audience-communicator relations,

exploring notions of audience engagement, empathy and identification with respect to topics centred on the paranormal. The paper concludes by noting how the various arguments that are broached, could be of relevance to contemporary parapsychology. The slippage between fact and fiction within debates on the paranormal, I argue, leaves no clear space within which academic parapsychology can have a voice - a sociocultural problematic exploited by the media to its own representational ends. This selfsame slippage also has more positive outcomes, such as the ability to open discussions on the meaning and truth claims of science and the role of parapsychology within such discussions. Though, since these negotiations would take place within current sociocultural understandings of the paranormal and of parapsychology itself, it is by no means clear how parapsychologists can utilise such debates or whether they need to accept the current climate and attempt to make it work for them.

SUBJECTIVE PARANORMAL EXPERIENCES AND TEMPORAL LOBE DYSFUNCTION IN A NEUROPSYCHIATRIC POPULATION: ANALYSES OF REFINED PREDICTORS

JOHN PALMER
RHINE RESEARCH CENTER

VERNON NEPPE
PACIFIC NEUROPSYCHIATRIC INSTITUTE

ABSTRACT: Following on results reported at last year's PA convention, exploratory logistic regression analyses were conducted to uncover relationships between specific predictor variables and claims of subjective ESP experiences (S-ESP) among 100 neuropsychiatric patients of Neppe. Eliminating those who claimed S-ESP only rarely left an S-ESP group (N=53) to be compared with a No-S-ESP, or control, group (N=40). The predictors included gender, age, 16 individual items on a questionnaire (INSET) measuring symptoms of temporal lobe dysfunction, clinical and ambulatory EEG measures reflecting the location and type of anomalous EEG activity, measures of handedness and brain laterality, use of specific recreational drugs, and brain injuries. All variables besides gender were evaluated controlling for gender, and their interactions with gender were also calculated. The only significant predictors ($p < .10$, two-tailed) in the final model were gender, laterality, and (from INSET) the jamais vu item and 2 combined items reflecting primitive visual and auditory hallucinations. Specifically, the ESP group was characterized by right-lateralized females who scored high on the selected INSET items. A significant interaction was found between gender and a measure of EEG anomalies that occurred in the temporal lobes and sometimes extending to adjacent areas, but not generalized over the whole scalp. These anomalies were positively related to ESP in females and negatively in males. More refined analyses indicated that the effect for females was contributed entirely by activity other than slowing (mostly spiking, sharp waves, and bursts of fast beta or alpha) that occurred in the left hemisphere, sometimes extending bilaterally to the right temporal, or the frontal lobes. Redefining the temporal EEG variable in this way left the statistical significance of the reverse effect for males unchanged. Significant ($p < .10$) predictors of S-ESP in a regression model for females

(N = 65) were the revised temporal EEG measure, laterality, and visual/auditory hallucinations. The number of males in the sample (N = 27) was considered too small for a meaningful regression analysis. As far as the brain is concerned, S-ESP appeared to be most prevalent among right-lateralized females with relatively high-frequency EEG anomalies in their dominant (left) hemisphere. It is recognized that all these exploratory findings need to be cross-validated with a new sample before the results can be considered conclusive. Palmer subsequently interviewed 20 patients (18 female) from the ESP group to get a sense of the credibility of the S-ESP experiences they claimed, and whether they could detect any effect of anti-convulsant (A-C) drugs on the frequency of these experiences. He found that 13 of the 20 had credible experiences, 4 had marginally credible experiences, and 3 had non-credible experiences (2 of these 3 later told Neppe they had under-reported their ESP experiences to Palmer). Palmer found that 8 of the 14 patients who were taking A-C drugs claimed they suppressed the frequency of S-ESP, 2 claimed enhanced frequency, and 4 claimed no difference.

PSYCHOKINESIS EXPERIMENTS WITH HUMAN AND ANIMAL SUBJECTS UPON A ROBOT MOVING AT RANDOM[1]

RENÉ PEOC'H, M.D.
INSTITUT MÉTAPSYCHIQUE INTERNATIONAL

ABSTRACT: Starting in 1980, I have been conducting PK experiments using a system called the «Tychoscope», which was originally invented by the French engineer, Pierre Janin (1977). It is a small, self-propelled « vehicle », or robot, which integrates a random event generator (REG). The tychoscope movements are thus determined by the REG output, which makes it move in successive segments of random length and orients it according to random angles. A plotter attached to the robot traces a record of the movements.

Using this first tychoscope we were able to show that both animals – chicks in this case – and humans are capable of influencing the normally random movement of the device. While in the absence of a human or animal observer, the trajectories traced by the Tychoscope did not differ from those which would have occurred by chance, when a human subject wished to attract the robot in his direction, the difference compared to controls, was significant. The results with chick experiments were highly significant. In this case, we used the « imprinting » instinct, established by Konrad Lorentz, to condition baby chicks to adopt the Tychoscope as their mother. The results showed that the device would approach a cage full of conditioned chicks two and half times more often than an empty cage. By contrast, the movements remained purely random when the chicks were not conditioned to take the robot as their mother.

Following these successful experiments, we decided to extend the research with a second-generation Tychoscope, which separated the robot from the REG. In this later work, the REG was integrated into a computer, and the tychoscope's movements were

determined by remote-controlled signals from the computer.

Using this system, we tested the possible psychokinetic influence of 80 groups of 15 chicks on a randomly moving robot carrying a lit candle in an otherwise darkened room. In 71% of the cases, the robot spent excessive time in the vicinity of the chicks. In the absence of the chicks, the robot followed random trajectories. The overall results were statistically significant at $p<0.01$.

We then tested human psychokinetic action on the robot. A male subject attempted to attract the robot towards the left for thirty trials of 20 minutes each. The difference between these and control trials is significant ($p<0.005$). The same subject then attempted to push away the robot towards the right, over the course of 50 trials. Here too, we obtained a significant difference between experimental and control trials ($p<0.04$), but in the direction opposite the stated intention.

[1] This research was made possible through the generous support of the Fondation Odier de Psychophysique

ARE ESP AND PK ASPECTS OF A UNITARY PHENOMENON? A PRELIMINARY TEST OF THE RELATIONSHIP BETWEEN ESP AND PK

Chris A. Roe[1], Russell Davey[1] & Paul Stevens[2]

[1]Division of Psychology, University College Northampton
[2]Department of Psychology, University of Edinburgh

ABSTRACT: This study was designed to explore the relationship between ESP and PK performance by testing for both using a common protocol so as to control for expectancy effects and experimental artifacts. Forty participants completed a computer-based greyhound racing game. Races occurred in two blocks of 12, with one block ostensibly requiring ESP for success and the other ostensibly requiring PK. In fact, within each block half the races were ESP trials and half PK trials, presented in random order. Overall performance was at chance levels for both ESP and PK trials, for true and disguised trials. There were no significant relationships between performance in the four conditions. Although paranormal belief did not predict task success, some other individual differences measures, notably state and trait anxiety and religiosity, showed some promise. Further work is underway to attempt to confirm these findings.

Field Study of an Enhancement Effect on Lettuce Seeds- Replication study

S.M. Roney-Dougal, Psi Research Centre,
J. Solfvin, American Schools of Professional Psychology

ABSTRACT: In parapsychology there is a classic healing experiment in which seeds are stressed, and then randomly assigned to either a healing or control group (e.g. Grad, 1963, 1964). Several of these studies have found that there is greater germination rate and growth in the healed group.

A field trial, using this basic design, was run in 2000 on an organic farm (Roney-Dougal & Solfvin, in press). In this experiment, the healthy organic seeds were not stressed beforehand, and the healer was asked to enhance the seeds for enhanced germination, greater growth and better health. Only the third aspect gave significant results with the plants grown from the enhanced seeds having less fungal disease ($F(3,24) = 3.13$, $p = .044$).

This replication study has two primary hypotheses: the "enhanced" seeds will have greater growth and better health, than the controls. There were seven trials beginning in April, the final harvest being in December. We used a randomized double blind design with four treatment conditions: one jar of seeds (HX) was "enhanced" by the healer while a control person mimicking his actions with a second jar (NH) and two jars (C1, C2) remained untreated on the table. After an assistant randomly relabelled the jars ("A", "B", "C", "D"), the seeds were germinated in trays in a polytunnel, planted out after three weeks, and (about 10 weeks later) harvested in two sections, half of each group (row) one week, and the other half a week later. Each lettuce was weighed upon harvesting and after trimming, rated for slug and fungal damage, and sent off to market.

Only five trials (plantings) were conducted, owing to two trials that were not planted out in time. The enhanced seeds produced a heavier crop with less damage, but the planned (rank) analysis is insufficiently powered with the reduced number of trials, and a more appropriate analysis was substituted. Adapting from previous studies (Braud & Schlitz, 1991) of "intentionality" effects on biological systems, z-tests and effect sizes were computed for the enhanced (HX) group for each harvest, and Stouffer's Z method to combine them across the five plantings (trials).

The analysis showed that the enhanced (HX) seeds produced lettuces with gross and net weights significantly larger than chance expectation, with average effect sizes in the .10 to .20 range. The second hypothesis was also confirmed by significantly reduced slug and fungal damage, with slightly smaller average effect sizes than the growth measures. Moreover, the enhanced seeds yielded about 10% more crop (by weight) during the season than any of the other three treatment conditions, suggesting a practical value for the commercial farmer. This is good news for organic farming where the lack of fungicide and artificial fertiliser can result in a lower yield.

Is there time-reversed interference in Stroop-based tasks?

Louie Savva
Christopher C. French
Goldsmiths College, University of London

ABSTRACT: This paper outlines three experimental studies that were conducted to test the idea that there is precognitive, time-reversed interference (TRI) in Stroop-based tasks, as first suggested by Klintman (1983). The normal Stroop paradigm shows faster reaction times for naming the ink colour of a colour word, when both ink colour and meaning are congruent, compared to when they are incongruent. Radin (1997), in describing the work of Klintman (1983), claimed that Klintman had found faster reaction times naming the colour of a coloured block when it was followed by a congruent colour word than when the coloured block was followed by an incongruent colour word (i.e., a precognitive effect). Study I was a direct replication of Klintman (1983), where the reaction times to name a coloured rectangle followed by a colour word were recorded via a voice-key. Forty participants contributed 1371 accurate trials. To test the TRI hypothesis as based on Radin's description of Klintman's findings, a t-test was used and no TRI effect was found. However Klintman's published hypothesis differed subtly from the oversimplification by Radin. Klintman's published hypothesis was tested, using the analysis that Klintman had developed (which only made use of 4 data points for each participant), and a TRI effect was shown in the data, but in the opposite direction to that predicted. Finally using a Camfferman-style of analysis (which was based on the Klintman analysis, but made use of all of the recorded data) a significant TRI effect was found, in the predicted direction. No normal Stroop-based effect was found, possibly reflecting the fact that the task used was a variation on the normal Stroop paradigm. The varied results of Study I are mainly a consequence of the different analyses used. Study II was a replication of Study I, but replaced the voice-key with keyboard responses. Fifty participants contributed 927 accurate trials. Unlike Study I, no TRI effect was found, although a normal Stroop-based effect was found. Study III was a significant deviation from the previous studies in that it was an attempt to test the pre-sense theory of psi by making use of the emotional Stroop paradigm. The pre-sense theory of psi (as first suggested by Thouless & Weisner, 1946) presents a possible mechanism for the evolution of a psi-sense. The adaptive potential of precognition (specifically precognition related to death avoidance) is obvious. As phobias could be interpreted as an evolved behaviour to prevent an individual coming into contact with a dangerous situation and therefore risking death, a spider-based emotional Stroop task was used to test the hypothesis that spider phobics should show TRI (as described by Radin) when processing spider words compared to non-spider phobics. Fifty-four participants contributed 4034 accurate trials. The results of Study III revealed no paranormal, TRI effect, but a normal colour-congruence effect was found. The conclusions of all three studies are discussed in relation to the different analyses and the need for further replications making use of the three types of analysis is emphasized.

Remote Intention on Electrodermal Activity – Two Meta-Analyses

Stefan Schmidt[1], Rainer Schneider[1], Jessica Utts[2] & Harald Walach[1]

[1]Institute of Environmental Medicine and Hospital Epidemiology,
University Hospital Freiburg
Hugstetter Str. 55,
79106 Freiburg, Germany
Tel. ++49-761-270-5494;
Fax. ++49-761-270-7224;
email: sschmidt@ukl.uni-freiburg.de

[2]Department of Statistics, University of California
One Shields Avenue; Davis, CA 95616, USA

ABSTRACT: In the experimental paradigm known as direct mental interaction between living systems (DMILS) two isolated participants try to interact with each other using no conventional means of communication. One participant is housed in a sound-proof chamber and electrodermal activity (EDA) is continuously recorded. The other participant has the task to either activate or calm the other person by means of intentions only. Several epochs with varying conditions (activate, calm or rest) are presented in a randomized order. For evaluation tonic EDA data of the calm condition are compared with that of the activate condition. In a similar experiment called Remote Staring the same set-up is employed to research the 'feeling of being stared at'. One participant is sitting in front of a video camera while EDA is continuously recorded. The other participant gazes at this video image at a distant location. Observation epochs and control epochs are presented in a randomized order. For evaluation EDA data of the two conditions are compared.

Earlier meta-analyses (Schlitz & Braud, 1997) showed medium effect sizes (r=.25) for both experiments but these results have been undermined by a critique of the EDA methods, applied statistics and randomization procedures. Furthermore a substantial number of larger studies were conducted in recent years. Two meta-analyses were conducted to research whether there are significant mean effect sizes and to find out whether methodological shortcomings might have been responsible for earlier positive results.

Forty experiments with 1055 sessions were found for the DMILS meta-analysis and 15 (379 sessions) for Remote Staring. All experiments were coded on a coding list containing more than 200 items. Unclear items were coded by a second, independent rater. Several methodological quality indices were constructed and the experiments were rated according to these indices.

For the DMILS meta-analysis the first statistical model yielded strong negative correlations between effect size and methodological quality. As a consequence, four methodologically weak studies were then excluded from the analysis. Sensitivity analyses

on the remaining data set showed that a statistical model where the effect sizes are weighted for sample size and methodological quality, fits the data best. We found a small mean effect size of d=0.11 which was highly significant (p=.001). This finding is undermined by a best-evidence-synthesis of seven studies with the highest methodological standard, which show a smaller, non-significant mean effect size (d = .05).

The Remote Staring data set proved to be homogenous and showed no negative correlations with study quality. After a correction for sampling error it yielded a mean effect size of d=0.13 (p=.01) and confirms the positive finding from the first analysis. An exploratory analysis showed a significant decline of effect sizes over time (r=.70, p<.01). The obtained effect sizes are much smaller than in earlier analyses. For the DMILS meta-analysis it has to be assumed that some of the effects reported earlier are due to artifacts and shortcomings. However, we conclude that there are still some hints for the existence of an effect of remote intention but independent replications are needed.

A pilot investigation into sensory noise, schizotypy, and extrasensory perception

Christine A. Simmonds and Jezz Fox
Liverpool Hope
Hope Park
Liverpool
UK

Author note: This study formed part of the testing of the DigiGanz autoganzfeld system. We would like to thank the Bial Foundation for funding the development of this system. We would also like to thank the PA reviewers for their valuable comments on an earlier draft of this paper.

ABSTRACT: This paper reports the findings of a pilot study in which a novel experimental protocol employing a combination of visual and auditory noise was used. The exploratory nature of the investigation also allowed for two other issues to be considered, these being the relationship between schizotypal personality and ESP performance, and a comparison of methods of rating during the judging period (similarity between mentation and the target, confidence of target identity and experimenter rating of target identity).

For both types of participant judging, there was no psi hitting effect. For similarity, the hit rate was 10% compared to the 25% that would be expected by chance. A sum of ranks analysis revealed a significant psi missing effect: z =2.4, p < .016 (2-tailed). For confidence, the hit rate was 20% and a sum of ranks analysis revealed a trend toward a psi missing effect, z = 1.8, p = .072 (2-tailed). For experimenter rating, the hit rate was 35%; the sum of ranks analysis resulted in a value of z = -1.0, p= .317 (2-tailed). By performing correlations between the amount that people liked the clips and the similarity and confidence ratings awarded to the target, it was found to be the case that people did

not select targets based on their subjective liking of that clip (for similarity, r= -0.06 p > .8, for confidence, r = 0.135 p >.6). With regard to personality, correlations were examined between 2 of the rating measures (confidence and similarity) and the following personality variables: Unusual experiences, Cognitive disorganisation, Introvertive anhedonia, Impulsive nonconformity, and Temporal lobe lability. Of these, one significant correlation was demonstrated, this being between impulsive nonconformity and ESP (confidence), r = -0.59, (p<.01). The implications of the findings are discussed, particularly in relation to state/trait preference for psi performance and Palmer's (e.g. 1997) magnitude-direction theory.

In terms of the use of the visual noise paradigm, the authors maintain that despite the psi-missing observed from the present implementation, it is a technique that merits further attention. From the study, both authors are under the impression that the mentation provided by receivers is similar, and possibly indistinguishable, in nature from ganzfeld mentation and therefore that this approach may be of use in the investigation of ESP. Also, casual observations in relation to the protocol, such as the need for a relaxation period to help in the transition between 'every-day alertness' and an 'ESP mentality' have provided pointers that may assist in the development of a protocol that is psi-conducive rather than one that results in psi-missing.

Trait, state and psi: An exploration of the interaction between individual differences, state preference and psi performance

Christine Simmonds
Liverpool Hope, Hope Park, Liverpool, UK

Author note: I would like to thank the Society for Psychical Research who kindly funded this project. I would also like to thank the PA reviewers for their comments on an earlier draft of this paper.

ABSTRACT: In the spontaneous case literature, subjective paranormal experiences are reported in both waking and altered states of consciousness. In laboratory investigations of psi, the ganzfeld paradigm has been employed to induce a psi-conducive state, which is similar to the hypnagogic state of consciousness. Comparisons between the ganzfeld and a control are rare in the literature, and as such this paper employs a within participants design to compare psi performance in the ganzfeld (an automated digital ganzfeld system recently set up at University College Northampton (UCN), UK) and a waking state control condition. The ideas that individual differences exist in a). baseline state of consciousness and b). preferred state of consciousness for optimal psi performance were also considered. For example, although hypnagogic experiences can occur during the waking state among everyone, it seems that those scoring high on scales measuring positive schizotypy may be more prone to experience the hypnagogic state whilst awake. Their baseline state of consciousness may be altered compared to other individuals. In line with LE Rhine (e.g. 1961), it is suggested that individual differences may exist in preference for state of consciousness for optimal psi performance. For

example, positive schizotypes may be already in a psi-conducive state in the waking state. Other individuals may need ganzfeld stimulation in order to enter a psi-conducive state. The relationship between personality (the schizotypy construct, consisting of unusual experiences, cognitive disorganisation, introvertive anhedonia and a scale measuring temporal lobe lability were employed), state of consciousness and psi performance was addressed by addressing correlations between personality and psi performance in the ganzfeld and waking control. A sum of ranks analysis failed to find a significant psi effect for either the ganzfeld ($z = .53$, $p=.298$) or waking control condition ($z = .70$, $p=.242$). Where psi performance was measured as an interval level variable (z score of target rating), in the ganzfeld this was found to be significantly greater than the level expected by chance ($t = 3.763$, $df = 25$, $p< .001$, 2-tailed) and compared to the waking control condition ($t = 3.322$, $df = 25$, $p<.003$, 2-tailed). As such, the interval measure of psi may be more informative. Personality variables related non-significantly to psi performance in both the ganzfeld and waking control conditions. There was some indication of differences depending on state, which is considered to be worthy of further investigation. A cluster analysis, to address personality scoring profiles, demonstrated a trend that positive scoring schizotypes are particularly prone to elevated psi performance in the ganzfeld condition and that this is particularly the case where there are no accompanying negative traits of schizotypy. This research supports the ganzfeld as a psi-conducive method and also lends some support to the idea that there may be relationships between pre-existing trait and state preference for psi performance. It also supports the assessment of psi performance in relation to a personality profile of different scores on different personality scales, as here there is more than one type of positive scoring schizotype which exhibit different relationships with psi performance.

The Psychology of the 'Psi-Conducive' Experimenter

Matthew D. Smith and Michael S. Gordon
Psychology, Liverpool Hope

ABSTRACT: The 'experimenter effect', in which some experimenters are consistently more successful than other experimenters in obtaining evidence for psi, continues to be a major challenge for modern parapsychology. The term 'psi-conducive experimenter' has been adopted to refer to a consistently 'successful' experimenter, whilst an experimenter who has been consistently 'unsuccessful' in obtaining psi effects is typically described as 'psi-inhibitory'. This paper reports on a questionnaire study that sought to examine the extent to which 'psi-conduciveness' could be predicted on the basis of personality data, attitudes towards psi, whether one practises a mental discipline and whether one has had any personal psi experiences. Fifty researchers were identified who had acted as an experimenter in at least one published parapsychology experiment and who were likely to be able to be contacted by the researcher either in person or by email. Of these, 40 (29 males, 11 females; age range 30-89; mean = 52.0, sd = 14.19) completed and returned questionnaire booklets that included the Keirsey Temperament Sorter and a six-item questionnaire asking about attitudes towards psi in which participants were required to indicate their agreement or disagreement with each of the six statement on a seven-point scale (where 1 = 'strongly disagree' and 7 = 'strongly agree'). These statements were:

‘Extra-sensory perception (ESP) is possible’, ‘I have some ESP ability’, ‘It is possible to demonstrate ESP ability in an experimental study’, ‘Psychokinesis (PK) is possible’, ‘I have some PK ability’, and ‘It is possible to demonstrate PK ability in an experimental study’. They were also asked to indicate whether they had ever practised a mental discipline and whether they had ever had any personal psi experiences.
Participants were also asked to rate the 50 named researchers according to whether they considered them to be ‘psi-conducive’ or ‘psi-inhibitory’. Ratings were made using a seven-point scale ranging from 1 (‘definitely psi-inhibitory’) to 7 (‘definitely psi-conducive’). The mid-point on the scale was labelled ‘neither psi-conducive nor psi-inhibitory’. For the purpose of this study, a ‘psi-conducive’ experimenter was defined as ‘someone who consistently obtains positive evidence for psi’, whilst a ‘psi-inhibitory’ experimenter was defined as ‘someone who consistently does not obtain positive evidence for psi’. If the participant felt unable to comment upon any particular researcher (e.g., if they were not aware of any of their work), they were allowed to indicate this by ticking a ‘don’t know’ box.

A forward stepwise multiple regression was carried out with the four personality dimensions measured by the Keirsey Temperament Sorter (Extraversion-Introversion, Sensing-Intuitive, Thinking-Feeling, Judging-Perceiving), the six aspects of attitudes towards psi, personal psi experience, and practise of a mental discipline as predictor variables and mean psi-conduciveness scores as the criterion variable.
There were significant effects of belief in one’s own PK ability (Beta = .48, $t = 3.19$, $p = .003$) and belief that it is possible to demonstrate ESP in an experimental study (Beta = .49, $t = 2.99$, $p = .005$) upon psi-conduciveness. Although extraversion and belief that it is possible to demonstrate PK in an experimental study were found to increase R2, these effects were not significant. The remaining variables had no impact upon R2.
We conclude that future research in this area should attempt to examine the direction of causality of these relationships.

A feedback-reinforcement model of dyadic ESP

Paul Stevens
Koestler Parapsychology Unit, University of Edinburgh

ABSTRACT: A model for certain instances of dyadic extrasensory perception (ESP) is proposed wherein a 'psi stimulus' is generated by the sender in response to real-time feedback of some aspect of a receiver's mentation, this stimulus acting to reinforce target-relevant aspects of that mentation. For example, in a sender-receiver Ganzfeld ESP protocol, the sender usually hears audio feedback from the receiver during the mentation period. When the sender hears mentation that they consider to be relevant to the target material, they will react in some way. This reaction is proposed to generate the psi stimulus. The receiver then, on some level, detects this stimulus and the theme of the concurrent mentation is reinforced. It is assumed that the receiver's unperturbed mentation is stochastic, though the degree to which spontaneous mentation will actually be random will depend on subjective biases. During the course of the mentation period, the reinforcement by the psi stimulus will act to develop a theme that should then

influence the final judgment of the receiver in choosing the correct target.

If the psi stimulus is postulated to have characteristics unique to the sender, an idea which has limited support from some micro-psychokinesis studies and anecdotal reports, then this would alleviate the problem of 'noise' i.e. interference from psi stimuli from people unrelated to the experience of interest. Based on this idea and on the effects seen in direct mental interaction with living systems (DMILS) research, then it seems reasonable to suggest that the psi stimulus relates directly to the physiological reaction of the sender on perceiving relevant mentation. Brain activity in particular does have consistent characteristics that are unique to the individual due primarily to 'hard-wired' neuronal structures that are consistent over long periods of time. However, the model itself does not depend on the psi stimulus being of any specific type. It would work as well with magnetic fields as with some more exotic stimulus. It would equally allow for sensory leakage to act as the reinforcing stimulus if the experimental conditions allowed it to occur. It simply allows a way of conceptualising some psi experiences in a way which reduces the need for complex information transfer, which may help in formulating testable predictions for future research. It also highlights the idea that psi may not be a unitary phenomenon but may instead be a blanket term for a variety of information channels utilising different mechanisms.

Experiments examining the Possibility of Human Intention interacting with Random Number Generators: A Preliminary Meta-Analysis

Fiona Steinkamp[1], Emil Bolle[2] and Holger Bösch[3]

[1]Koestler Parapsychology Unit at Edinburgh University
[2]Institute for Border Areas of Psychology and Mental Hygiene, Freiburg i. Br.
[3]University Hospital Freiburg, Department of Environmental Medicine and Hospital Epidemiology

ABSTRACT: This paper builds and expands on three previous meta-analyses conducted in the same area (Radin & Nelson, 1989; Radin, 1997; Radin & Nelson, 2002). It surveys the historical background of random number generator (RNG) experiments and outlines the main findings of the prior meta-analyses. It examines (a) the existence of a potential correlation between human intention and the output of a RNG; (b) the relationship between study size and effect size; and (c) potential moderator variables.

The analyses were restricted to studies investigating the correlation between direct human intention and the concurrent output of a RNG, and in which the chance expectation of a hit could be calculated. The 357 experimental studies and 142 control studies both yielded the same effect size of p = .50003, although the effect size from the control studies went down to p = .49999 once one large control run reporting a significant effect had been removed. There was a significant, non-linear correlation between effect size and study size (p = .0001), indicating that any experimental effect comes primarily from smaller studies. A sensitivity analysis showed that only 67 studies, each with an average of 2366 bits, would be required to bring the database down to non-significance. Thus just

a few studies could potentially change the conclusions from this meta-analysis. The experimental database was extremely heterogeneous (c2 = 1442.90, p = 1.44-130).

Initial analyses on moderator variables yielded at best weak evidence for better performance with (i) selected participants; and (ii) RNGs based on a radioactive source. Homogenous studies using auditory feedback performed significantly better than those using visual feedback (N = 183, z(diff) = 5.52, p = 1.6-8). The meta-analysis clearly suggested that studies with graphic feedback should be avoided; from the outset these studies were clearly homogenous and at chance. There was some support for Data Augmentation Theory (DAT), with homogenous studies in which a human started the RNG performing better than those in which the RNG was started automatically (N = 175, z(diff) = 5.50, p = 2.2-7). Nevertheless, for both the auditory feedback studies and the studies in which a human started the RNG, there were significant correlations with the safeguard variable of post-hoc selection of the data (auditory feedback N = 35, rho = -0.40; human selection, N = 142, rho = -0.15). Thus, the difference in performance in these subsets may not be as robust as one might first think. Moreover, most auditory feedback studies used radioactive RNGs, bit-by-bit feedback and usually presented the bits at a slower rate to the participants. Because all these variables are interlinked it is difficult to say which, if any, is primarily responsible for any effect. More detailed and sophisticated analyses are planned in future work.

The Variability-Related Aggregation of Partial Results and its Application to Concrete Psi Experiments

Ulrich Timm and Emil Boller
Institut für Grenzgebiete der Psychologie und Psychohygiene, Freiburg, Germany

ABSTRACT: It is obvious that the results of many psi experiments vary intra- and inter-individually and also intra- and inter-experimentally to a statistically significant degree. Under these circumstances the simple addition of hits, carried out over all experimental segments and Ss, is an inefficient method of statistical evaluation. The increase of variance and the corresponding decrease of statistical power will become particularly strong, when the psi effect varies bi-directionally between hitting and missing. In this case it is even possible that positive and negative partial effects cancel each other out and the overall deviation drops to zero. Usually, however, the tendency towards hitting may prevail so that for the partial results a small shift of the mean together with an increased variance is to be expected. Hence, for most psi experiments a method of aggregation is recommendable which simultaneously is sensitive to alternations of mean and variance. Such a method can be called a variability-related aggregation.

In contrast to this, the conventional evaluation should lead to many experiments in which no overall significance results, although real psi effects may have occurred in them. In fact this prediction is fulfilled in practice. Many parapsychologists report that in an experiment no "overall effect" could be detected, but at least one partial psi effect would be verified since some partial results would be clearly significant. Unfortunately, their selective significance tests are invalid due to a systematic underestimation of the alpha

error. In many previous publications, Timm has pointed out that in every psi experiment the superordinated null hypothesis, that in the whole experiment no psi effect has occurred and all partial results are caused by chance, must be rejected. Consequently a global significance test must be successful before the partial results can be tested separately with the usual test. More generally, Timm has proposed a hierarchical test procedure, according to which a partial result may be declared significant only when, besides itself, all superordinated results are significant.

In order to increase the power of such global significance tests, the variability-related aggregation proves to be amazingly successful. The principle of this technique is to transform the original z?scores on any experimental level (e.g. runs, Ss) into scores with a skewed chi2-distribution (df=1). These can be summed up and evaluated as simply as the original z-scores. By means of this transformation the extreme scores get a relatively larger weight so that one can speak of a weighted summation (WS). Several modifications of the WS are possible depending on, whether an one- or a bi-directional variability is assumed. Also the traditional calculation of the so-called run score variance is one of these methods.In 1997 Timm extended the WS to the hierarchical weighted summation (HWS), in which - in a cumulative manner - the results of WSs on lower experimental levels (e.g. of runs) undergo a new WS on a higher level (e.g. of Ss), until a single overall result has been reached. This technique has additional statistical advantages. In 2000 the authors applied it to a series of 5 REG-PK experiments: The overall result increased from p = .34 to p = .013.

On cumulative effects and averaging artefacts in randomised S–R experimental designs

Jiri Wackermann*

Dept. of Empirical and Analytical Psychophysics
Institut für Grenzgebiete der Psychologie und Psychohygiene e.V.
Freiburg i.Br., Germany

* Author's address: Dr. J. Wackermann, Institut für Grenzgebiete der Psychologie und Psychohygiene, Wilhelmstrasse 3a, D-79098 Freiburg i. Br. (Germany). Tel.: +49-761-2072171, fax: +49-761-2072179, e-mail: jw@igpp.de

ABSTRACT: Experimental studies into physiological correlates of anomalous cognitive processes (precognitive ESP) or alleged anomalous physiological responses (‘presentiment’) share a common stimulus-response paradigm. The key components of the experimental strategy are (a) selective averaging of a state variable computed selectively across events of two types (‘hits’ vs ‘misses’, ‘emotional’ vs ‘neutral’), and (b) stochastic independence between subsequent events, achieved by randomisation of the stimulus sequences. It is tacitly assumed that, given the null-hypothesis, the mean expectancy of the difference between the conditional averages is zero; ‘significant’ non-zero differences are then interpreted as indicative of relations between the physiological state and the future event, i.e., of anomalous effects.

This research strategy is untrustworthy and artefact-prone when applied to experimental designs where working memory or expectation effects may play a role. Although the very fact of averaging artefacts due to cumulative effects cannot be denied, practising researchers often tend to ignore the risk of false data-based conclusions, partly due to incomplete understanding of the problem, and partly due to invalid proofs.

In the present paper, the existence of the averaging artefacts is demonstrated on a simple accumulate-and-reset model with a linear accumulation function (so-called 'dinners model'). Combining numerical and analytical approaches, it is shown that (i) the averaging artefact is really present even with 'perfect' randomisation and is not due to inadequate sampling; (ii) the artefact occurs even in 'balanced' experimental scenarios with equal probabilities of events of both types; (iii) the artefact is non-zero for any finite number of stimuli N, and vanishes only asymptotically at the rate N–1. The analytical approach developed in the paper indicates how detailed analyses of more realistic, complex systems may be carried out.

Averaging artefacts may play a critical role in any experiment involving physiological responses to randomised sequences of stimuli, and can be especially dangerous where the experimental technologies comprise built-in averaging and statistical comparison procedures. Future research should focus on methods to estimate the parameters of the accumulation function in parametric models, on design of statistical procedures to test and separate the pseudo-effects from real effects, and on numerical studies of the properties of such methods. Researchers should resist the temptation of far-reaching conclusions until their data analyses are safeguarded against statistical artefacts.

EXPERIMENTER EFFECTS WITH A REMOTE FACILITATION OF ATTENTION FOCUSING TASK: A STUDY WITH MULTIPLE BELIEVER AND DISBELIEVER EXPERIMENTERS

Caroline Watt
Department of Psychology, University of Edinburgh

ABSTRACT: The paper reports the fourth study in a series investigating experimenter effects with a remote facilitation of attention focusing psi task. The "helpee" is asked to focus attention on a candle, and to indicate by pressing a button whenever they feel distracted. The number of distractions forms the dependent variable. Simultaneously, in a distant room, the "helper" follows a randomised counter-balanced schedule of 16 one-minute "help" and "control" periods, consisting of 4 help-control, and 4 control-help pairs. During the help periods the helper focuses on a similar candle and attempts mentally to assist the helpee to focus. A remote influence effect would consist of the helpee having fewer distractions during the help periods, compared to the control periods. Session questionnaires measured participants' belief in the paranormal, their expected and perceived success at the psi task, and asked them to evaluate their experimenter's warmth, professionalism, ability to instil confidence in the task, and belief in the paranormal. The present study also measured the experimenters' personality, and

performance on two cognitive tasks: Ravens' advanced progressive matrices, and a syllogistic reasoning task. The study consisted of two parts. Firstly, "trainee experimenters" were recruited on the basis of their belief or disbelief in the paranormal, as measured by questionnaire. Nine psi believers (mean belief score = 70, SD = 4.24) and five psi disbelievers (mean belief score = 28.6, SD = 6.11) were individually trained how to conduct a session incorporating the remote focusing psi task. Secondly, an additional 18 participants were recruited, each of whom was asked to bring a friend. The trainee experimenters each conducted at least one psi session with one participant pair. Participants swapped roles so that each was helper once and helpee once, so for each psi session there were two psi trials. Results: Overall, the mean number of Help presses (12.03, SD = 11.34) was significantly lower than the mean number of Control presses (13.47, SD = 11.32); related t = 2.085, p = .02, 1-t, df = 35; effect size r = 0.33. This indicates an effect of remote facilitation on the focusing task, with participants showing significantly fewer distractions during the epochs when they were being remotely helped compared to the control epochs. It was also predicted that those participants tested by experimenters who were psi believers would have higher scores on the psi task than those who were tested by disbeliever experimenters. The results supported this prediction: The overall significant psi effect in this study is entirely due to those participants with believer experimenters, who have independently significant psi scoring (effect size r = 0.50). Those in the disbeliever experimenter condition scored at chance (effect size r = 0.07). These effect sizes differ in the predicted direction to a marginally significant degree (Z = 1.202, p = .0575, 1-t). There were no significant differences between participants or experimenters on the questionnaire measures. These findings tend to implicate an experimenter psi effect rather than an experimenter interaction effect, in parapsychology's experimenter effect.

Psi, perception without awareness and false recognition

Stuart Wilson and Robert L. Morris
Department of Psychology, University of Edinburgh

ABSTRACT: Many parapsychologists consider psi to be an unconscious process, and, over the years, comparisons between psi and other unconscious psychological processes have been common. Perception without awareness (PWA) is one phenomenon that has attracted attention from parapsychologists due to the striking similarities it appears to have with psi processing (see, e.g. Schmeidler, 1986; Nash 1986 and Roney-Dougal, 1981, 1986). The two phenomena are similar at the subjective level, and appear to be similarly affected by certain variables, such as personality and situational factors. While many researchers have attempted to study psi and PWA, the field of PWA has undergone several methodological changes in recent years, of which many parapsychologists may not be aware. These developments were necessary in order to obviate many of the criticisms that had been made concerning the nature and measurement of allegedly 'subliminal' stimuli. As such, new methodologies in PWA have superseded many of the traditional approaches, leaving much of the parapsychological work in the area outmoded. The present paper describes two experiments aimed at bringing comparisons between PWA and psi up to date. The

authors believe that this is necessary if any meaningful comparison between the two is to be made. The current paper looks at the effect of both PWA and psi information on recognition memory. If it is true that the processing of psi information and unconscious perceptual information are comparable, then it would be expected that they will both influence cognitive processes in similar ways. The studies described make the comparison by looking at an effect that has been reliably demonstrated in the field of PWA, and then investigating whether a similar effect can be obtained using psi as a supposedly unconscious stimulus.
Experiment 1a is a replication of an established effect in the field of PWA. Participants were presented with a list of nouns before taking part in an old/new recognition test. It was found that if a 'new' test word was preceded by a biasing stimulus consisting of the same word for 50ms, then participants tended to classify the new word as 'old'. This is known as the 'false recognition' effect. Experiment 1b attempted to obtain a similar effect using psi as a biasing stimulus. This experiment involved displaying random 'new' words to a sender, who attempted to induce false recognition in the receiver by influencing them to respond 'old'. No significant effect was found, although a non-significant gender interaction was observed. Results are discussed and future directions are suggested.

Belief in the Paranormal, Cognitive Ability and Extrasensory Perception: The Role of Experimenter Effects

Richard Wiseman
Department of Psychology, University of Hertfordshire
Caroline Watt
Department of Psychology, University of Edinburgh

ABSTRACT: It has been claimed that experimenter effects may account for inconsistent findings in the study of cognitive correlates of paranormal belief and in extrasensory perception (ESP) research. Skeptical investigators have generally found a negative correlation between cognitive ability and paranormal belief, but other investigators have failed to confirm these findings. In ESP research, skeptical investigators often find no evidence for ESP, whilst some psi proponents seem consistently to obtain positive evidence for ESP. Perhaps these inconsistent results may be due, in part, to the experimental context influencing participants' responses during the session. The present study investigates these two strands by having two experimenters with differing attitudes towards the paranormal (RW and CW) each administer to 30 participants a paranormal belief questionnaire, two tests of cognitive ability (a syllogistic reasoning task and Raven's matrices), and an ESP task. Participants were allocated to RW or CW in a counter-balanced fashion. The experimenter's initial chat with participants was video-taped, then the experimenter administered the questionnaire and cognitive tasks to participants. Then each participant did the ESP task, which was video-taped. For this, the experimenter interviewed the participant and asked them to give their impressions of a short randomly-selected video clip that they would be shown at the end of the session. A single set of five target possibilities was used throughout the study. The experimenter ranked these according to their similarity with the participant's impressions, then

discovered the identity of the target clip for that session and played it to the participant for feedback. Results: For all 60 participants, a significant negative correlation was found between paranormal belief and syllogisms performance ($r = -.28$, $N = 59$, $p = .03$, 2-t). This correlation was attributable to just one of the experimenters (CW, $r = -.45$, $N = 30$, $p = .01$, 2-t; RW, $r = -.08$, $N = 29$, $p = .70$, 2-t), and the experimenters' correlations significantly differed on two of the belief sub-scales (traditional religious beliefs, and spiritualism), thus demonstrating an experimenter effect for this measure. No correlation was found between paranormal belief and performance on the Matrices task. Additional post hoc analyses were conducted to clarify the mechanism underlying the belief-cognitive ability correlation. A median split was used to divide participants into believer and disbeliever groups. There was no significant difference between the belief scores of CW's vs RW's believers, nor between CW's vs RW's disbelievers. Therefore there was no indication that participants were shifting their belief scores during the session. CW's and RW's believers differed on their mean syllogisms scores ($t[28] = 2.16$, $p = .04$, 2-t), while CW's and RW's disbelievers did not differ in their syllogisms scores ($t[27] = .47$, $p = .64$, 2-t). This suggests that in this study it was the psi believers who were shifting their performance on the syllogisms task. A similar pattern was found post hoc for the matrices task. No evidence was obtained of ESP, nor was there any evidence of an experimenter effect for the ESP task.