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EXPERIMENTER EFFECTS IN ESP RESEARCH.

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ABSTRACT OF THESIS

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Title of Thesis EXPERIMENTER EFFECTS IN ESP RESEARCH.

The experimenter effect is considered to be a central problem impeding the progress of research in parapsychology. A review of the literature suggests most if not all the findings of ESP research are experimenter dependent. The evidence for experimenter effects both in psychological and parapsychological research is presented; that in psychology is found to suffer from several methodological and statistical flaws, while that in parapsychology is found to be impressive but largely anecdotal and post-hoc. A critical appraisal is made of the 'interpersonal theory' of experimenter effects. Five possible factors or areas of interaction which may mediate the effect are designated. These are : experimenter expectancy, spontaneous subjective states, experimenter personality, rapport, and experimenter psi. The evidence for these mediating factors is presented in detail, along with the hypotheses formulated from it and the research done to evaluate the hypotheses. The research method involved a diverse program of pilot and follow up studies and encompassed the testing of a special high scoring subject by experimenters, group testing methods, questionnaire studies, and experimenter comparison in the use of a sensory input attenuation technique (the Ganzfeld). The results although equivocal in some areas gave little support for four of the factors being as critical as claimed. It was concluded that psychological factors traditionally regarded as conducive to ESP, are probably not necessary and sufficient factors for its occurrence. The fifth factor, that of experimenter psi-mediation, received some support from a study of 'successful' experimenters. The theoretical implications of this are discussed in full along with current process and field models of ESP and some specific suggestions are made for further research in this context.

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CHAPTER 1 : INTRODUCTION

If for heuristic purposes alone we grant the existence of ESP, then it follows at least at a parapsychological level the experimenter is not isolated from the subject or from the results of his experiment His moods, expectancies, personality and possibly even his own psi abilities may be all part of the psychological milieu of the experiment which contributed to his results. The material reported here is then an attempt to study empirically some of the ways in which the experimenter in a parapsychological experiment can influence its outcome. In doing so it is also a theoretical attempt to elucidate some of the complexities and contradictions implicit in parapsychological research and suggest some new directions in which progress is likely to be made.

In view of the nature of this topic and its concern with expectancies it seems appropriate to begin with a declaration of my own expectancies in coming to it. I had two major sets of preconceptions. Firstly, I naturally supposed the topic to be an important and a much neglected one Further, in reviewing the parapsychological literature, it was soon apparent that there were numerous, albeit mainly anecdotal reports, which implicated the role of interpersonal factors in mediating the experimenter effect. Yet one of the most regrettable aspects of the present state of ignorance is that the effect has become used uncritically to explain one unknown (ESP) by another (the experimenter effect)

In amplification of the above statements, something needs to be said about the importance of the experimenter effect to parapsychology's status and future as a science. It lies in underpinning the repeatability problem; the notorious difficulty of replicating results in parapsychological research With little or no exaggeration, it can be said that an impasse has been reached where most of the findings (and even phenomena) do not seem to be independent of the experimenter and therefore not readily replicable. Obviously this is damaging to the progress of any science, but in parapsychology, where the phenomena are seemingly incomprehensible to begin with, it can be an anathema to scientific recognition. Several authorities have commented on the importance of this issue. Gardner Murphy (1971) writes :

"I am not at all pleading that replication is the one inescapable tag by which a scientific kind of reality can be affirmed. I am saying that if the event is unclassifiable, then it is doubly important that it have a rational interpretation, that is, one that fits with the thought patterns of the contemporary human mind. If it has no clear rationality its only chance of demanding scientific attention is replication ... and the weaker the one leg on which to stand, the more important it is that the other can bear the weight to be borne." (P.4)

This position has been reiterated over the years by John Beloff (1967, 1972, 1973a, 1973b). He states (1973b) :

"The Rhine revolution, in short, proved abortive. Rhine succeeded in giving parapsychology everything it needed to become an accredited experimental science except the one essential; the know-how to produce positive results when and where required."

Rhine himself has argued steadfastly that repeatability is not crucial to the progress of parapsychology. (See Rhine 1976, Beloff Broughton, and Millar 1976 for the most recent exchanges over this issue). His arguments appear to be based on the assumption that general repeatability (demonstrability of the phenomena) is sufficient and that specific repeatability will emerge as findings emerge. Besides a hint of tautology in the argument, there is unfortunately no sign of this happening.* An illustration of this at the individual level is the case of James Crumbaugh. His parapsychological career began in 1933 with a Master's thesis attempting to repeat the Duke University ESP testing techniques. He writes (1966) :

"I fully expected that they would yield easily all the final answers. I did not imagine that after 23 years I would still be as much in doubt as when I had begun." (P.524)

The lack of knowledge of how to produce or reproduce positive findings has had dire consequences on the history of psychical research in general. There has been a long succession of acclaimed breakthroughs in finding 'the repeatable experiment' A long list can be composed: attitude inventories, mood indices, physiological measures, hypnotic

* A more convincing claim for the level of replication in parapsychology being on a par with that in psychology has been made by Honorton (1975c). A major part of his case rested on the success of the Ganzfeld technique - a technique which was employed in the research to be reported here.

techniques, animal psi, alpha correlates, and, most recently, the use of psi conducive states of consciousness. Almost without exception this work has failed to fulfil its early promise. Psychiatrist Donald West commented on this curious situation in his Presidential Address (1965) to the Society for Psychical Research :

"Many times during the life span of this Society it has seemed that a decisive 'break through' in research has occurred and that swift developments, both theoretical and practical, must surely follow. Each time these hopes have been shattered by the failure of subsequent work to confirm or reproduce the initial findings, at least not in their original form. This sequence has happened so often, and the contrasts between earlier and later work have been so striking, that it seems a high degree of elusiveness is almost the only recognizable characteristic of ESP." (P.136)

It is being suggested here that the elusiveness lies not so much in the nature of the phenomenon itself but in the process; in the intricate and transitory nature of the human relationships it is dependant on, specifically that between the experimenter and subject.

A further regrettable consequence of the issue of replication has been the division of opinion among parapsychologists (and their critics). Those who can obtain positive results claim it is largely due to ineptitude in social skills that others can't, while those who can't will often conclude it is due to experimental incompetence in not eliminating artifact that others can! That an impasse has been reached is reflected in the public image of parapsychology. A recent survey by 'New Scientist' reported that only 9% of respondents believed that parapsychology was "making steady progress" while as many as 53% believed the subject was making "little if any progress". Yet 70% of the respondents believed ESP was probably a real phenomenon.

If it is accepted that the investigation of the subtleties of the experimenter-subject interaction is a priority area of parapsychological research, why is it also one of the most neglected? Despite the fact that on numerous occasions J.B. Rhine stressed the importance of social skills in the experimenter especially in motivating the subject, and pin-pointed this as underlying the difficulty in repeating findings (e.g. Rhine 1940), there was never during the thirty odd year history of the Duke Parapsychology Laboratory any major project to study this claim. Yet the first two volumes of the Journal of Parapsychology contain four articles in which apparent

experimenter effects on subjects' scores were reported. (Sharp and Clark 1937, Warner and Riable 1937, MacFarland 193 , Pratt and Price 1932). So the effect was obvious from the very beginnings of experimental research. Moreover the effect constantly reappeared in one form or another, often as post hoc analyses of data, throughout subsequent research right up to the seventies. Recently the situation seems to have changed. At the time of writing the author is aware of more than ten papers published or awaiting publication which are devoted entirely to the experimenter effect in parapsychology.

There seem to be historical reasons for this curious anomaly I shall suggest that it has largely resulted from the traditional concern of parapsychologists with eliminating artifact from their results. The early findings in experimental parapsychology were severely attacked on the grounds of allowing sensory cues and non-verbal hints to pass from experimenter to subject. So the initial research effort was directed towards disentangling the two effects and establishing the existence of ESP in its own right. It appears that, only when Rosenthal in the late sixties brought it to the attention of parapsychologists that hypotheses as well as data could be communicated in this way and influence the subjects' response, did the experimenter effect come back into focus as a core problem. Apparently by this stage researchers were less defensive about the existence of ESP and interest was now focused on the modus operandi of the phenomenon. Likewise, it is only a recent conceptualisation that some of the results in psi research might be due to ESP or PK (psychokinesis) from the experimenter. The notion that there could be 'high scoring' experimenters as well as subjects is something that by its nature took some decades to accumulate evidence for and requires a special climate to be considered seriously. Such a suggestion in the thirties would have been greeted with incredulity. Nevertheless this has also brought a new focus to the problem as well as added complexities. The work reported here is essentially an attempt to unravel some of these complexities, test out some of the predictions from various hypotheses, and to formulate some further approaches.

Pre-View of the Research Program

It was remarked earlier that a major 'expectancy' of the writer concerned the role of interpersonal factors in mediating the experimenter effect. Accordingly most of the research was geared towards evaluating this hypothesis.

Perhaps it should be admitted at this point that little consistent evidence emerged to suggest that such factors have the powerful and decisive influence that has been claimed for them. It seems also appropriate here to define exactly what is meant by an experimenter effect. As used here it refers to the effect that the involvement of a specific experimenter has on the subject's behaviour with regard to the hypothesis being tested. This is deliberately a wide definition in order to include effects that the mere presence of an experimenter has on the subject's behaviour and also effects in parapsychological research where his mere involvement (and not his physical presence) appears to have an effect on the subject's responses. It is also important to distinguish between what can be transmitted by sensory communication and what cannot. In this respect the use of the experimenter effect in psychology can refer to, or even sometimes be regarded as, artifact when the phenomena being tested can result from cues. Clearly its use in parapsychology is non artifactual in the sense that no cues should be present that could produce the phenomena (ESP or PK). In parapsychology the effect usually refers to the transmission of information relevant to hypotheses other than the psi hypothesis itself.

In designing a program of experimentation on the experimenter effect in ESP research, the two criteria given precedence were the techniques and strategies to be used. Foremost it seemed desirable to make use of such promising findings and techniques as can be culled from contemporary parapsychology. On this basis the most obvious candidate for application is the 'sheep-goat' test using belief versus disbelief in ESP in order to predict differential scoring (Palmer 1971). Likewise there seems little doubt that the most promising technique to date for psi induction is the Ganzfeld. This is a method of reducing perceptual input and promoting hypnagogic like imagery. The technique can claim a high degree of replicability (Honorton 1975a, 1975b) and was therefore used as a basis for a major project in comparing the performance of different experimenters. In addition to this, some standard psychological techniques were employed. For example, socio-psychological procedures were used to induce opposing expectancies in groups of experimenters, ratings were made from tape recorded extracts of the type of experimenter-subject interaction, and psychological tests and self report rating scales were applied to give other interpersonal and intra-personal measures.

It should be stated here that where applicable the method preferred was a phenomenological one. Thus the objective was to obtain experiential data by the use of self report scales, (e g scales measuring 'rapport' or spontaneous changes in subjective state) There were both theoretical and pragmatic grounds for this. Theoretically, it can be argued that the existence of psi abilities confers reality and importance to experiencing and consciousness (Beloff 1962). If this is true, it seems appropriate to use experiential methods to study psi abilities. On a pragmatic level, it can be said that although the method has only been used on a few occasions in parapsychological research, its yield to date has been very promising (Parker 1975c).

Another consideration was the inclusion of testable hypotheses derived from the parapsychological literature. The extant number of these is unfortunately few, but two of these were included. One was the 'change in state' hypothesis which predicts that ESP occurs in relation to shifts in the state of consciousness of the subject. The other was the 'response bias' hypothesis which predicts that the subject's unusual or rare responses are more likely to be vehicles of ESP than common or frequent responses. Some limited evidence was found in support of both of these hypotheses.

With regard to the overall strategy, a convergent program was favoured rather than a strict longitudinal one of pilot, confirmation, and follow up. Ideally the longitudinal type of series would have been preferred. One design that received serious consideration was the use of a multivariate analysis of interaction between groups of experimenters and subjects in which the predictor variables (for ESP performance) could be extracted and then replicated in a series of follow up studies. This would involve a 'Latin Square' type comparison with each experimenter taking each subject in turn together with a large battery of psychometric tests. Presumably then multiple regression analysis would reveal which variables in the experimenter-subject dyads go together to give the best prediction of ESP performance. Unfortunately, such a design really seemed to necessitate the involvement of a whole research team. It would evidently impose a heavy commitment on both experimenters and subjects to undergo such an exhaustive series of testing. Moreover, it was felt that in the present state of knowledge about the experimenter effect, it would be ill-advised to invest all research energies in one major study. If 'successful' experimenters prove as elusive

as successful ESP subjects, there would be a large risk of obtaining a matrix of chance values. However, a scaled down version of this was in fact used in part of the research. Twenty four subjects were rotated around three experimenters, each of whose 'track record' in terms of previous results was known. In order to increase the likelihood that ESP would occur as a variable, the Ganzfeld technique was used to induce a psi conducive state in subjects.

The general policy then was to pursue several lines of approach to the problem. In practice, this encompassed the testing of a special high scoring subject by experimenters, group testing methods, questionnaire studies, and the use of the Ganzfeld technique. Where possible a pilot study was followed up by an attempt at confirmation. The approach entailed the division of the experimenter effect into a set of manageable sub-problems or sub-areas for study. These were decided on, on the basis of suggestions from the research literature. The existence of the experimenter effect in ESP research was taken as a working hypothesis and five factors chosen as possible mediating variables by which the effect might be transmitted. These included four interpersonal or psychological factors: the expectancy of the experimenter (in terms of anticipated success or failure, and belief versus disbelief in ESP), the subject's state of relaxation (or internal focus of attention) with different experimenters, the personality of the experimenter, and the rapport between experimenter and subject. A fifth area of study was included and this was the experimenter's own psi ability in producing results vicariously through subjects. It is felt that this needs some immediate justification as a hypothesis. No definite or specific channel has ever emerged for the transmission of the experimenter effect within orthodox psychology, and Rosenthal himself has entertained the idea of psi as a possible mediating variable. Moreover, a review of literature provided some clear evidence that there were some 'high scoring' experimenters as well as subjects, and several effects that seemed difficult to explain on an interpersonal theory. In fact, during the period this work encompassed, the hypotheses of experimenter effect mediation have sharpened into a contest between an interpersonal one and a psi based one. At the outset my own bias was towards the interpersonal hypothesis. However the results, although equivocal in some areas, gave little support for this. It is felt that a diverse enough range of conditions was studied to conclude with some confidence that the presence of conducive psychological conditions is

not necessary and sufficient for the occurrence of ESP Surprisingly, some evidence was found to support the psi-mediation hypothesis Although this was hardly of an incontrovertible nature it was thought that together with the many findings that had accumulated in the literature, a strong case could now be made for this hypothesis Obviously this raises some intricate methodological problems An attempt to resolve some of these is made in the final chapter. It is also suggested there that the two hypotheses are not, as might be thought, mutually exclusive. Reviews of the literature and research provide the basis for the five preceding chapters, each one concerning one of the five possible mediating variables.

Undoubtedly these factors do not exhaust the wide range of possible psychological influence. But they are the ones by which parapsychologists have most often assumed the experimenter effect to operate. Before summarising what is known about the experimenter effect from parapsychological research, it seems appropriate to first report the findings from mainstream psychology. Undoubtedly the work Rosenthal has done has had a major impact on the thinking of parapsychologists and the current revival of interest in the experimenter effect. But Rosenthal's work has not remained unchallenged as we shall see in the next chapter.

CHAPTER 2 : EXPERIMENTER EFFECTS IN PSYCHOLOGY

It is almost impossible to mention research into the experimenter effect without mentioning the work of Robert Rosenthal His book 'Experimenter Effects in Behavioural Research' has become a classic in psychological literature and his work, if valid, has enormous implications for the subject. One of Rosenthal's major critics, Theodore Barber, has expressed what is at stake :

"If the Experimenter Bias Effect is pervasive - if Es inadvertently influence their Ss to respond in such a way as to confirm their expectancies or desires - a substantial proportion of the 'facts' of present day psychology would be open to question and many if not most earlier psychological investigations would need to be rerun to determine if the results were due to Es' biases."

(Barber et al 1969 P.1)

In order to specify the exact nature of the controversy, it is necessary to distinguish four types of experimenter effect, namely :

1. Observer Effects : These are cases in which a bias in the observer has led to inaccurate reporting or recording of phenomena.
2. Personal Attribute Effects : These are biosocial effects of the experimenters sex, age, status etc. on the subject's performance
3. Intentional Effects : These include deliberate biasing on the subject's responses and fabrication of results
4. Experimenter Bias Effect : This concerns unintentional effects of the experimenter on the subject's response. It is supposed by Rosenthal to operate by the use of subtle paralinguistic and kinaesthetic cues to communicate the expected response to the subject who then complies with this. It is over this latter effect that the controversy arises. It concerns whether 4 exists as a definite and separate effect from 3, and if so, whether it is pervasive or restricted to a few specific situations, namely those involving ambiguous stimuli.

THE EVIDENCE FOR AN EXPERIMENTER BIAS EFFECT

Rosenthal (1966) presents a large number of studies that apparently support the existence of the experimenter bias effect. The two classical experiments among this were the maze dull and maze bright rats, and the person-perception task. Both of these were carried out by Rosenthal and Fode (1963a, 1963b).

The maze bright/maze dull study involved student experimenters, half of whom were told their rats would show rapid learning and half of whom were told their rats would show very little evidence of learning. In the reality, the two groups were drawn at random from the same colony. Despite this, the experimenters reported significantly different results in accordance with their prior expectancies. Similarly, in the person-perception task, one group of experimenters was told that their subjects should average about +5 in rating photographs of individuals on 'successful facial appearance', while the other group was told to expect results averaging about -5. Again a significant difference was found in accordance with the expectancies.

Rosenthal (1966, 1969) reported further experiments in which the effect appeared to have been demonstrated in a wide range of psychological experimentation including human learning, psychophysical judgments, reaction time, projective tests, interviews, as well as animal learning. On this basis he called for the use of complex double and triple blind procedures to attenuate such biases and statistical procedures to evaluate what percentage of the variance of a given phenomenon the experimenter's bias might account for.

However the claims for both the consistency and generality of the E bias effect have been subject to severe criticism from several authorities. Specifically the arguments centre around the failure of replications and weakness in these studies that claim to show an E bias effect.

The Controversy Over Replication Attempts

The lengthy duelling that resulted between Rosenthal and his critics resembles that which occurred with latent learning, insight behaviour, and subliminal perception, with a similar equivocal outcome. For instance, the Ingraham and Harrington versus Rosenthal critiques and replies involved a total of six exchanges and finally settled on apparently irresolvable differences of opinion concerning assumptions that had been made about the data. Ingraham and Harrington (1966) had successfully repeated the maze bright - maze dull rat study but found a much weaker effect and one which was only present on the first day of experimentation. Further, the effect was attenuated when the experimenter was experienced at the task. They concluded that initial bias was merely a "conformity response in an ambiguous situation" (Harrington and Ingraham 1967). They claimed the bias

could be reduced by familiarising the experimenter with the procedure and using only one experimenter for all treatment conditions. Yet Rosenthal claimed a bias effect was suggested in 22 out of 27 experimenters and thus one experimenter would be irrelevant to reducing the bias. Furthermore, he interpreted the disappearance of the E bias effect as due to the effect being contingent on the animal's response bias - which declined over time as they learned the maze. Although Ingraham and Harrington were able to show the bias declined before the response bias, Rosenthal reinterpreted the data as showing it was a reaction to overall increased learning (Rosenthal 1967).

The reported failure of five attempts to replicate the E bias effect with the person-perception task formed the basis for a more incisive series of exchanges between Barber and his associates, and Rosenthal. The studies involved five principal investigators (all of whom expected to find a bias effect), 51 student experimenters, and 501 subjects. The results of each of the 5 studies failed to demonstrate by analysis of variance any bias effect (Barber et al 1969a). Rosenthal however was able to re-analyse this data and claimed there was a significance based on a chi square analysis of type of expectancy and the frequency of ratings given. Moreover a further criticism was levelled concerning the fact that all the experimenters were drawn at random from the same population as the subjects. This was not a feature of the Rosenthal and Fode experiments. A major concern there had been to establish clear differences in status and educational background between experimenters and subjects (Rosenthal 1969).

Barber's reply was equally caustic. He questioned the consistency in the evidence quoted as establishing an effect of status differential and carried out a further analysis of Rosenthal's own post mortem analysis. The net result of this was that the significance of Rosenthal's chi-square was shown to be mainly due to deviations in only 2 out of the 13 cells in Rosenthal's table. Moreover these were contrary to the predicted direction (Barber 1969b).

Finally, the controversy culminated in the publication of a sixty-two page monograph containing an extensive statistical and methodological encounter between Barber and Silver and Rosenthal. Some of the issues raised were basic to psychological science in general.

METHODOLOGICAL CRITICISMS OF EXPERIMENTER BIAS EFFECT RESEARCH

Barber and Silver (1968) reviewed 31 studies which attempted to show an experimenter bias effect. They were able to produce detailed criticisms to show that 19 of these studies could be faulted on specific statistical and methodological grounds. These frequently concerned the use of post hoc analyses, probability pyramiding (the failure to alter significance levels when many statistical tests are used), questionable P values, one tail tests, selection of data. The most common criticism concerned the failure to apply an overall multivariate statistic in order to evaluate the results.

The remaining 12 studies which apparently did show experimenter bias effects could from Barber and Silver's viewpoint be more parsimoniously explained by misjudgments, misrecordings, direct reinforcement of correct responses, or even pure fabrication of the results. In short, the remaining evidence did not eliminate intentional effects as an alternative explanation. For example in the classical Rosenthal and Fode maze dull - maze bright rat study, there were five observed instances of cheating in which an experimenter 'prodded a subject' to run the maze. It is unknown whether or not the student experimenters cheated when they were not observed. In one study, two out of the eight 'maze dull' rats died which led Barber and Silver to speculate that there was an illness in the group which led to their poorer performance. Similarly, in the other classical Rosenthal and Fode study using the person perception task, experimenters were told they would earn more money if they obtained the proper results. No precautions were taken against misreporting, misrecording, or falsification of data (Barber and Silver 1969).

In the face of these criticisms, serious as they appear, Rosenthal was able to come back with some strong counter arguments. He repudiated Barber and Silver's review of the 19 studies as failures, arguing that they had omitted to consider the many significant correlations of experimenter expectancy with interacting variables. One of Rosenthal's main arguments rests on the summation of P va ues from all the samples involved. Thus he calculates for the 19 'failures' this would produce a P value less than 2×10^{-6}, and that for the other 12 studies it is infinitesimally small (10^{-36}). That there is an effect seems beyond dispute, but it still remains controversial as to whether the effect is

mediated by subtle cues or gross intentional errors. There are also some further statistical issues. These centre on whether it is acceptable and valid to compute an overall statistic and then only to pursue further analyses if this is significant. Rosenthal argues in favour of a more subjective 'common sense' approach in which findings are considered meaningful if they check with and are supported by findings previously established. On this basis further statistical testing is not only permitted but encouraged to prevent wastage of data.

Whilst to the writer this argument has some appeal, it is also felt to be open to misuse. It would appear to be easily possible by conducting enough post mortem analyses and enough experiments and then collating these to support a further range of analyses to build up a series of spurious findings in whatever field is chosen. Indeed this is the essence of Barber's critique. More will be said about these issues later. Before then it is important to point out that there are areas of agreement between the two protagonists. Both agree that there is an experimenter effect but Barber would disagree that it has been clearly demonstrated that there is pervasive biasing of results by experimenters when the experiments are carefully designed, the criteria are unambiguous, the experimental protocol is kept to, and the data recorded conscientiously. Again both recognise that there are 2 out of 31 experiments reviewed, which do seem to support Rosenthal's contention that biasing can happen through the use of subtle paralinguistic or kinaesthetic cues. In one of these the experimenter-subject interactions were tape recorded and thus the possibilities that the results were due to verbal reinforcement, misrecording, or cheating checked. In the other, the instructions to subjects were themselves tape recorded. But the two experiments involved ambiguous stimuli and are therefore insufficient to establish the effect as strong and pervasive (Barber and Silver 196 b).

FURTHER RESEARCH ON THE EXPERIMENTER EFFECT

In mediating between the exchanges of Barber et al and Rosenthal, Leon Levy the editor of the Journal of Consulting and Clinical Psychology, suggested that it would be more profitable for future research to concentrate on other manifestations and areas of application rather than on the irrevocably decisive replication (Levy 1969). On

the whole, this appears to have been the direction taken by subsequent experimentation. Contemporary research has been concentrated on the 'Pygmalion effects' - the effect of teacher expectancy on scholastic achievement, on sensitivity to non verbal communication, and the effects of expectancy on student-teacher interaction. However in 1969, Rosenthal martialled some further evidence for experimenter bias effects (Rosenthal and Rosnow 1969). Using his favoured method, he collated all the findings into those obtained by different studies, investigators, and laboratories. The effect is reported by 61% of laboratories, 70% of experimenters, and 60% of subjects. These figures deserve some comment. First they must be regarded with some scepticism because of the inestimable number of post hoc analyses carried out, and because the directional P value used for attributing significance was P = .1. Moreover, the same trend was again reported here for the effect to occur most often with ambiguous stimuli

Some estimate is needed of what proportion of the total variance such effects account for in a given field of experimentation. An example of this is an experiment by Burnham (quoted by Rosenthal 1969) Experimenters had to run rats on a maze and measure the impairment of brain lesioning on discrimination learning. Only one half of the rats actually received lesioning and some of these together with the unlesioned ones were falsely labelled, lesioned or unlesioned. The analysis of the learning data suggested the effects of expectancy were at least as great as those of lesioning. This contrasts with results in an area that might more readily thought to be sensitive to such effects, that of suggestibility ratings. Stewart (1971) reports an experiment on hypnotic suggestibility ratings in which he found a significant experimenter bias effect. However, further analysis revealed that it only accounted for 4% of the total variance. Yet other work in the area of hypnosis indicates experimenter behaviour to be strongly influenced by expectancy (Tart and Troffer 1964). One might agree with Rosenthal that there are possible hierarchical effects depending on the main experimenter's belief or disbelief in experimenter bias effects.

More directly relevant to the issue of whether a bias effect exists independent of misrecording and falsification etc. are four more experiments reported by Rosenthal in 1969. In all of these precautions were taken to eliminate or severely reduce the possibility of observer errors. These included electrical recording or audiovisual

recording of data, and the presence of independent observers. The effects still persisted (Rosenthal and Rosnow 1969).

The outcome of research into the experimenter bias effect is clearly reminiscent of other areas in behavioural research and recent discussions of the effect have tended to regard it like subliminal perception as a 'fragile phenomenon' hard to demonstrate and more prone to unstructured tasks (Stewart 1961, Barber and Rushton 1975). Although it has also been attacked on its lack of generality, a large body of work exists concerning its application in the educational field.

THE 'PYGMALION' EFFECT

In a general sense, the classical experiment of Rosenthal and Jacobsen (1968) also concerned the influence of interpersonal self-fulfulling prophecies. Children were given an intelligence test disguised to their teachers as one predicting 'intellectual blooming' or growth. For about 20% of the pupils chosen at random, the teachers were told that the test indicated that remarkable gains would be made during the following eight months. At the end of this period, retesting showed a significant gain on the intelligent test for children in this group compared with the others. Although much of the subsequent research and its criticisms are tangential to the present text, it is of relevance to note that the outcome has been similar to that of the experimenter bias effect. The study has been attacked for the method of data analysis and the low reliability of the intelligence test but these considerations would seem to argue for the effect being underestimated (Rosenthal 1974). In fact the main weakness of the 'Pygmalion Effect' is again the replication problem. Although in a recent publication Rosenthal (1974) has noted with enthusiasm - that 37% of reported studies are significant at beyond the .05 level, this enthusiasm may be ill-based when we consider the unknown number of unpublished non significant results. Again the effect would seem to be a weak and unreliable one.

STATISTICAL AND METHODOLOGICAL ISSUES :

The above confrontations and exchanges all focus on some central points in psychological research. They also raise issues relevant to the experimental designs of the research reported herein.

1. The Use of an Overall Statistic and Appropriate P Values :

This concerns the problems produced if several independent tests are performed on the same data and the P value maintained

at say the .05 level. Neher (1967) has called this form of error 'probability pyramiding'. He gives an example of how spurious results could have an alarming effect on the validity of published studies in psychological research. He reasons that if each experimenter selects one experiment for publication from every two he has carried out, and on which he has done three statistical tests, and the editor accepts one in every two studies for final publication, then this gives a total of twelve independent analyses involved. Thus the real P here value is not .05 but $1 - (.95^{12}) = .46$. Neher concludes "were these estimates approximately correct, they would indicate that about one half of the original findings reported at this level in behavioural science journals could have resulted from chance variations." Moreover, there is some evidence that this kind of selection is not entirely hypothetical and does occur in reality. John Cohen (1965) analysed 70 studies from the Journal of Abnormal and Social Psychology. He found that the power of the tests used, were too low in order to detect the kind of influences that were being sought after and reported. So it seemed evident that a massive selection of data at some level(s) was occurring. A similar conclusion was reached by Sterling (1959) who analysed a random sample of 362 research articles from one year's publication of four major psychology journals. 81% of these articles used statistical tests but only in 3% of these were the hypotheses not supported. Sterling commented that either the experimenters were very clever at choosing their hypotheses or else very selective in publishing them. But perhaps the most alarming aspect was that of the 362 studies, not one was a replication of a previous study!

These considerations have a clear relevance not only to research concerning the experimenter effect but to parapsychology. They reinforce the need for replication of findings. It is perhaps surprising that some authorities have continued to argue that replication of specific findings is largely irrelevant to the scientific acceptance and progress of parapsychology (see for example Rhine 1975, 1976). Others have argued that an impressive level of replication has already been reached in the area of altered states and ESP (Honorton 1975b). One reassuring factor is that the non reporting of non significant findings could not account for the more outstanding results in parapsychology. There is the well known calculation by Thouless using P value 10^{-31} from the Soal-Goldney experiment

He gave some vivid meaning to the size of this value by calculating that even to reduce this [illegible] to odds of a billion to one would require every inhabitant of the world to have been doing ESP experiments for the last sixty million years. Moreover, when we consider the small number of personnel engaged in parapsychological research, it seems unlikely that there is any large backlog of unpublished studies. On the contrary, what is impressive is the continuity of findings from certain experimenters Some experimenters become closely associated with a particular type of result and go on the produce such a prolific output in that area as to leave little time for hidden 'failures' One is forced to the conclusion that aside from deliberate cheating, either the findings are valid or they are due to an experimenter effect

Nevertheless, it seems an important advance in methodology when in 1975 the Parapsychological Association authorised the setting up of a central bank where experiments and their outcome could be registered. It also went on record as "opposing any policy of discouraging the publication or public presentation of non significant results, or a policy of refusing to allow publication of such results."

In the research reported here, where possible an overall statistic was computed, replications were attempted, and all the studies carried out were reported

2. Sample Size :

This is a further important consideration since small samples increase the possibility of a type 2 error, while large samples increase the possibility of a type 1 error. The best way to disprove a hypothesis is to use a small sample The opposite may be true. Bakan (1966) makes the point that the null hypothesis may be false from the onset and yet the experimental hypothesis may also be false With most samples there are likely to be some characteristics that deviate from normality and hence if the sample is large enough these will reach significance With this in mind it is disconcerting that Rosenthal and Gaito (quoted in Rosenthal 1963) were able to show that when a group of professional

psychologists were asked to rate their confidence in findings associated with various P values and sample sizes, they placed greater confidence in large samples than small samples with the same P value.

In the present research, the tendency was to err on the side of small samples. The possibility of a type 2 error is high when we consider the psi effect usually does not account for more than 5% of the total variance.

3. Post-Hoc Analyses :

These seem only useful for generating further hypotheses. In some circumstances, for example when the effect is a well established one, it seems appropriate to use them in a replicatory manner. It was the general policy in the research reported here to have all the hypotheses and appropriate tests to be carried out, stated in written form in advance of the experiment.

ESP RESEARCH AND THE EXPERIMENTER BIAS EFFECT

Although the nature and pervasiveness of the experimenter effect is still controversial, great interest in it has been aroused among parapsychologists. In 1971 Rosenthal reported his findings in an invited address to the Parapsychological Association. Since then there have been at least five theoretical reviews of the research literature and seven experimental studies reported.

An important distinction must however be made between a Rosenthal type paradigm and that used in ESP research. In a Rosenthal type situation the experimenter knows the responses which fit his hypothesis and therefore can have a specific effect on the subject's behaviour. In ESP research, the target material and therefore the correct responses are unknown to the experimenter. What can be communicated is a much more general effect of belief or disbelief in the success of an experiment as demonstrating ESP. At a secondary level, this may influence the way the subject uses whatever latent ESP abilities he possesses. However similar cues may be involved. Rosenthal (1966) reports an experiment in which subjects were able to successfully 'read' the experimenter's expectancy. Observers who looked at audio-visual recordings were unable to agree on the communication channels involved. Auditory cues seemed to be the most important. A lesser known experiment by Tart and Troffer (1964) also emphasises the importance of paralinguistic cues. Eight hypnotist-experimenters administered a standardised suggestibility scale to subjects under two separate conditions - with and without hypnotic induction. The

experimenters knew about the problem of experimenter bias, knew they were being checked, but felt they treated the two groups alike. Yet judges were able to identify from the tapes of the performances which of the two groups were being tested. Martin Orne (1962) has taken a more general view of experimenter effects and uses the term 'demand characteristics' to refer to the total expectations and cues implicit in the experiment to which the subject responds. In an ESP test paradigm, the situation may be even more multifactorial. There is evidence that not only the expectancy of the experimenter influences the outcome of the experiment, but also factors such as whether or not the experimenter is friendly towards the subject, relaxes him, and motivates him. It is this evidence we look at next.

CHAPTER 3 : EXPERIMENTER EFFECTS IN PARAPSYCHOLOGY

It seems to be becoming progressively more and more accepted in parapsychology that the experimenter's influence is one of the least understood but one of the most important factors. In a review of the parapsychological research literature up to 1966, K R Rao commented :

"The Experimenter's angle is the least explored of all, despite clear recognition of the fact that the role of the experimenter in psi tests is extremely delicate and very important." (P. 5) This was re-emphasised by Rhea White in a recent (1976a) review dedicated specifically to the experimenter's influence in ESP research :

" ... there could hardly be a more significant area of investigation than the role of the experimenter, because not only may the achievement of extra-chance results depend on the experimenter but the experimenter may also affect the nature of the results obtained." (P.1).

I would like to present here the evidence for the influence of the experimenter effect being recurrent throughout the history of parapsychological research and suggest that most, if not all, of the heralded breakthroughs have been artifacts of this. Finally a summary of the evidence relating to how the effect may be mediated will be presented together with the hypotheses that derive from this and form the basis to the experimental studies.

THE HISTORY OF THE EXPERIMENTER EFFECT IN PSI RESEARCH

It was remarked earlier that some of the first experimental publications were concerned with the experimenter's influence on the results in ESP research. The same is true of the older psychical research on mediumship. The 1871 report of the Dialectical Society (the predecessor of the Society for Psychical Research) noted in its report on PK phenomena that :

"the presence of certain persons seems necessary to their occurrence and that of others generally adverse; but this difference does not appear to depend upon any belief or disbelief concerning the phenomena." (Fodor 1966)

Indeed it has been a frequent assertion that the phenomena of mediumship depend on the type of participant-observers. An

experimental analogue of this may be found in the contrasting performances of Mrs. Eileen Garrett on ESP tests administered independently by J.B. Rhine and S.G. Soal. (Mrs. Garrett was a medium respected both for her ability, and willingness to be investigated.) She was assessed on the conventional ESP guessing tests in the waking and trance states. Rhine at Duke found her success in both states to be about the same, both being far in excess of what could be accounted for by chance. For example, in one series she averaged 13 hits over 25 runs where chance expectation was 5 hits per run (of 25 trials). Yet when tested by Soal in London she obtained only chance results. Some possible insight into this may be provided by her comments written before she knew the results - "the conditions at Duke are tense and emotional in comparison with those with Mr. Soal in London." (Goldney and Soal 1938 P.154).

The first reports of formal research with ordinary subjects also revealed experimenter effects. In fact, it can be claimed with some sarcasm that the experimenter effect was the first and perhaps the only finding of experimental parapsychology. The first two volumes of the Journal of Parapsychology contain four reports directly concerned with experimenter effects (Sharp and Clark 1937, Warner and Raible 1937, MacFarland 1938, Pratt and Price 1938).

Sharp and Clark in the course of administering group tests aimed at discovering high scoring subjects found the scoring rates for the four experimenters involved were different. The run score averages appeared to mirror the experimenters' attitudes to ESP. Myers who was 'definitely sceptical' obtained scores significantly below chance,* Berger who was 'non committed' had scores close to chance, while Davidson and Clark who were 'favourable' to the research obtained scores significantly* in excess of chance. However in addition to expectancy or attitude, there may have been the influence of other interpersonal factors. Evidently Myers had some idiosyncracies which could be annoying. The authors comment "One of our subjects who has done a great deal of work, stated privately that Myers distracted her to such a point that she was unable to think of what she was doing. While conducting the tests Myers kept swinging his watch chain and talked about extra curricular activities." (P.136). Yet another feature of their data suggested that the experimenter's state of anxiety influenced the scores. During

* I calculate these to be respectively P .002 and P .01

part of the period of testing Sharp's wife became critically ill and underwent an operation from which she eventually recovered. A comparison of the scores obtained from subjects by Sharp before and after the hospitalisation with those during the hospitalisation showed a significant difference, with higher scores during the non hospitalisation period ($P<.006$).

Pratt and Price (1938) reported a more formal study of the experimenter-subject relationship on ESP scores. Both experimenters had tested similar groups of children for ESP under similar conditions, yet while Price's subjects scored significantly, Pratt's scored at chance. It was hypothesised that the difference was due to different methods of handling subjects. Accordingly Price carried out a period of testing under what were agreed upon to be favourable versus unfavourable conditions. (This largely referred to the presence or absence of designated time for conversation.) Chance scores resulted. The experiment was thought to be unsatisfactory in that Price found it unnatural to carry out these contrasting roles. When she resumed testing in her normal style the original rate of success returned. As to what this magical style was, the only clues in the report concern her habit of creating a relaxed social atmosphere : "M.M.P. (Price) avoids hurrying her subjects and encourages a free social atmosphere in which general conversation flourishes." (P.93).

The Warner and Raible study (1937) was in many ways a prototype of later experimentation by Stanford and others concerning the influence of ESP on ongoing psychological processes. Subjects were required to make psychophysical judgments and on half the trials the experimenters knew the correct response. On those trials the number of correct responses was greater than on those the experimenter was ignorant of the correct response. Unfortunately, the experiment was not carried out under conditions of total isolation of subject and experimenter. With this reservation, the experiment was the first to suggest a psi mediated influence of the experimenter on subjects' responses.

The fourth study, that of MacFarland (1938), is important more for the controversy it created than the actual findings. Again a previously successful experimenter and an unsuccessful one were compared over the scores they obtained from the same subjects. The subjects responded with a single call to the separate target packs of the two experimenters. Only the 'successful' experimenter obtained statistically significant scores.

Although there is an obvious lack of knowledge about the mediation of the effect in these studies, there is at least an agreement that there is an effect. Despite this there was no reported follow up; research efforts became diverted elsewhere This deserves some comment.

THE EARLY DUKE UNIVERSITY WORK AND THE KENNEDY CRITICISMS.

J.L. Kennedy was Walter Colsen fellow in psychical research at Stanford University during the late 1930s. In 1939 he reported an unsuccessful attempt to replicate Rhine's findings using 204 subjects, 32 experimenters and 3094 runs (Kennedy 1939a). Understandably he became critical of the Duke findings and the main exponent of the 'experimenter error' explanation of ESP. The specific experiment chosen for 'demolition' was the MacFarland study and he produced evidence to show that the experimenter effect was in fact experimenter error. Two main sources of error were supposed; those relating to recording errors and those relating to 'unconscious whispering'. He went over MacFarland's data and found 75 discrepancies between the records of the two experimenters involved, and an analysis of this pattern of hits revealed that part of the significance was due to pairs of unlike symbols. This led Kennedy to the hypothesis of inversion errors, the inversion of two symbols during the recording of the target series to produce a spurious pair of hits (Kennedy 1939b)

Kennedy supported this assertion with some experimentation. He reported the results of an experiment in which an 'extreme believer' made a large number of errors. Further, in carrying out testing with extreme believers and disbelievers in ESP, he found that, although both groups made approximately the same number of errors, the believers made more errors towards increasing the scores (Kennedy 1939b) Finally, in another series of experiments he attempted to give plausibility to the unconscious whispering hypothesis. He showed communication could occur when the mouth and nose of the sender in an 'ESP' type of experiment were placed at the focus of a large parabolic sound reflector, and an ear of the receiver placed at the focus of a second reflector The agent was given 'kinasthetic instructions for imagising' (Kennedy 1939)

Although the issue is now a purely academic one, it may be of some historical interest to note that Kennedy's criticisms seem to have been ill-founded on several counts.

1. First the errors in MacFarland's data were relatively few, 75 in 30,600 trials and could not account for the observed deviation.
2. Kennedy's 'extreme believer' was in reality an elderly woman with leanings towards Spiritualism. The group of believers made 84 errors in 11,125 trials but only 30 of these gave rise to extra hits. The errors decreased with practice.
3. Kennedy's parabolic mirror experiment could only be regarded as a parody of an ESP experiment. (Finally Kennedy was censored by the American Psychological Association's Review Committee for his 'unscientific bias'. (Kennedy 1939, P.249)).

Kennedy's own investigation of ESP makes interesting reading. Although he regarded his findings as entirely negative, the 'pure telepathy' series produced a highly significant positive deviation (C.R. 5.02, P 10^{-6}). Twelve experimenters tested 3 subjects and only Kennedy obtained non-significant scores. Unfortunately, too much cannot be drawn from this series because it was open to recording errors.

The most salient point of this controversy concerns the way research became distracted away from the area of experimenter effects onto the testing of high scoring subjects in carefully controlled conditions and to the study of subject characteristics which might correlate with ESP. Yet even these changes seem to have reflected the influence of some psychosocial factors. Recently Pratt (1975) has given us a valuable chronicle of some of the influences that directed the research program in the Duke Parapsychology Laboratory where most of the early experimentation was conducted. He notes that in their original screening, Rhine and his associates discovered 8 high scoring subjects. Yet when they attempted to find more two years later none were forthcoming. Pratt comments :

"The sense of excitement and the adventure of scientific discovery were missing for both the testers and the tested. To achieve the psychological equivalent of the earlier work, the participants should have been able to feel that they were helping to solve a real scientific problem, such as the question of the occurrence of ESP had been in the earlier Duke research" (P.153).

After the discovery of the last high scoring subject (Hubert Pearce) of the period, the research moved onto the investigation of differential scoring rates in relation to group characteristics. Essentially Rhine's view of the whole issue - the experimenter effect and the repeatability problem - is that it would be gradually solved by piecemeal fitting together of findings. Rhine's influence on the field was enormous and he undoubtedly shaped the direction of modern parapsychology in this respect.

Unfortunately, this accumulation of findings does not appear to have happened or be happening. The present crisis in parapsychology is that it is difficult to identify a finding which is not in some way contingent on the experimenter or experimental situation.

THE UNRELIABILITY OF RESEARCH FINDINGS IN PARAPSYCHOLOGY

Most of the reviews of the parapsychological literature agree that as yet there is no definitive relationship of ESP to any specific physiological or psychological variable (West 1962, Rao 1966). Instead there have been a series of successive contenders for a repeatable finding most of which now form a stockpile of disregarded techniques and hypotheses.

The Sheep-Goat Effect : This represents the most promising of all the work on differential scoring characteristics. Palmer in reviewing the literature on this (1971) concludes about 84% of the experiments gave results with sheep (believers in ESP) scoring in the predicted direction and about 16% rendering significances in this direction. Less than one per cent were estimated to give significances in the opposite direction. He concludes (1971) "the relationship is very slight and difficult to demonstrate with small samples. It is also quite likely to be sensitive to the experimental situation." (P 405). There is at least one incident of an experimenter obtaining the effect while another failed to do so with a similar group of subjects (Osis and Dean 1964).

Mood Differences : This was another of the relationships that preoccupied research between the 1940s and '50s. The method involved rating ESP subjects as expansives and compressives on the basis of their drawings (Humphrey 1946). The first attempts at replication were remarkably successful but a number of later studies failed to find a differential scoring effect (e.g. Casper 1951). A recent study by Kanthamani and Rao (1972) used this measure with the 16 PF extraversion

scale to predict ESP scores. However, Kanthamani is an experimenter with an unbroken record of successes in experimentation so it is difficult to know what interpretation to place on this. With this exception this avenue seems to have been abandoned.

Teacher-Pupil Relationship : Research here has befallen a similar fate. This was J.G. Van Busschback's finding in Holland (1956) that attitudes of children towards their teacher, and of teachers towards children were positively related to the ESP scores the teachers obtained from their classes. The first results were very impressive and Van Busschbach went on to repeat his results in the United States. One of the largest programs of replication attempts was launched. There are over 20 reported studies. Initially the replications were successful especially those by the Anderson and White team (1958), but later attempts were almost uniformly close to chance (e.g. Rilling et al 1962, Eisenbud et al 1960). Eisenbud in commenting on the reasons why a replication in which he participated failed, attributed the reasons to 'fringe' variables or 'subtle psychological factors' :

"These 'fringe' variables, which in other fields of investigation appear to be relatively independent of the results achieved, are generally considered in parapsychology to be of the greatest importance. In a given case, however, as in the present experiment, it is obviously impossible to say anything about their effect on the results without begging questions all over the place. .... the situation amounts to endlessly chasing dust around in experimental corners in absence of a methodologically adequate broom." (P.78) Similarly, other experimenters (Rilling et al 1962), who failed to replicate the Anderson and White (A-W) work have implicated other psychological variables (of which the experimenter may be the most important) as responsible:

".... the explanation for the failure of other workers to confirm the A-W findings may be that the psychological conditions under which the A-W experiments were carried out have not been duplicated. In other words, the A-W procedure needs to be expanded to incorporate other variables which were present in the original A-W experiments, but lacking in the replication." (P.130).

Personality Traits : This is probably the most researched area of all. The consensus of opinion seems to favour a relationship of ESP to extraversion-introversion as the only finding approaching reliability. For example, Eysenck (1967) has reviewed the literature

and concluded it supports the view that extraverts are likely to do better on psi tests than introverts, in accordance with his cortical arousal theory. Notably, Humphrey (1951) found 70% of her extraverts gave positive ESP scores and 70% of her introverts gave negative scores. More recently, Kanthamani and Rao (e.g. 1972) have reported some very significant relationships of ESP scores to extraversion. However, there are too many unsuccessful replications to conclude there is a reliable relationship. For example, Nicol and Humphrey (1955) found some significant correlation of ESP scores with factors relating to extraversion. When they tried to repeat their results a year later with the same tests and same type of population, none of these replicated.

Animal Psi : For a long time it was thought that a way to circumvent these subtle psychological influences was to use animal research. Unfortunately with the Levy debacle* (in the course of which much of the work in this area was discredited), experimentation has come to a halt. Some independent evidence existed (Parker 1974b) but again this was non replicable and experimenter effects were hinted at (Broughton and Millar 1976).

Altered States of Consciousness : This is the most fashionable area of research at present. Much evidence has accumulated to indicate that there is a link between ESP and dream states (Ullman, Krippner, Vaughan 1973), ESP and hypnosis (Honorton and Krippner 1969), and ESP and various other altered states (Honorton 1975b, Parker 1975c). The unifying concept is that ESP or more generally psi, is associated with internally directed states of awareness or even a movement towards these states (Honorton 1974). The technique that is currently in vogue is the Ganzfeld method of attenuating sensory input and thereby promoting a hypnagogic-like state. A strong case has been made for the reliability of this technique as a means of ESP induction (Honorton 1975a).

However there is considerable evidence presented in full elsewhere (Parker 1975c) that altered states are extremely sensitive to interpersonal and experimenter influences. For example, Tart (1964) has reported a case illustrating how the experimenter-subject relationship can influence the content of nocturnal dreams. Others have argued that there appears to be a 'transference' type relationship between subject and experimenter (and agent) in Ganzfeld situation

* Levy's results were invalidated becuase of evidence of experimenter fraud. See J.B. Rhine 'Second report on a case of experimenter fraud' J. Parapsychol., 1973, 37, p. 306.

(Bertini et al 1972, Stanford and Neylon 1974) which influences the content of the experience.

In addition to this, there are several noteworthy examples of failed replications in altered state research. The highly successful Maimonides dream ESP studies interested the distinguished researchers David Foulkes, R.E.L. Masters and Jean Houston. Foulkes 'borrowed' their subject Robert Van de Castle (himself a well known dream researcher) for his attempted replication of the Maimonides work. The attempt involving the blind matching of dream reports to targets was unfortunately a complete failure. Van de Castle noted that at Maimonides there was a much greater atmosphere of belief in ESP and 'the red carpet was rolled out for him', while at Foulkes's laboratory they were less confident and extremely pressed for time. A curious sequence of events followed. About the same time, the Masters and Houston team made an independent successful attempt at replicating another of the Maimonides experiments. In a further effort at replication, all three teams participated; the results were an ignominious failure (Parker 1975c). Similar problems were reported by Allan Rechtschaffen whose pilot studies on hypnotic dream ESP seemed to be always highly successful but whose confirmatory studies consistently failed. In a discussion with Rechtschaffen, Stanley Krippner of the Maimonides team admitted to experiencing similar problems but that they had come to avoid them by ensuring the level of enthusiasm was kept high by continually modifying the experiments and having a turnover of part-time staff (Parker 1975c, P.91-93).

Psi Mediated Instrumental Response : The model which has led to some specific testing techniques, regards psi as an unconscious goal directed process which influences ongoing psychological activity. It alters the organisms decision making processes so as to maximise an encounter with a need relevant object or event.

A major hypothesis of the model predicts that psi operates in such a way as to prime uncommon or non habitual responses (Stanford 1974). The experimental paradigm is one in which the subject is unaware that he is being tested for psi. For instance the subject is given a psychological test or procedure upon which is superimposed an ESP task by choosing one of the response categories (by random means) as the target. The method has been used successfully with

word association and memory tests (Stanford 1974), with examination questions (Johnson 1973, Braud 1975), with judgments of autokinetic movement, the thematic apperception test, and subliminal perception (Kreitler and Kreitler 1972, Lübke and Rohr 1974) Although we will discuss the weakness in the theoretical aspect of the model later, it does seem to have led to hypotheses which have construct validity throughout a diversity of situations. This may be partly because the disguised nature of the psi test circumvents many of the difficulties of interpersonal influences which seem implicit in overt ESP tests. It is impressive that as yet the results do not seem to depend on the individual experimenter.

So far I have reviewed some of the major research areas that have preoccupied parapsychology during the last 40 years with the object of showing how many of the results have been found to be experimenter dependent. In addition to this, experimenter effects dominate the research literature as post-facto findings. This is especially the case where, in a joint experiment, one experimenter has obtained significant results with a batch of subjects while another, his co-experimenter, has with a similar or the same group failed to obtain the same results (Taves and West 1943, West and Fisk 1957, Michie and West 1957, Osis and Dean 1964, Bednarz and Verrier 1969, Beloff and Bate 1970, Johnson and Johannesson 1972) It has also been frequently used as an explanation for why an attempted replication by the same experimenter has failed to obtain the same results (e.g. Parker and Beloff 1970, Johnson and Nordbeck 1972, Layton and Turnbull 1975).

If it is true that experimenter effects have inundated research in parapsychology, it may be asked what kind of theory has been developed to explain them. We look at this next.

THE PSYCHOLOGICAL THEORY OF EXPERIMENTER EFFECT MEDIATION

It is probably somewhat pretentious to use the term 'theory' for this since it is more a loose formulation of observations and conjectures without any clear predictive statements. However, it has been frequently argued by Rhine (e.g. 1948) and other parapsychologists (Rao 1966, Parker 1974c, Terry and Honorton 1976, White 1976a) that factors such as the experimenter's expectancy and ability to relax and motivate the subject provide the explanation for

the varying degrees of 'success' experimenters experience.

As early as 1941 Smith and Gibson were able to survey the literature and collate collections of quotations from experimenters concerning their views on the favourable conditions for ESP testing. The most frequently cited conditions were the syndromes of :

	Condition	No of References
1.	Freedom/Pleasure/Excitement/Interest	24
2.	Disposition/Mood/Personality	23
3.	Abstraction/Relaxation/Concentration	19

Rhine (1935) in his monograph 'Extrasensory Perception' attributed importance to the third factor of trance, concentration, and relaxation :

"Several subjects have described their ESP experiences as involving a state of 'detachment', 'abstraction', 'relaxation' and the like. And it is rather apparent to the objective observer in many of them." (P.181).

This might imply the experimenter's ability to relax the subject is crucial. Later Rhine (1947) attributed more importance to other interpersonal factors. Responding to requests to specify the conditions favouring success in testing, he wrote :

"The requirements in this case are of course primarily psychological. First and most important of all, perhaps, is the psi experimenter who is going to have actual contact with the subject must be able to generate interest in the experiment and keep up a lively curiosity on the part of his subject." (P.60)

He elaborates on this further :

"I think genuine friendliness in the psi test situation is a first consideration. The experimenter and subject are a kind of co-operative team who share an interest in achieving an effect. The experimenter is there in the role of an assistant, one who holds the candle, as it were, while the subject performs." (P.69)

He asks :

"A fair, yet a severe, criterion for the test situation is the question : Does the subject want to stay and want to return?" (P.71)

More recently, Terry and Honorton (1976) of the Maimonides Division of Parapsychology (which has a long tradition of success in ESP

experimentation) have reiterated similar recommendations :

"We attempt to promote a sense of relaxed confidence in our subjects. We indicate that we have obtained success in prior work with these procedures and that we regard it as likely that they may also experience a psi interaction."

They also stress the importance of "sensitivity and interpersonal empathy on the part of the experimenter" (P 214).

In a comprehensive review of experimenter effects in parapsychological research, Rhea White (1976a) reaches a similar conclusion :

"It appears whether or not a subject provides evidence of psi depends on how he is handled by the experimenter. A favourable subject-experimenter relationship favours psi test results." (P 36)

While the great bulk of theorising on the psychological mediation of the experimenter effect has concerned ESP, there has been some discussion of the importance of similar factors affecting PK performance (Price and Rhine 1944, Thouless 1951). Undoubtedly there has been much more theorising or speculating on experimenter effects than actual research. Next we look at the extant research literature and then the hypotheses that I formulated from this and the above observations.

RESEARCH INTO THE EXPERIMENTER EFFECT

Whilst it is true that there has been much lip service and very little experimentation, there are three or four studies that made some attempt at investigating the influence of interpersonal factors on the subject's ESP test performance. One of the most important but least known experiments was conducted in 1950 by J.L. Woodruff and Laura Dale with the support of the American Society for Psychical Research. The experiment deserves greater recognition on two counts. First its objective was to empirically test out some of the above inferences of Rhine, and Gibson and Smith concerning the subject-experimenter relationship. And second, the results were the precise converse of those predicted and must represent some of the most enigmatic findings ever obtained in ESP research.

The experimenters carried out what was perhaps the most obvious undertaking and administered a standard ESP test to subjects followed by a questionnaire concerning the subject's attitude to the experimenter

and experimental situation. Each subject was tested by both experimenters and the experimenters also completed questionnaires concerning their attitude towards the subjects. The ESP test was a standard clairvoyance one in which subjects attempted to identify the symbols on cards sealed in envelopes. It was predicted that there would be a positive correlation between subjects' ESP test scores and their attitudes towards the experimenters. The ratings from the subjects' questionnaires with Woodruff did in fact produce significant correlations, however they were all in the negative direction. Thus subjects who rated him low in answer to questions concerning how much they liked him, enjoyed working with him, etc., tended to produce high test scores and vice versa! Five out of the eleven items of the questionnaire discriminated scoring in this way at or beyond the .02 level of significance. The subjects' combined ratings on the questionnaire correlated -.42 with ESP scores for Woodruff as experimenter. The questions which produced a significant discrimination included "Did you like the experimenter?", "Did you feel at ease and relaxed with the experimenter?", "Did you feel in a good mood?" and "Did the experimenter seem warm and friendly?" For Laura Dale the results did not show any clear tendency or significances. With the experimenter's questionnaire concerning the subject, there was again a reversal of the expected pattern. Low ratings were ascribed by Woodruff to subjects who produced high test scores. The best overall prediction from the results was given by the combined ratings from both experimenter and subject questionnaires ($P = .0016$) for Woodruff. (Laura Dale's results were again non significant)

What are we to make of these strange results? Although several independent analyses were carried out there are too many significances and there is too much consistency to explain them as a statistical anomaly or artifact. Why did this pattern only emerge for Woodruff and not Dale? The experimenters themselves were unable to advance any explanation for their findings (and I will take the liberty of deferring a further discussion of this until the final chapter when the evidence for psi-mediated effects has been presented). Again despite the provocative nature of Woodruff and Dale's findings, there was apparently no attempt to pursue the problem further.

One experimenter who must be credited with some persistence is

James Crumbaugh. After an unsuccessful attempt to replicate Rhine's findings he spent a summer at Duke Parapsychology Laboratory familiarising himself with their techniques. Then he attempted to test the hypothesis that his results were a function of his 'experimental personality'. In consultation with the Duke staff he designed an experiment in which 16 experimenters and 16 subjects were divided on the dimensions of a test measuring self confidence/insecurity and belief/disbelief in ESP. Although the first results produced marginally significant results, favouring those who scored high on confidence and belief in ESP, the follow up was unsuccessful (Crumbaugh 1958, 1959). After this Crumbaugh tried to interest other researchers at Duke in studying the experimenter effect, but there was no support, apparently because of the reasons detailed earlier.

The remaining research in this area was carried out by Martin Johnson and his colleagues at Lund University. One method was to manipulate the experimenter-subject relationship by exposing subjects to two contrasting treatment procedures prior to the ESP test. The experimenter attempted to induce a favourable mood in subjects who were then required to select envelopes some of which contained information that would be relevant to an important real life situation (in the form of future examination questions). They succeeded to a significant degree in making the desired choice (P.013). On the other hand, when they were insulted and asked to carry out a similar task, their choices corresponded to chance expectation (Johnson 1971). In an attempt to extend and confirm this finding using separate groups (Johnson and Johannesson 1972) they used more extreme forms of treatment procedures The positively treated group received payment and were tested in a friendly atmosphere in the experimenter's home seated in a comfortable chair with food and refreshments supplied. A record with relaxing suggestions was played and subjects worked at their own speed with breaks allowed. In contrast, the negatively treated group were tested in a malodorous closet with no breaks, no refreshments, and no payment. They were left standing and the experimenter responded to them in an unfriendly authoritarian manner. Understandably it was said that these subjects were 'near breaking point' by the end of the experiment! The results were a mirror image of Johnson's earlier experiment in that this time the 'negative' group scored significantly (below chance) and the

'positive' group scored at chance level. Like the Woodruff and Dale study, it remains unexplained as to why this should be.

Perhaps the most informative study of the Johnson groups is a report of a more anecdotal type by Johnson and Nordbeck (1972). The study reports variations in the performance of a special high scoring subject which seem to implicate the importance of interpersonal factors. Johnson had used the subject in an experiment designed to test the influence of emotionally toned targets on scores. Unfortunately, without asking her permission he used personal material to make up these targets. When the nature of the test was inadvertently divulged to her, she became resentful, and further testing produced scores close to chance. However when visitors (Dr. G. Schmeidler and her husband) came to the laboratory and re-established rapport with her, she was able to resume her scoring at a significant level.

A further study of the differential treatment type described earlier, was reported by Honorton, Ramsey and Cabibbo (1975) at Maimonides Hospital, New York. Thirty-six subjects were randomly assigned to either a positive or a negative treatment group. The positive treatment group was received by an experimenter in a friendly, causal, supportive manner while the regative treatment group was received by an experimenter in an abrupt, formal unfriendly manner. Subjects had a 15 minute interaction with each experimenter. The ESP test was an automated precognitive one using a Schmidt randomising machine (and was therefore highly controlled against artifact). This time the results were as predicted with the positive treatment group producing significantly higher scores on the ESP test than the negative treatment group. For one of the two experimenters involved it was only the difference in scores that reached significance and the scores for each condition were not independently significant. Similar differential effects have been obtained by Nash (1958, 1960) comparing combinations of subjects and experimenters who liked each other with those who disliked each other. It is unclear such effects in which the overall score is not significant, should be so common in parapsychology. Two interpretations seem possible:

1. If the effect is postulated to be a unidirectional one, then the significance can be considered to be an artifact of the below chance fluctuation.

2. If the effect is postulated to consist of two influences (or be due to different procedures) it can be concluded that one of these is responsible for the above chance scores and one for the below chance scores, but that the effects are too weak to result in independent significances. In parapsychology psi-missing (the use of ESP to avoid giving correct responses) is often hypothesised to account for the below chance scoring. A third interpretation will be made later (P.129).

Some studies suggest that the experimenter can have what appears to be lika a field effect on his results. This has led to the theory that some experimenter effects may themselves be psi-mediated. For instance, research concerning the mood of the experimenter or agent has suggested that changes in mood correlate significantly with changes in the subject's ESP scores even when the experimenter (or agent) is not physically present in the subject's location (Carlson 1970, Osis and Carlson 1970, Price 1973). In addition to this there is the well known West-Fisk study (1953) in which a previously unsuccessful experimenter worked together with a previously successful one. The test was a postal clairvoyance one and the subjects were unaware that two experimenters were involved. Yet they produced highly significant scores on Fisk's data and chance level scores on West's.

What can be concluded from the parapsychological literature on the experimenter effect? To the present reviewer it is too much a history of speculations appearing as authoritative established findings, and a mass of anecdotal evidence with little systematic empirical work. Too easily the concept becomes the ultimate in escape clauses for explaining why an experiment fails. Nevertheless there does appear to be a definite and pervasive effect even if little is known about its mediation.

THE RESEARCH HYPOTHESES

The theoretical and experimental literature just reviewed provided the background for hypotheses to be formulated. Although there appeared to be few clear findings, it was thought that a strong case could be made for the mediation of the experimenter effect by psychological factors. Four major factors were studied and predictions made concerning their effects. In addition, it was felt some evaluation should be made of the hypothesis that the experimenter effect was partially or wholly psi-mediated. The hypotheses are more fully and formally stated in the relevant chapters. Some incorporation was made of three pre-existing hypotheses for which there was some support in the literature; these were the sheep/goat test, the change in state hypothesis, and the response bias hypothesis.

1. Experimenter Expectancy: The work of Rosenthal and the observations of Rhine support this as a major influence. In addition the importance attached to belief in phenomenon and the success of the experiment by the work of Schmeidler (on

the sheep/goat effect) provides further supportive evidence for this being a mechanism by which the experimenter effect might operate. This would be by influencing the subject's own expectancies about his performance.

A hypothesis thus predicted (1) that the experimenter's expectancy would show a significant correlation with the scores obtained in testing both groups and individual subjects. It was also predicted (2) that there would be a significant correlation between the subject's and the experimenter's expectancies.

2. Subjective States : The possible occurrence of spontaneous trance states (or periods of relaxation and abstraction) during testing is suggested by the clinical impressions of Rhine (1934) and the review of Smith and Gibson (1941). There is also some evidence from within general psychology concerning the existence and frequency of spontaneous trance states in the population (Shor 1960, Tart and Hilgard 1966). It may be that high scoring ESP subjects possess this ability to spontaneously enter trances. It was hypothesised that some experimenters will act in such a way as to promote the occurrence of these states during testing while others will not. On this basis it was predicted that (1) the occurrence of these states among high scoring subjects will be reported more often with certain experimenters than others, and than (2) these states and (shifts towards them) will be associated with significant ESP scores.

The literature from altered state research also provides conceptual construct validity for this and implicates shifts in consciousness towards a focus on internal imagery as conducive to high scores.

3. Experimenter Personality : From the comments of Rhine (1943), Rao (1966), and recently White (1976a) there should be clear and pronounced differences between the personality of those experimenters who obtain significant results in ESP research and those who do not. This has some tangential support from the experiments of Johnson 1972, Honorton et al 1975, and other work reviewed above. Since the evidence does not seem to implicate any narrow band or set of personality traits, a global personality test (the 16 PF) was chosen. It was predicted that those experimenters who have a reputation for obtaining evidence of psi in their research, would

show differences in personality profile from those who are reputed to be unsuccessful at this task. (It should be emphasised that such designated differences would be open to alternative explanations than the one formulated above) It was specifically hypothesised that these differences will relate to extraversion, cyclothymia, confidence, and premsia on the 16 PF with 'psi conducive' experimenters scoring higher on these traits than 'psi inhibitory' experimenters

4. Rapport : Because many of the concepts and factors which appear to be involved in the experimenter effect are of an interpersonal nature, it was felt that some overall measure of rapport was needed. Although there is no specific reference to this in the literature, there is frequent mention of the need to treat subjects in a warm, friendly manner, to make them feel at ease and so on. The experimental findings also show differences between when subjects are treated in this way and when they are treated more formally. It was decided that the concept of rapport could be taken to include these aspects of the interaction. The difficulty is that psychology does not seem able to offer a reliable test of rapport, empathy, or even social skills that could be applied here. However, research from the psychiatric field shows that reliable ratings of empathy can be made from short taped extracts of the interaction between individuals. It was decided to devise a rapport scale as would be appropriate to the experimenter-subject interaction and standardise it using external judges. Given this, it was predicted that variations in the level of rapport for sessions will show a positive relationship to the ESP scores obtained.

5 Psi-Mediation : At the time of the formulation of the hypotheses this seemed to be on the evidence available the least plausible of the possible mediation factors, because it seemed extravagant and tautologous to postulate a psi factor to explain the experimenter effect in psi research. Since the effect, if it occurred, was an unconscious and unintentional one, it was considered necessary to test for it in this way. The work of Stanford on the PMIR model (reviewed earlier) provided the basis for such a test. An ESP test disguised as a construct inventory was designed. It was predicted that 'psi-conducive' experimenters would score significantly on this test while the 'psi-inhibitory' experimenters would produce chance scores.

All the hypotheses were stated in written form along with procedural statements prior to any data returns. It is also necessary to state some negatives about the overall design. No attempt was made to produce conclusive evidence for the ESP hypothesis, since this was taken as a working hypothesis. And no pretence is made that the studies did more than test out whether the above factors are potent and critical ones underlying the experimenter effect.

CHAPTER 4 : EXPERIMENTER EXPECTANCY

While there is no parapsychological finding that is immune to criticism over the repeatability problem, there appears to be a consensus of opinion among researchers that the 'sheep-goat effect' represents the nearest to a replicable finding Schmeidler and McConnell (1958) reported that 'sheep' (those subject who believe in ESP) score significantly different from 'goats' (those subjects who do not believe in ESP). Usually it is reported that sheep score significantly higher on the ESP test than goats. It seems likely that this belief or attitude about ESP is closely related to the subject's expectancy about his own performance in an ESP testing situation. In this context, it may be susceptible to experimenter influence. For example, subjects who are indecisive or vacillant in their attitudes may be vulnerable to the expectancy effects the experimenter builds up. But subjects who have more extreme viewpoints may become even more polarised or reinforced in their attitudes through interaction with the experimenter.

Although there has been little published research into experimenter expectancy in parapsychology, there is an extensive literature on the 'sheep-goat effect'. In a review of the extant literature, John Palmer (1971) concluded that the data suggested there is a genuine but weak effect confounded by the different criteria researchers had used to evaluate the belief-disbelief dimension. He listed these as :-

1. Belief in ESP in the test situation.
2. Belief in ESP in the abstract.
3. Belief that one has had ESP in the past.
4. Belief in one's own success in the test.

Criteria 2 and 4 appeared to be the most reliable for the purpose of differentiation of ESP scores and were the ones employed in the research program reported here.

If it is conceded that expectancy is a powerful factor affecting the outcome of experiments and the performance of subjects, then a corollary of this seems to follow. Both the discovery of high scoring subjects through conventional screening procedures and their subsequent performance should vary with the expectancy induced by the experimenter involved. If for heuristic purposes we assumed Rosenthal's findings to have validity, then it appears that the subject's expectancy will be

to some degree a function of the experimenter's expectancy.

The research strategy was two-fold; one involving the selection of individual subjects and the evaluation of the effect of experimenter expectancy in their scores, and the other involving the induction and manipulation of expectancies in groups of subjects.

SCREENING SERIES *

The aim of this project was to select high scoring ESP subjects and then compare their performance with different experimenters analysing the ESP scores in relation to the subject and experimenter expectancy scores. Twenty five student volunteers were tested using the Edinburgh Electronic ESP Tester (E.E.E.T.). The E.E.E.T. consists of an electronic randomiser which selects one of five lamps to be subsequently illuminated on a display panel. The subject has a similar display panel on which he is required to press the button that he thinks corresponds to the lamp illuminated on the agent's panel. The machine automatically records the hits and the number of trials carried out. At the time of testing, an extension lead which would have enabled the location of the subject's console to be in a different room from the agent's console, was unavailable. Therefore the procedure was to use the E.E.E.T. as an expedient means of selecting high scorers, and then follow up this with a more controlled series of card guessing tests. All subjects were initially tested in the telepathic condition in which there was an agent viewing the target.

Of the twenty five subjects, three were found who maintained statistically significant scores over at least ten runs (of twenty five guesses). The total results for all twenty five subjects for 159 runs, were 887 hits (dev. + 92, 159 runs, C.R. 3 7, P 0005) However, these excesses were almost entirely due to the three subjects. Further work was done with the two highest scorers, Miss J D and Mr. S.B. (The third subject was omitted because her scores were only marginal: a deviation of + 17 over 17 runs, P 036),

Miss J.D. was a twenty year old undergraduate student in psychology, who produced significantly high scores during her first testing session (a deviation of +9 over 4 runs, P = .02). She reported some apparent real life ESP experiences, but preferred to describe these as a form of

* This account is based on an earlier report published elsewhere (Parker 1974a).

sensitivity, rather than call them ESP or 'psychic'. In fact, as she recounted later, the results of the first session made her apprehensive about her possible abilities. Nevertheless, during the next session she produced a run with 15 direct hits on the target lamp (P = .000014), and the remaining ten guesses were all given to a lamp immediately adjacent to the targets, so that all 25 guesses could be considered either direct or 'displaced' hits (P 10^{-8})

Discussion revealed that she had been in a state of tension during testing, because she was afraid that if she did have ESP abilities it might imply that all her fears and intuitive feelings had some basis in reality. This fear seemed to make her always ill at ease on future occasions about being tested. Yet she did continue to produce high scores with A.P. in the same room acting as agent-experimenter. Unfortunately, as was remarked earlier, these conditions can only be considered as informal since the possibility of subliminal cues coming either from A.P. or from relays in the randomiser of the E.E.E.T., was not excluded. Under these conditions she averaged almost 10 hits per run (M.C.E. = 5) over the 10 GESP runs she initially completed (P 10^{-11}). Early on in the series, attempts were made to persuade her to perform successfully under more controlled conditions, but to no avail. The 'confirmation series' using ESP cards with the agent in a separate room, likewise produced only non-significant scores (Table 1) (Appendix C).

TABLE : 1

Results for Miss J D.

CONDITION	NUMBER OF RUNS	DEV. FROM CHANCE	MEAN SCORE	CRITICAL RATIO	P
E.E.E.T.	10	+ 43	9.8	7.9	10^{-11}
Zener Cards	10	+ 1	5.1	n.s.	

Attempts were made to introduce other experimenters. For a short period of testing she could produce high scores with Dr John Beloff present (P = 6 x 10^{-4}), but showed a decline effect when he took over completely as agent-experimenter (P = .02).

Another interesting feature was her ability to score not only directly upon the target, but also on the lamp spatially adjacent to it. This pattern of 'displaced hits' continued throughout all her GESP runs on the E.E.E.T. at a very high level (P = 3.5 x 10^{-7}).

Evidently, Miss J.D.'s lack of success under controlled conditions makes any ESP explanation suspect and may be seen as a pointer towards a subliminal hypothesis. But, it must be stressed that, whatever the nature of her abilities, she was highly sensitive to the test situation, and remarked herself that she was too shy and nervous a person to perform in such conditions. The conditions in which she did perform seemed to involve a tense but not over-tense state. At an anecdotal level this picture may seem to be vastly different from that painted earlier of the successful ESP subject being one with a strong belief in ESP and highly confident of his successful performance. However, it should be pointed out that she had a strong belief in the phenomenon as an extension of empathy and had also a high expectancy of success as regards her task performance. Due to a rather naive concept of statistics, she was disappointed that a score of eleven hits was not even half the run correct! However, because of the above difficulties, it proved impossible to proceed to the third stage of testing, that of comparing her expectancies and ESP scores with experimenters other than A.P. She finally became unable to repeat her high scores, although she continued scoring with 'displacement hits'. Because testing seemed to place such a demand on her, it appeared advisable at this point to terminate experimentation.

The investigation of the second high scorer, Mr. S.B., was more satisfactory, both from the point of view of evidence for ESP and of making some evaluation of experimenter expectancy on scores. Mr. S.B. was a twenty-one year old student of economics who seemed to react to the testing situation more as a challenge and to be intellectually intrigued by his success. However, in his case the scores were not so spectacular. He averaged just over 6 hits per run (M.C.E. = 5) during the 17 runs he eventually completed on the E.E.E.T. (P = .02) and the standard analysis for 10 runs reaches statistical significance at the .01 level.

TABLE : 2

Results for Mr S.B.

CONDITION	NUMBER OF RUNS	DEV. FROM CHANCE	MEAN SCORE	CRITICAL RATIO	P
E.E.E.T.	17	+ 19	6.1	2.32	.02
Zener Cards	16	+ 22	6.4	2.75	.006

Again the E.E.E.T. runs were to be regarded as exploratory, and the confirmation stage to be a standard GESP card guessing procedure. For this, A.P., as the agent, was located in a separate room or cubicle from S.B. A.P. first shuffled an open pack (a pack not necessarily having equal numbers of each symbol) prepared by mixing three packs. (The packs were placed in a box and thoroughly shaken). He then looked at each card in turn at a rate determined by S.B. and co-ordinated with a signal device (operated by S.B.). Guesses were recorded on separate sheets from targets and scored only after the planned series of 16 runs had been completed. The results (table 2 and Appendix C) indicate a mean of 6.4 hits per run (P.006). If we concede this is strong evidence for the presence of ESP and gives support for the operation of ESP during the E.E.E.T. series, then S.B. was able to maintain his scores over a total of 33 runs (P .0005).

EXPERIMENTER COMPARISON WITH S.B.

The third stage of this project involved an introduction of another experimenter, B.M., who was a research associate in the department. Because B.M. had established a self-confessed reputation in failing to obtain significant findings in ESP research, it was hypothesised that a comparison of S.B.'s performance with A.P. and with B.M. would reveal lower ESP test scores and expectancy scores with B.M. Expectancy scores were the subject's estimates of his score made blind after each run. For this purpose S.B. was kept ignorant of the hypothesis and B.M.'s previous 'reputation'. Twenty runs were completed, ten with B.M. as the experimenter, and ten with A.P. as the experimenter. So as not to compound expectancies, the experimenters were blind to each other's results but not their own. Two runs were completed in each session and when possible the sessions were alternated between the two experimenters. The E.E.E.T. was again used to give a GESP (telepathic) test in which the experimenters also acted as agents. However, as no extension cable was available at this stage to locate the target and guessing consoles in separate rooms, this meant the tests could only be regarded as exploratory.

The total score was significantly above chance expectation ($P < .015$). With A.P. as the experimenter, the scores were positive but non-significantly so, while with B.M. as experimenter they were both positive and significant ($P < .04$). Contrary to the hypothesis, the

difference in scores favoured B M but was non-significant (Corr. t - .29) (Table 3).

TABLE 3

Results of the B M - A P series

	NUMBER OF RUNS	HITS	MEAN SCORE	CRITICAL RATIO	P
Total Scores	20	122	6.1	2.46	.015
B.M.	10	63	6.3	2.06	.04
A.P.	10	59	5.9	1.43	n.s.

A rank difference correlation between S.B.'s expectancy estimates and the number of hits was both negative and non-significant (r - .13). These expectancy estimates were higher for B.M. (Mean estimate 5.2 hits) than for A.P. (Mean estimate 4.9 hits) although this difference was again a non-significant one.

Although the series was exploratory, the results are so contrary to the predictions that they claim some attention. It is possible that this kind of estimate is too crude a measure to discriminate between scores given the small ESP effect that was present with S.B. However, it is interesting that both J.D and S B were able to score significantly with experimenters who had been previously regarded as 'psi-inhibitory'. This may appear to contradict the established viewpoint in parapsychology However there are in the experimental literature several cases of high scoring subjects performing successfully with 'psi inhibitory' experimenters* Although it is difficult to know how to interpret this it may be that once the subject's confidence in his ESP performance is established then he is able to score with a variety of experimenters present. Indeed it may be that the introduction of other experimenters increases the scoring level because of the novelty associated with such changes.

Another puzzling aspect of this project is the level of success in finding two (or three) high scoring subjects amongst a sample of twenty five volunteers, when previous testing (Beloff and Bate 1969) over a longer period with a larger sample had failed to find any such subjects. It was speculated that if this were due to a high expectancy of success, then a more sensitive test might result from a group situation.

* M. Price's subjects were able to score significantly with Pratt present as an observer (Chapter 3), and Shackleton produced high scores with D.J. West present (K.M. Goldney personal communication May 1976).

Since shortly after some further testing (reported in the next chapter) S B.'s scores declined, it was decided to study the problem further in this context.

THE INFLUENCE OF EXPERIMENTER EXPECTANCY ON ESP SCORES IN GROUPS : Pilot Study *

In the previous section, it was commented that one subject had a high expectancy of success due to a belief that she should obtain 12 or 13 hits per run by chance alone. As part of a procedure in which groups of experimenters were exposed to different experimental treatments, one group was instructed to expect to obtain scores of 7 to 10 hits per run (this was a slightly more realistic figure) from their subjects while the group was given reason to believe that they should obtain scores close to chance (5 hits per run). The rationale the groups were given for expecting these scores was given in the form of a briefing on the existence versus non-existence of ESP by a senior experimenter. In principle then, the experiment was a direct application of the Rosenthal and Fode (1963) technique of exposing experimenters to two sets of contrasting expectancies concerning the results they should obtain.

Method : The experiment was carried out as part of the undergraduate psychology course in experimental design. Eighteen students were divided on a volunteer basis into six experimenters, six subjects and six agents. The experimenters were then further divided into two groups, A and B. Those with a strong prior bias towards belief in ESP were asked to join group A, and those with a strong bias towards disbelief in the phenomenon to join group B. The two groups of experimenters were then separated and in turn given brief lectures on ESP and testing procedures. These were given by the Senior Demonstrator for the course and it could be assumed that he was regarded as a 'high status' person by the class members. Group A were told that ESP had been 'proven' by scientific research using testing methods like the ones they were going to experiment with. They were then given instructions as to how to perform a GESP test and told to expect between 7 and 10 hits per run from their subjects.

The experimenters from group B were given instructions aimed at promoting the opposite expectancy. They were told that ESP research is riddled with flaws and errors, and that there is no reliable evidence for

* This report is partly based on earlier report published elsewhere (Parker 1974c).

the existence of ESP. Examples were given of the traditional criticisms levelled against ESP research; sensory cues, recording errors, selection of data etc. After being given the same instructions for carrying out the GESP test as group A, they were told that if the experiments were conducted in a strict controlled manner, they should obtain scores close to the chance expectation of 5 hits per run. Finally, both groups were asked not to discuss the experiment with those members from other groups.

The procedure was for each of the experimenters to complete two runs with their subject-agent pairs and then exchange with their corresponding number in the opposite group. Thus experimenter A1 exchanged with experimenter B1, experimenter A2 exchanged with experimenter B2, and experimenter A3 exchanged with experimenter B3. Two more runs were then completed with the new subject-agent pairs. This exchange was for the purpose of reducing the effect of subject differences on the scores and increasing the proportion of the variance that might result from the experimenter. All runs were carried out in the GESP condition with subjects and agents located in separate cubicles. Packs of ESP cards were used that had been randomised by the senior experimenters (by dove-tail shuffling). The subject made his guesses at his own preferred rate, and these were co-ordinated with the card order looked at by the agent, by the experimenter (who could see the subject through the cubicle window), calling to him when the subject had made his guess. When both the runs were completed, scoring was checked by the experimenter, subject and agent. Instructions were given to record guesses and target card order on separate sheets. However, due to an error in the administrative procedure not all the agents' target sheets were handed in, so it was not certain this was done in all cases.

A post experimental interview was conducted and it was concluded from this that the expectancy instructions had been convincing and effective. None of the experimenters admitted to suspecting that the briefing they had been exposed to was part of an experimental manipulation.

Results : The total score was non-significant (118 hits, M.C.E = 120) but as predicted the scores of group A were significantly higher than those of group B.* Group A experimenters obtained 67 hits and group B

* This is only so if a one tail test is admitted as being legitimate here. Although this was not specified in advance the direction of scores was.

51 hits (M.C.E. = 50, C. R diff = 1.64, P = .05, one tailed). None of the subjects produced scores which were individually significant. However, two of the experimenters had scores which contributed almost all of the deviations. One produced 28 hits with her subjects (P = .02, one tailed), while the other produced only 13 hits (P = .05, one tailed) (Appendix C). It should be mentioned that the first of these had a strong pre-existing bias towards accepting the existence of ESP, while the other was biased (although apparently not so extremely) towards disbelief in ESP.

Comments : Some caution must be exercised over the interpretation of these results. The sample size is very small which, while detracting from the generalisability of the effect, suggests it is a potent one. However, this interpretation depends entirely on the integrity of the class experimenters in supposing that the results were not confabulated in any way. With this assumption, the findings provide some guidelines for further work. We need to know to what extent the effect is due to prior biases, and to what extent it is determined by the experimental treatment. It may be that there are neutral experimenters whose results are unaffected by such suggestions, or who do not have prior biases that affect the results.

The Follow Up Attempt

In attempting to confirm and extend these findings, several difficulties of a practical nature arose. Some of these proved insurmountable and others imposed severe limitation on how close the experimental design could be kept to the original pilot work. The foremost problem was that the experiment could not be included as part of the same course work, since re-planning of the syllabus had made this particular period unavailable. Furthermore, the original primary experimenter who administered the two experimental treatments had left the department before the time of the follow up. (A.P. had not given the instructions in the original experiment because he was too well-known by students as being associated with parapsychological research).

These changes had important implications. They meant that it was extremely difficult to find a corresponding group of subjects who had some skills in experimentation but who were not oversophisticated about parapsychology. Because of this difficulty it was decided to select experimenters from the same course as the previous

group, but on a paid basis. Subjects were selected as volunteers who responded to a request placed on student notice boards. The role of the primary experimenter, who was employed to give the experimental treatments to the groups, was taken by the new senior Demonstrator to the course. Thus the aim of the design was to re-create as far as possible, the features of the pilot study. However, some further modifications were felt to be necessary.

It was decided to have a clairvoyant test rather than a GESP (telepathic) one. This would enable the targets to be sealed in envelopes in a pre-recorded sequence, thereby reducing possibilities of recording errors etc. Because of the limitation of the time available the testing procedure was simplified to only one ESP session encompassing the eight experimenters and eight subjects. (Four of the experimenters received a positive expectancy treatment and four a negative treatment). Finally, a check was made on the effectiveness of the treatment procedure by ratings the experimenters made of their expectancies before and after the procedure.

Method : Eight experimenters were selected as paid volunteers on the basis of a Sheep/Goat questionnaire administered prior to the experiment. This consisted of two ten-point rating scales, one concerning belief in ESP in general, and the other the likelihood of demonstrating ESP in the experiment (see Appendix B). It was arranged that the two groups, A and B, of experimenters categorised respectively as 'sheep' and 'goats', according to the responses to the questionnaire, would be equal in number. Experimenters from group A (sheep) were given suggestions about ESP research and a short talk aimed at reinforcing their belief in ESP (this is reproduced in full in Appendix A). They were told to expect between 7 and 10 hits per run and given instructions concerning the administration of the ESP test. Experimenters from Group B (goats) were given negative suggestions about ESP research and a short talk illustrating the traditional criticisms of parapsychology aimed at reinforcing their disbelief in ESP (this is reproduced in full in Appendix A). They were told to expect scores close to 5 hits per run and given the same administration instructions as group A. Both groups of experimenters were then asked to re-complete their 'sheep-goat' forms. For this they were given the rationalisation that the original forms have been mislaid. (This was to make it less obvious they had been exposed to a treatment situation).

The subjects were then randomly assigned to the experimenters who then carried out two runs of 25 trials under clairvoyant test conditions. For this, packs of ESP cards had been prepared in a pre-recorded order and sealed in opaque envelopes. These were opened after the subject had made his guesses (which were recorded separately). Finally, subjects and experimenters were de-briefed as to the true purpose of the experiment and the nature of the treatment procedures.

Hypotheses : It was predicted that the scores of group A would be significantly higher than group B. Secondly, it was predicted that the treatment procedures would be shown to have been effective in terms of changes in the sheep-goat test towards greater belief for group A, and greater disbelief for group B.

Results : The results of the ESP test for both groups taken separately and in comparison revealed scores that were close to chance expectation (Table 4) and opposite to the predicted direction. Neither did any of the experimenters or subjects taken individually produce scores that deviated from chance expectation. The treatment procedure appears to have been totally ineffective with group B (goats) experimenters. However, with group A, there was some effect both on their general belief and their confidence in succeeding at the experimental task. (See also Appendix C)

Comments : Because of the various changes in procedure and subject sampling, the experiment cannot be considered so much an attempt at replication, but more an attempt to extend the findings to a wider context. In this respect, the experiment was unsuccessful. One of several explanations is possible :-

(1) that the original pilot study produced results that were due to error or artifact.

(2) that the follow-up study failed to reproduce some essential feature(s) of the pilot study.

(3) that the original pilot study results were sample specific and not generalisable.

The evaluation of the effectiveness of the treatment procedure suggests it was at most only partially effective. The experiment was carried out under pressure with only half the period of time of that which had been available to the original pilot study.

TABLE 4

Results of the follow-up expectancy study

ESP test

	Hits	M.C.E.
Group A	35	40
Group B	41	40

Sheep/Goat test

	Pre Treatment	Post Treatment
Group A	32	23
Group B	61	61

Further Testing

Since the follow-up work with groups had proven so abortive it was decided that a more productive approach would be to carry out further testing with the successful experimenter from the pilot study, a Miss R.D. As well as having a strong belief in paranormal phenomena, Miss R.D. fitted the Rhine stereotype of the successful ESP experimenter in being gifted with social skills and an outgoing personality.

Five pairs of subjects were selected on a volunteer basis in response to a request placed on student notice boards. They were tested by Miss R.D. under telepathic conditions with the agent-sender located in a separate room from the subject-receiver. The E.E.E.T. with the extension cable was used for this test as described in previous experimentation. Subjects were tested for one hour periods and a total of 16 runs were completed by the 5 pairs.

Overall scores were at chance level (total hits 78, M.C.E. 80) and none of the individual pairs of subjects produced statistically significant scores (see Appendix C)

Subsequent Work by Other Researchers

Bruce Layton and William Turnbull (1972) have reported two studies which apply a similar but more sophisticated paradigm deriving from social psychology. Subjects were exposed to two treatment procedures; 'manipulation of belief' and 'evaluation of ESP'. Manipulation of belief involved an exposure to either a 'sheep' condition in which the experimenter told the subjects previous research had demonstrated the existence of ESP and professed to be personally convinced of its existence

or a 'goat condition' in which they were told the opposite. The evaluation of ESP consisted of the researcher suggesting to subjects either the possible beneficial or harmful effects of the use of ESP. After being exposed to one of the four possible sets of treatment conditions, subjects carried out a clairvoyant guessing test in which they attempted to identify the sequences of digits concealed inside envelopes.

Analysis of the subjects' responses to a post-treatment questionnaire showed both the manipulation and evaluation conditions to have differential effects on their belief in ESP. The results also indicated, as predicted, that subjects exposed to a positive evaluation of ESP scored higher on the ESP task than those who had been exposed to a negative evaluation. Manipulation of belief was shown to have an effect on ESP performance only through interaction with the sex of the subject. Males in the Goat condition and females in the Sheep condition scored significantly higher than the other groups.

A second experiment which was intended as an exact replication of this study however failed to duplicate any of these findings. This was despite the fact that the data indicated the belief and evaluation treatments were as effective as in the first study.

Once again, it is difficult to know how to interpret such findings. The first study employed about ten independent F tests in statistical evaluation which would render 'chance significances' likely. Yet it remains puzzling why such artifacts if they occurred, did not re-occur, in the replication experiment. It is interesting to note that both studies employed rating scales for the subject to rate experimenter interaction, and although we are not told further details "large and statistically significant differences in subjects' self ratings and ratings of the experimenter occurred between the first and second experiment".

Some experiments by Judith Taddonio are more conclusive and consistent. She used the simple but ingenious technique of inducing expectancies in her subjects and experimenters through informing them that a new test had been developed which they were to use and which had (according to the experimental condition) a bad or a good reputation for producing evidence of ESP. In one series of experiments (Taddonio 1975) subjects were classified as 'sheep', 'goats', and 'indecisives' according to their responses to a questionnaire. One group of subjects received instructions that the ESP task was a highly successful one, that

previous subjects had scored high on it. The other group received instructions that the task was not a good one for eliciting ESP. The actual ESP task was to clairvoyantly identify one word targets from sets of three contained in a list inside an opaque envelope. The results of both a pilot and confirmatory series showed the predicted differential scoring with the positive expectancy group scoring significantly above chance and the negative expectancy group scoring significantly below chance.

Taddonio applied this methodology also to experimenters (Taddonio 1976). Experimenters were told that a new ESP test had been developed. Those receiving a positive expectancy were told that previous research had shown the test to be a psi-conducive one (in which subjects score above chance), while those receiving a negative expectancy were told that previous research had shown the test to be a psi-missing one (in which subjects scored below chance) The results of the pilot and confirmatory series again showed these treatment procedures to be highly self fulfilling Experimenters produced results with their subjects scoring significantly above or below chance in the 'expected' directions.

CONCLUSIONS

While the research reported to date is too meagure to allow any precise conclusions about the role of experimenter expectancy in ESP research, it does seem to be an important one. Yet a high expectancy of success is probably not a necessary and sufficient condition for ESP to occur. It would not explain for example the decline of high scoring subjects such as S.B., or the eventual success of experimenters who have a low expectancy of success (e.g. in the present instance, the success of B.M. with S.B.). It appears more likely that it is one of several important psychological factors which interact with one another to produce an influence on the subject's ESP performance.

CHAPTER 5 : SPONTANEOUS SUBJECTIVE STATES

The notion that ESP is associated with a specific subjective state has many implications. First it challenges the traditional belief amongst parapsychologists that psi is a wholly unconscious process unamenable to awareness. But if there are internal cues to the process than either the availability or the utilisation of these may vary according to the interpersonal situation. It seems likely that the abilities involved, such as relaxation or imaginal functioning, may be influenced by the experimenter's interaction with the subject or by other extraneous factors in the experimental situation.

THE EVIDENCE FOR A PSI-CONDUCIVE STATE

While there is much evidence to suggest that altered states of consciousness facilitate the occurrence of ESP with free response tests, there is a dearth of research into the states of consciousness in which subjects succeed at multiple choice guessing tests of ESP. The evidence which exists does however support the view that many of the celebrated high scoring subjects made their guesses while in a spontaneous trance or detached state.

States of abstraction, relaxation, and concentration are listed by Smith and Gibson (1941) as featuring among the most quoted factors affecting ESP performance. Rhine's monograph 'Extrasensory Perception' (1934), made frequent reference to the apparent ability of his high scoring subjects to self-induce trance-like states during guessing. He writes (P.181) :-

"Several subjects have described their ESP experiences as involving a state of 'detachment', 'abstraction', 'relaxation' and the like. And it is rather apparent to the objective observer in many of them. Miss Bailey practically goes into light trance with eyes closed. Pearce seems to me to approximate light trance after he works steadily for some time. In fact, his eyes almost close and the pupils turn somewhat upward. Cooper, Zirkle and Miss Turner close their eyes then they do not have to keep them open. This was not required of them. Both Linzmayer and Pearce like to look off with a 'far away look' much of the time. The former especially was given to staring out of the window. He preferred this to closing his eyes saying that the images were uncontrolled with the eyes closed. The

fact that Miss Ownbey perceives the figures on the back of the cards and on the wall by hallucination, suggests that she, too, has achieved relatively good abstraction from sensory disturbances".

The later well-known review of Rhea White (1964) collates descriptions of psi conducive states given by subjects and experimenters during the 1930s and 40s. Here too, states of relaxed concentration and abstraction were implicated. However, there have been a few reports of the states of consciousness more recent high scoring subjects operate in. An example is the study of the subject Bill Delmore by Kelly and Kanthamani (1974) Delmore describes his psi conducive state as one of 'de-egoisation', that is 'intense, alert passivity, waiting for information to present itself whatever it may be'. In addition to this he is reported as having a vivid imaginal ability and a well founded confidence in his psi ability. By asking Delmore to give 'confidence calls' to guesses he thought to be correct, Kanthamani and Kelly (1974) found him to have almost complete awareness of success in the 8% of calls he checked. This stands in contrast with the high scoring subject Basil Shackleton who apparently had no knowledge of when he was succeeding (Soal and Goldney 1943). It raises the question of whether ESP is a conscious or unconscious process. If the process is a conscious one, it may depend on the attainment of certain psi-conducive states, which may in turn depend on the interpersonal milieu.

IS ESP A CONSCIOUS OR UNCONSCIOUS PROCESS?

The issue concerns whether or not there are identifiable subjective states or internal cues which enable the subject to be aware when he is making an ESP call as distinct from a pure 'guess'. Early reviews (Rhine and Pratt 1957, Rao 1966) had concluded that the successes subjects obtained in checking their hits (by 'confidence calls') were themselves a second order form of ESP.

Certainly there is evidence that subjects who are not over confident of their successes and limit their claims of hits to a few (between 5 and 10 calls) per run (of 25 trials) are capable of identifying either the psi process or their hits (Humphrey and Nicol 1955, Nash and Nash 1958, Schmeidler 1964c) Those who made many confidence calls did not show this discrimination, which may explain the above anomaly concerning Shackleton as being due to his reported overconfidence about his ability.

Some attempt has been made to determine whether or not there are 'internal cues' which accompany the successful confidence calls. McCallam and Honorton (1973) conducted post experimental interviews to attempt to identify these supposed cues. They isolated four criteria: the use of visual or auditory images, nondescript intuitive feelings, multimodal impressions, and pure guessing. Subjects guessed at targets in six standard decks of Zener cards, and also indicated when they felt particularly confident about the correctness of a call. Whenever the subject was correct, the experimenter called out 'Right' which constituted immediate feedback. For subjects completing short sessions (3 runs) there was a significant increase in the number of correct calls, suggesting subjects were learning something about the internal feelings that go with correct ESP performance. Examination of the cues that subjects reported using, indicated that multimodal impressions (involving several types of sensory and intuitive feelings) were associated with the largest increment in confidence hits after feedback. Feedback was found to be ineffective when large numbers of runs were completed; it was claimed that subjects then began to lose interest and motivation. Important as these findings are, the experiments suffer from a serious flaw which makes the results more difficult to interpret. McCallam and Honorton used closed packs of Zener cards in their feedback training instead of the open packs that were appropriate for this procedure. Because of the fixed number of symbols in the closed packs, the subject can, through feedback, keep track of the symbols that have turned up and thereby optimize his guesses near the end of the run. Fortunately, the findings have had some recent replication with effective stimuli (Gelade and Harvie 1975). They also have some construct validity with research on the role of mental imagery in ESP performance. There is some independent evidence which implicates strong and autonomous imagery in the ESP process (Price 1973, Honorton 1975). Although the relationship appears to be a complex and imprecise one, much of the error variance in it may result from the unreliability implicit in the psychological tests of imagery, rather than the relationship itself. Moreover, this suggestive finding is consistent with the research previously mentioned involving the special subject Bill Delmore. Strong visual imagery was thought to play an important role in his ESP ability.

Further support for the argument that subtle internal states are associated with successful ESP performance is gained from altered states of consciousness research. Specifically, there is some research strongly suggesting hypnosis and relaxation are psi-conducive states (Honorton and Krippner 1969, Braud and Braud 1974). Thus it is possible that subjects who perform well in a card guessing paradigm, are those who can enter a relaxed or hypnotic-like state. Such states may be conducive to imagery and ESP. This again fits with the clinical impressions of Rhine concerning his subjects, quoted earlier.

Yet as consistent as this may appear, the picture is not without its discrepancies. For instance, some years ago John Beloff and Ian Mandleberg (1967) attempted to validate what they called the 'waiting technique'. This was a direct application of Rhea White's conclusions that most of the successful ESP subjects had employed a relaxed meditative state to facilitate the psi process to occur spontaneously. Beloff and Mandleberg had their subjects relax until they obtained a clear image of the target picture they held enclosed in an envelope. The results were at chance level. Moreover, there is actually little direct evidence for the supposed increase in scoring rate with feedback of results, although Tart has reviewed the literature and argues in favour of such a relationship existing (Tart 1975). The problem, as Tart rightly points out, is that in repeated guessing tests over 90% of the variance we are reinforcing is error variance and not due to psi. Yet this should not occur with very high scoring subjects such as Delmore. In fact Delmore appears to have performed significantly better under non-feedback conditions than with feedback, but here again the issue is confounded by his declared preference for the former method (Kanthamani and Kelly 1974).

The evidence for the hypothesis of a psi-conducive state (associated with repeated guessing tests) thus remains largely inferential and anecdotal. The empirical research findings relevant to it, appear inconclusive. However, the hypothesis does receive some strong support from findings within orthodox psychology. These concern the occurrence of spontaneous hypnotic-like states within the population.

PSYCHOLOGICAL RESEARCH AND SPONTANEOUS HYPNOTIC-LIKE EXPERIENCES :

The findings from general psychological research seem complementary to the above. There is evidence that a small but sizable proportion of the population has the ability to indulge in intense spontaneous trance states. Tart and Hilgard (1966) using self report scales of hypnotic depth, reported that hypnosis can occur spontaneously without a formal induction procedure, amongst sensitive subjects. In administering a suggestibility scale to their subjects who were supposedly in the waking state, with a few of their subjects they found it necessary to rouse them to full wakefulness. Moreover, their data indicated that for these subjects to respond well to suggestibility tests they had to enter a hypnotic state. The evidence is that the testimony of being hypnotised is an operationally useful variable. Although Theordore Barber is an outspoken critic of the trance conceptualisation of hypnosis and favours a behavioural interpretation, some of his own data supports the usefulness of the term. Barber and Calverley (1969) in making a multidimensional analysis of hypnotic behaviour, found that the testimony or self report of being hypnotised produced the highest correlation of all the variables with the other dimensions of hypnosis. Further, this intercorrelation accounted for 56 per cent of the variance in hypnotic behaviour. This would seem to justify the use of the term on heuristic grounds.

In addition, there is evidence that hypnotic-like experiences occur naturally in everyday life. Shor (1960) designed a 'Personal Experiences Questionnaire' to evaluate the frequency and intensity of these experiences. The scale refers to peak experiences, mystic states, reverie, and absorption in fantasy. The median response in terms of the number of experiences recorded by subjects was 41% and 59% for the two samples reported. The intensity scale of the questionnaire shared a high correlation with the Stanford Hypnotic Suggestibility Scale (Shor et al 1962). Imagery may be an important part of the hypnotic and hypnotic-like experience. Sutcliffe, Pierry and Sheeman found by questionnaire that subjects who reported more vivid imagery were more readily hypnotisable. They also found a measure of fantasy combined with vividness of imagery, to give a good prediction of hypnotisability. This has some importance when we remember how both imagery and hypnotic-like states have been implicated in the supposed psi conducive state.

One form of the Personal Experiences Questionnaire (P.E.Q.) is quite homogeneous in content with most of the items referring to 'spontaneous reverie', imaginal and fantasy states. It was therefore decided that this would provide an ideal research tool. The other major assessment method was to use a self report scale originally designed by Tart (1972) to measure hypnotic depth. (These will be described more fully later).

POSSIBLE MEDIATION OF THE EXPERIMENTER EFFECT THROUGH VARIATIONS IN SUBJECTIVE STATE :

The above review has presented the case for there being conscious attributes of the ESP process, whether they are identified as hypnotic like states, imaginal accompaniments, or 'internal cues'. Certainly by virtue of their repetitive nature ESP tests may be all too prone to promote reverie or hypnotic states amongst those who have a predilection to them. The material reviewed has primarily concerned subjects in repeated guessing tests but the following conclusions may apply with equal force to free response blind matching methods which in fact usually employ techniques to induce altered states.

If these internal states are as discreet and evanescent as descriptions suggest, then it is a short step from this to suppose that their induction may be critically affected by the inter-personal situation and may be experimenter dependent. For example, some experimenters may promote a relaxed internally focussed state during testing, while others may engender higher arousal and task orientation in their subjects.

Although I believe the hypothesis has not been fully developed and advanced in this form before, a similar conclusion was reached some years ago by Schmeidler and McConnell (1958) in their discussion of psi conducive moods :

"It may be that the subject-experimenter relationship is largely a matter of the kind of mood which the experimenter tends to engender in his subject. The successful experimenter is one whose personality (or presentation of the task) evokes relatively uniform moods, which then allow the emergence of consistent ESP - personality effects." (P.106).

RESEARCH HYPOTHESES AND DESIGN

Formally stated, three hypotheses were proposed :-

(1) The scores of high scoring subjects will show a positive

relationship to their subjective state in terms of movement towards an internally directed state.

(2) Subjects who report experiencing intense and frequent (naturally induced) subjective states will score significantly higher on ESP tests than those who do not report this.

(3) Subjects who discriminate between experimenters in terms of the ESP scores they produce, will also show a discrimination in terms of the subjective states they report during experimentation, the scores favouring those experimenters with whom more internally directed states are reported.

The research program concerning these hypotheses was two-fold. Use was made of the high scoring subject (reported on in the previous chapter), to compare his ESP scores and his subjective state reports with two experimenters, one of whom had a reputation for not obtaining significant scores in ESP research. In assessing 'subjective state', we initially used a check list questionnaire, - ('Questionnaire on Awareness During Testing' - Appendix B) relating to how passive and relaxed the subject felt and the way in which his concentration varied. This was initially used with both the special subjects J.D. and S.B. However it showed no discrimation in terms of scores and was quickly abandoned in favour of what was thought to be a simpler and more appropriate scale, the self report scale developed by Tart (1972). The scale originated as a hypnotic depth estimate but it has also had a wide application in ESP research with altered states (Parker 1975c). It is a five point self report scale ('State Self Report Scale', Appendix B) ranging from zero as representing normal alertness to four representing complete immersion in fantasy so as to be oblivious to external surroundings.

The second approach used the 'Personal Experiences Questionnaire' (P.E.Q.) in order to evaluate the second hypothesis. As noted earlier, the short form of the P.E.Q. (Appendix B) was chosen because it is the most homogeneous in content with most of the items referring to naturally occurring fantasy, hypnotic-like and reverie states. Many of the items have a face validity in applying to the ESP testing situation :

(7) Do you enjoy losing yourself in thought?

(8) Have you ever sat staring off into space, actually thinking of nothing and hardly being aware of the passage of time?

(11) Have you ever found yourself staring at something and for

the moment forgotten where you were?

(14) Have you ever wandered off into your own thoughts while doing a job so that you actually forgot you were doing it, and then found a few minutes later that you had finished the job without even being aware of it?

(17) Have you ever drifted off into your own thoughts while someone was talking directly to you?

(19) Have you ever been able to think yourself into a state of calmness, peacefulness, or relaxation by deciding to do so?

The P.E.Q. was administered to a group of subjects along with a conventional guessing test to subjects in a group situation.

STUDIES WITH A SPECIAL SUBJECT

This was the subject S.B. reported on in the previous chapter and the same series provided data for this analysis.

Pilot Series :

A series of 20 runs were carried out to compare S.B.'s ESP scores and state report scores with the two experimenters A.P. and B.M. As noted earlier B.M. was a research associate with whom it was hypothesised that S.B. would produce lower state and ESP scores than A.P. his original experimenter. Each experimenter completed ten runs with S.B. the sessions being alternated whenever possible between the experimenters (to prevent order effects). The Edinburgh Electronic ESP tester was used as before (Chapter 4) to provide a GESP (telepathic) text in which the experimenters also acted as agents. As noted previously, no extension cable was available at this stage to locate the target and guessing consoles in separate rooms, so the tests were regarded as exploratory.

The subject was required to give his state report at the beginning and end of each run. The experimenters were kept blind to each other's results, and the subject was blind to his scores throughout the series.

The total score was significantly above chance expectation (Mean 6.1, C.R. 2.46, P .015). With A.P. as experimenter, the scores were positive but non-significantly so (Mean 5.9, C.R. 1.43) while with B.M. they were both positive and significant, (Mean 6.3, C.R. 2.06, P .04) (Table 5). Contrary to the hypothesis, the difference in scores favoured B.M. but was non-significant. There was, however, a statistically significant difference in S.B.'s final state scores with the two experimenters. In accordance with the hypothesis, a higher mean state

score was given to A.P. than to B.M. (Mann-Whitney U = 25, Z = 1, 9, P .05, one tailed). It was decided to evaluate the relationship of these state scores across experimenters to hits. However, since in practice S.B. used only three points of the state report scale, a chi square was used by dividing the scores at the means. Because the values in the cells were small, a Yates correction was also needed. In addition, the situation was complicated by the fact that on two occasions during which S.B. produced high scores (9 and 13), he reported that he had been in a state of tension rather than relaxation for which there was no provision on the scale.

The chi square failed to reach significance (X^2 = 1.7, df = 1), (table 5). As a post hoc text, it was decided to compute a chi square omitting the above mentioned scores. Although still significant, this raised the chi square to 1.64 (P = .2) Nevertheless, considering the crude approximation of the technique and statistical evaluation, a further investigation seemed justified For this, a wider and more sensitive scale was used incorporating tension as well as relaxation.

TABLE 5

Results of the A.P. - B.M. Study.

EXPERIMENTER	NUMBER OF RUNS	HITS	DEV.	C.R.	P.	FINAL STATE SCORES	
						SUM	MEANS
A.P.	10	59	+ 9	1.43	n.s.	12	1.2
B.M.	10	63	+ 13	2.06	.04	5	.5

t test (corr.) diff. between means of hits = .29 n.s.

Mann Whitney for diff. in state means U1 25 P .05 (one tailed)

Chi square

Means dividing cells : Hits 6.1 Df 1 x^2 .17 n.s.

State 5

Replication Attempt

For this series two ten-point scales were used to rate mental and bodily states from tension to relaxation. It has been noted especially in the older literature that the supposed psi conducive

state, as well as being one of relaxed passivity, includes an element of tension and concentration (White 1964).

The same procedure as described above was followed, except for this series we were able to locate the subject in a different room from the target console. Six runs were completed with B.M. as the experimenter, and six runs with A.P. as experimenter. As previously, S.B. completed the state report scales before and after each run.

The combined total of hits showed a non-significant departure from chance expectation (Mean 5.5, C.R. .1). With A.P. as experimenter, S.B. obtained a mean of 4.7 (C.R. .63, non-significant) while with B.M. as experimenter, he obtained a mean of 6.3 (C.R. 1.64, non-significant). Correlation coefficients of mental and physical relaxation with S.B.'s ESP test scores were all at non-significant levels. Moreover, the means of the subject's reported states of physical and mental relaxation for the two experimenters were compared, and also showed non-significant differences (Table 6).

Although S.B. had scored with B.M. close to his usual level this was mainly due to one high score of 12 hits, and further testing by both ourselves and other experimenters revealed only scores close to chance expectation.

TABLE 6

Results of the Replication Attempt

EXPERIMENTER	NUMBER OF RUNS	HITS	DEV.	C.R.	P.	MEANS OF STATE SCORES	
						Mental	Physical
A.P.	6	28	- 2	.63	n.s.	4.67	3.50
B.M.	6	33	+ 3	1.64	n.s.	5.40	4.60

t test (corr.) diff. between means of hits = 1.00 n.s.

Mann Whitney for diff. in state means :-

Mental Scale U 13 P .4

Physical Scale U 8 P .12

Correlation Coefficient (Rho)

Mental - 03 n.s.

Physical + 13 n.s.

Discussion

It is unfortunate that S B.'s ESP performance only lasted for a short duration and did not permit a more extensive evaluation of the hypotheses in question. Throughout the period of testing with S.B., the emphasis was not so much on obtaining incontrovertible evidence of ESP but on learning something more about the phenomenon. In this respect, the experimentation fell short of its objective. Even so, as exploratory as this was, it seems fairly evident that with this particular subject there was no clearly defined relationship of ESP to subjective states.

As for the explanation of S.B.'s decline, this may have been due to two factors. What was most noticeable in the later series was the absence of the original novelty and confidence in success which characterised the earliest series. But it may be that an experience of the subject's played a larger role. Private discussion with S B revealed that in the interval between the last successful series and the attempt at replication, S B. had had an apparent precognitive dream of his father's death which proved veridical. This convinced him that "such things are better left alone."

As usual in parapsychological research, one is left with post hoc hypotheses.

RESEARCH WITH THE PERSONAL EXPERIENCES QUESTIONNAIRE

The P.E.Q. was used to assess the validity of the second hypothesis and also as a possible means of selecting high scoring subjects. The prediction was that those who scored high on this test (defined as the top ten percentile of scores) would score significantly on the ESP test. It was also predicted that this group would score significantly higher on the ESP test than the group comprising the bottom ten percentile of P.E.Q. scores. Analyses were to be made in terms of the frequency and intensity scales of the P.E.Q.

Subjects were 144 undergraduate students who were attending a course on psychological testing. A lecture was given on assessment techniques in parapsychological research and the P.E.Q. and ESP tests administered as part of the class demonstration. The P.E.Q. was first administered to each member of the class, and then followed by the ESP test. This consisted of 2 runs (of 25 trials) with Zener cards. For this A.P. performed the role of agent and was located in an adjoining room. Calls were synchronised using stop clocks with an assistant regulating

the guessing of subjects at one call every 20 seconds.

None of the hypotheses were supported and the null hypothesis was upheld in each analysis. The overall scoring of the group on the ESP task was slightly below chance (N = 144, hits = 111, t = -1.10). Subjects who obtained the top ten percentile of frequency scores on the P.E.Q. produced a non-significant deviation from chance on the ESP test, and their scores did not differ from those comprising the bottom ten percentile (Table 7). A similar analysis for the intensity scale of the P.E.Q. was clearly non-significant. Finally chi square* analyses of the distribution of P.E.Q. (frequency and intensity) scores in relation to hits, were also statistically non-significant (Table 7).

The results of this study thus gave no support for the hypothesis of subjective states being important correlates of the psi process.

TABLE 7

Results of the P E Q study

ESP Test Results :

N = 144

Mean = 9.77

M.C.E. = 10.00

t = 1.10

Scores in Relation to the P.E.Q. :

Top ten percentile - frequency scale

mean = 9.93

t = - .11

- intensity scale

Mean = 10.00

t = 0.00

Bottom ten percentile - frequency scale

mean = 10.46

t = .64

t diff. = - .56

- intensity scale

Several subjects left this scale blank or incompleted making the lower scores unreliable.

Chi Square Analysis :

Frequency Scale	Intensity Scale
X^2 = 8.70	X^2 = 4.75
df = 4	df = 4
P = .07	P = .3

* This was chosen in preference to a rank difference coefficient because of the large number of tied rankings that would have been necessitated.

CONCLUSION

How do we reconcile the results of these two studies with the evidence advanced earlier? It may, of course, be that the whole argument is erroneous. However, what appears to be more likely is that it is based on an over-simplification.

There is good reason to believe that subjective states form an important part of the psi process in guessing tests, but that they are compounded with other influences also seems probable. Some of these influences may be motivation, expectancy of success, novelty, and so on. Witness the decline of S.B.'s scores. It may also be an idiosyncratic feature of only certain subjects to operate in altered states of consciousness. Moreover, a subject such as S.B. who averaged about 18% excess hits, does not really compare with the 'star performers' in parapsychology who would register excesses two or three times this figure.

In addition, it is doubtful how sensitive a test these studies provided of the hypotheses. More sensitive instruments than the self report scales may be appropriate. This raises the possibility of using physiological methods such as biofeedback techniques, and recording of alpha activity. Yet it is equivocal as to whether such measures have much less error variance than the self report scales.* An informative experiment is that by Honorton, Davidson and Bindler (1971) in which they attempted to relate the three sets of measures: alpha activity, state reports, and ESP scores. They used the biofeedback technique to generate alpha activity and then compared ESP scores during this period with all those obtained when alpha was suppressed by the same method. Subjects also rated their depth of consciousness during these periods by means of state reports. An interesting link between the three factors was discovered. Those subjects with the highest state reports during the generation of alpha rhythm produced the highest ESP effect. The best prediction was thus given by combining both the phenomenological measure and the physiological technique. Some further information of this was given in an experiment in which an E.E.G. recording was made when a high order of ESP was in

* See Beloff 1974 for a discussion of physiological versus self report methods.

progress. Robert Morris and co-workers (1972) made an E E G recording with the special high scoring subject Lalsingh Harribance during a period in which some highly significant scores ($P\ 10^{-12}$) were obtained. Harribance was required to guess the sex of individuals whose photographs were being looked at in a separate room. During this his highest scores were associated with a greater time spent in alpha and with a change towards a greater amount of alpha activity. He described the accompanying subjective state as one of meditation in which he attempted to relax and clear extraneous thoughts from his mind. And to add a third order of influence, Morris and his co-workers noted Harribance's involvement and motivation for the task seemed to determine whether his ESP scores were high or low. It may be that this is the opening through which the experimenter effect operates.

CHAPTER 6 : RAPPORT AND OTHER INTERPERSONAL FACTORS

Many of the factors which traditionally have been assumed to play an important role in the experimenter effect appear to have both an interpersonal and an interactive nature. Such factors include the experimenter's and subject's rapport with each other, their mutual liking, and the induced mood and involvement of the subject in the task. These may not be separate unitary factors but may interact to determine the final effect on the subject's performance. Furthermore, it seems likely that some experimenters with some subjects may maximise one particular aspect such as inducing a favourable expectation of success, while with others the emphasis may shift to other factors such as the subject's mood and involvement. The multivariate method is the most appropriate for dealing with those kind of methodological problems. The method is recommended in particular for research on interpersonal behaviour (Murphy 1971, Golding and Knudson 1975)

Four aspects of the interpersonal situation are studied here; the experimenter-subject rapport, the subject's mood, his expectancy that the experimenter will succeed, and his involvement with the experimenter and experimental task. The research method that was chosen was the Ganzfeld technique of inducing an altered state of consciousness in subjects. Since it was hypothesised that experimenters might produce different degrees of relaxation in subjects by their use of this technique, a variable of subjective state was incorporated as an additional measure. The Ganzfeld method was selected for use in this experiment because there is impressive empirical evidence which implicates altered states as receptive to psi and in particular the ganzfeld as a reliable technique of producing such 'psi-conducive states'.

INTERPERSONAL VARIABLES

Rapport

As used here, the term refers to the ease with which experimenter and subject interact, the empathic qualities of that interaction, and the degree of success the experimenter has via that interaction in motivating the subject towards the task. There has

been little or no research on rapport (as defined here) reported in the parapsychological literature. However there are studies (presented earlier) in which differential ESP scoring effects were produced by treating subjects in a warm, outgoing, informal manner in one session, and then in a cold, reserved, formal manner in another (Johnson and Johannesson 1972, Honorton et al 1975) There are also several anecdotal examples of low rapport with previously successful subjects being associated with chance or below chance scores (Sharp and Clark 1937, Johnson and Nordbeck 1972).

Beyond this there is an extensive amount of research on the effect of teacher-pupil attitudes towards each other on the ESP scores. This 'attitude' was defined in terms of whether teacher and pupil had positive or negative feelings towards each other. This work stemmed from the findings of Van Busschbach with Dutch and American children. Much of this work was followed up by Margret Anderson, Rhea White, and Jean Angstadt in the U S A (Anderson and White 195 , White and Angstadt 1965) As White and Angstadt note : "Why has so much attention been paid to the teacher's role? The answer is that in the actual testing the teacher is in many aspects 'the experimenter' " (P 77) Yet as commented earlier this work was finally faulted on its lack of replicability. Indeed it is an indictment of the complex and reflexive nature of the research in this area that even findings which have relevance to the mediation of the effect, are themselves suspect as being experimenter effects' In a later chapter the possibility that these findings were 'psi-mediated' will be raised. However, there may have been a residual psychological effect. White and Angstadt (1965) in their review note that many of the later experiments are statistically non-significant, most of the findings are in the predicted direction. Further, those teachers who were able to repeat their results scored higher on an attitude inventory designed to predict skill at interpersonal relationships than those who failed to do so.

But any interpretation of these findings and many others concerning experimenter effects, is complicated by the fact that the experimenter (or teacher) duplicated as the agent thus adding another dimension of variations in 'transmitting ability' to the problem. Moreover, there is evidence that a close (in terms of positive effect) relationship

tween agent and percipient is conducive to high ESP scores (Rice and Townsend 1962, Pienaar 1971, Johnson et al 1972) To avoid these complexities, it was decided in the research reported here that subjects would attend sessions with a 'close friend' who could act as agent. Interpersonal measures were taken for both the agent and subject with the experimenter

Mood

The relationship of the subject's mood to ESP is one of the most researched areas and yet it has yielded little in the way of definitive findings. As has been suggested with subjective state any such relationship may be prone to the influence of the experimenter and for this reason it was included as a variable in the research here. Some experimenters may be skilled at promoting a psi-conducive effect in subjects. There is frequent reference to the importance of the subject's mood or affect in producing high ESP scores. Gibson and Smith (1941) cite mood together with excitement and interest as the most frequently reported psi-conducive factors

The experimental research on the relationships between ESP and mood suggests there is a slight general effect of mood on scoring which is diluted by the effect of other factors such as attitude (or expectancy of success as defined here), interest, and personality (Nielson 1956, 1970, Schmeidler 1971) Yet there are some anomalous findings. Osis, Turner, and Carlson in an ESP over distance experiment, found it necessary to take displacement hits and psi missing as well as direct hits into account. When this was done relaxation and elation correlated positively with ESP scores. Very recently Friedman, Schmeidler, and Daan (1976) reported that 'lack of aggression' and 'lack of social affection' (defined by them as a need for social affiliation), were the 'moods' that correlated very significantly with ESP scores.

Obviously, a major difficulty in interpreting these findings is the absence of standardised scales of measurement or even a generally agreed upon definition of what is meant by mood Others have used the term in a wide context of 'positive affect' - a state in which the subject is interested, confident, and enthusiastic about testing (Carpenter 1958, Rogers 1966) Not only do the self report scales and definitions of mood differ widely but also the

* defined as scores which are significantly below chance expectation.

methods of evaluating ESP (in terms of direct hits, displaced hits, psi missing, and variance). In this state of confusion one can only conclude that the effect of mood on ESP is still an open issue with unintegrated and non-replicated findings. One may suppose mood to be an important interpersonal variable which is sensitive to experimenter influences.

Transference or Involvement

Even within psychoanalytic circles there is lack of agreement about the meaning of the term transference (Sandler, Dare and Holder 1970). Here it is used to refer to the interest and involvement that the subject has which concerns the experimenter and experimental situations. Transference has frequently found application in the psychoanalytic literature as being an important factor facilitating ESP in patient's dreams and therapeutic sessions (Devereaux 1953). But in addition to this it is frequently mentioned in research on altered states of consciousness. The content of such experiences is said to be influenced by or even show preoccupation with the experimenter and experimental situation (Gill and Brenman 1959, Tart 1964). Specifically regarding the hypnagogic type experiences associated with the Ganzfeld technique Bertini, Lewis, and Witkin 1972 write :

" .... some subjects showed open preoccupation with the experimenter - what he is doing, what he is like as a person, what his purposes may be, suggesting a 'budding' transference as an important source of feelings in the experimental situation." (P.111). The issue of transference has in fact been raised several times during the course of parapsychological research (Honorton and Harper 1974, Stanford and Neylon 1974).

Although the concept in its psychoanalytic usage is too esoteric to have application here, it is felt that it may be an important variable especially in research incorporating altered states to facilitate psi. For this reason, it was thought important to include some evaluation of the type of feelings and fantasies subjects had about the experimenter and experimental situation. A projective technique was used for this purpose.

Expectancy and Attitude

This was discussed fully in Chapter 4. There is a considerable amount of evidence to suggest that the subject's expectancies in the

form of belief versus disbelief in ESP influence his actual performance on the ESP test.

Subjective State

This was discussed fully in Chapter 5. A case can be made for the implication of self reported changes in attention towards internal focusing in facilitating the occurrence of ESP.

THE CHOICE OF RESEARCH METHOD

The main difficulty in studying the experimenter effect in parapsychology concerns finding an experimenter who can produce significant results or a method that guarantees a sufficiently high rate of success so that different experimenters can be compared. Differences in their behaviour, methods of handling subjects, and dealing with the technique may relate to the differences in scores obtained.

The contemporary contender for a reliable method of inducing ESP has grown out of altered states of consciousness research Honorton (1975b) has argued that research on ASCs has shown an impressive level of replication. He notes that, of the 89 experiments reported in the literature, 50 rejected the null hypothesis, and this quota represented 17 out of the 26 laboratories involved. These results are such that even if every one positive finding that is reported there are five unreported negative findings, they would still be highly significant.

Of the various techniques employed in ESP research with alterated states of consciousness, one of the most convenient and reliable is the Ganzfeld. This was devised by Bertini, Lewis and Witkin (1972) as an experimental procedure for inducing hypnagogic-like experiences in subjects in the laboratory. A homogeneous field of auditory and visual stimulation is provided by means of white noise fed to the subject through earphones and by coloured light shone through the split halves of ping-pong balls placed over the eyes. An ESP target can be arranged using free response material (such as an art picture or slide) which an agent views in an attempt to influence the subject's imagery during the period of Ganzfeld stimulation.

The reliability of the technique as a means of ESP induction appears impressive. Another review by Honorton (1975a) states there were 15 reported studies in the literature of which seven were statistically significant at or beyond the .05 level. More informative

from the point of view of replication, is the analysis of results by laboratory. Of the 7 laboratories involved, 2 reported clearly significant results, 3 reported non-significant but suggestive findings, and 2 reported clearly non-significant results. Some of the significant studies were at an astonishingly high level of success. For example Braud and Braud (1975) using blind matching of the experiential reports to the targets ($p = 0.5$) obtained 10 hits and no misses ($P < .001$). The study is also noteworthy for its use of a control group. The control group reclined in a chair for a corresponding period to the Ganzfeld stimulation and obtained 5 hits and 5 misses.

The latest findings (1975-76) confirm this trend. There have been 7 more studies reported comprised by 3 clearly significant findings, 1 suggestive positive finding and 3 clearly non-significant findings. In accounting for the unsuccessful studies frequent reference has been made to the role of socio-psychological variables in the use of the Ganzfeld technique. In particular experimenter-subject interaction effects have been advanced as an explanation Palmer (1974) in comparing his results with the successful Honorton and Harper (1974) study writes :

"The most likely villain, in our judgment is the social psychological factor: For example in Honorton and Harper's experiment the agent either knew the subjects or talked with them before the experiment to develop rapport. In our experiment, the agent rarely even saw the subject and when he did it was only briefly. Any one of a number of other situational or experimenter variables could have differentially affected the results of the two experiments." (P. 52). Very recently Terry and Honorton (1976) have attributed great importance to the role of interpersonal skills in obtaining successful results in the Ganzfeld work carried out at Maimonides.

"We attempt to promote a sense of relaxed confidence in our subjects. We indicate that we have obtained success in prior work with these procedures and that we regard it as likely that they may also experience success in a psi-interaction. However, we make it clear that we still know very little about how to reliably produce psi-interactions, and it is alright if the subject is not successful in this particular session. We try to orient the subject toward

the psi task as an exercise in self-exploration, or self discovery that will be fun and interesting irrespective of the outcome. We believe it is important to recognise that certain aspects of these procedures are potentially threatening .... Reduction or elimination of the threat aspect requires a certain degree of sensitivity and interpersonal empathy on the part of the experimenter." (P.214) Although this was published after the research to be reported here was complete, it is included here as a further attestation of the importance attributed to interpersonal factors and of the need to test such claims empirically.

An additional consideration governing the choice of the Ganzfeld for this research concerns the 'psi efficiency' of the technique. It might be objected that the use of a free response blind matching method might render the magnitude and variance of the ESP measure to be too small to allow an experimenter comparison. (Such techniques inevitably have high chance expectancy values and a low number of trials.) However this ignores the psi efficiency of the technique compared with multiple choice card guessing methods. The usual measure of efficiency, the psi coefficient is derived from the psi quotient (p.Q.) developed by Helmut Schmidt. The P.Q. is a measure of the strength of the effect relative to the number of trials: $PQ = 100 \times CR^2/N$ where CR = Z score. The psi coefficient is then the ratio of the obtained PQ to the maximal PQ (which would occur if information transmission was perfect). Thus the psi coefficient ranges between zero and a hundred per cent. The measure approximates closely to standard measures of information transmission per trial (Beloff and Bate 1971). Honorton (1975c) has calculated the psi coefficient for unselected studies employing ASC's for 'psi receiver optimization' as 22.39. This compares most favourably with the value computed for the selected series with high scoring subjects which is only .17. The latter series included the scores of such star subjects as Shackleton, Pearce, Stepanek and Delmore. Moreover in an experimental study (Terry, Tremmel and Kelly 1975) the scores of a group of subjects obtained in a 'guessing' condition were compared with a group who made their guesses after a Ganzfeld period. The same type of picture targets were used for both conditions but they had been coded in terms of content into a binary system (of absence or presence of attributes) so enabling a direct comparison between the two conditions. The psi receiver optimization condition, the Ganzfeld,

was more than five times as efficient as the guessing procedure.

However, the term psi efficiency is misleading since it does not take into account the different amounts of time per trial for each condition, but only the information rate per trial. One Ganzfeld subject-trial may require 30 minutes during which 50 card guessing trials might have been completed. Even so, with a repetitive guessing procedure there is the difficulty of finding high scoring subjects and experimenters who are willing to undergo large numbers of testing sessions. In a Ganzfeld procedure, since the 'magic' is in the technique, different unselected subjects can be used for each session.

This is then the rational on which it was decided to carry out a pilot study to evaluate the success of the Ganzfeld in inducing ESP. After this, a larger study was initiated comparing the results of three experimenters with the Ganzfeld and analysing the results in terms of the interpersonal variables that were discussed earlier. In theory then the Ganzfeld technique was being used here as a method that seemed to guarantee the presence of some ESP. Variations in this were hypothesised to relate to variations in the interpersonal conditions.

PILOT STUDY

This study (Parker 1975b) was designed to evaluate the efficacy of the Ganzfeld as a technique of psi induction. It was completed before the results of the Honorton and Harper series (which served as a model for later Ganzfeld experimentation) were published. It was largely based on an earlier experiment using partial sensory deprivation techniques (Honorton, Drucker and Hermon 1972). For this reason there was an important difference in design from that of later Ganzfeld research. The sensory deprivation study had provided non-significant overall results but significant scores when the results were analysed in terms of the changes in internal states produced by the technique. Thus subjects who reported they were more sensitive to changes produced by the partial sensory deprivation gave scores indicative of ESP. It was therefore hypothesised that the Ganzfeld would produce corresponding results since it can be regarded as a form of minor sensory deprivation.

Hypotheses :

Two hypotheses were formulated: that those subjects who experienced relatively large changes in state would score significantly on the ESP task, and that those subjects who had high overall states would also score significantly. Changes in state were defined in the same way as the Honorton et al study as the difference between that given at the first 10 minute period and that given at the last 10 minute period. Overall state was the sum of the five state responses given during the session.

Procedure

30 subjects were selected on a volunteer basis. 12 were males and 18 were females. The age range was from 18 to 28 and most were students who were previous acquaintances of A.P.

They were initially greeted by A.P. who explained the purpose of the experiment. Next they were instructed in the use of a self report scale and asked to memorise it. This was a scale originally developed by Tart (1970). It is a six point rating scale of internal states of awareness ranging from 0 when the subject is alert and aware of his external environment to 5 where he is oblivious to his surroundings and immersed in thought and imagery The scale with instructions is reproduced in Appendix B.

When subjects were familiar with the use of this scale, they relaxed in a reclining chair or on a couch. The halved ping-pong balls were then taped over the eyes and a red light source positioned in front of the face so as to produce a uniform unpatterned visual field Stereo earphones were next fitted and white noise fed from a pre-recorded cassette band.

Subjects were exposed to this experimental hypnogogic or Ganzfeld procedure for a period of 30 minutes during which they were interrupted and requested to give state reports every ten minutes. During the final ten minutes of the Ganzfeld period, the agent concentrated on an art picture card which was the ESP target. This target was randomly chosen from a set of four such cards. The cards had been sealed in enveloped and coded by someone (J.B.) external to the experiment. Then using random number tables (continuing from the previous entry point) A.P. selected the target envelope according to the ordinal correspondence of the codes with the number selected from the tables

Thus no one actually knew the target content prior to each session.

At the completion of the Ganzfeld session, the subject was asked to make a brief report of his imagery. The agent then handed the experimenter an envelope containing the full set of 4 cards (one of which had been the target). No communication was allowed between the agent and subject during this period. The subject was then required to rank the cards in order of proximity to his recalled imagery and experiences from the Ganzfeld period.

Usually A.P. performed the role of the agent while an assistant (R.B. or B.M.) acted as experimenter during the Ganzfeld and target ranking period of the experiment. When the ranking was completed the agent was called in and the results discussed.

TABLE 8 : Results of the Pilot Study

TOTAL SCORES :	11 hits and 19 misses p = .5 (Ranks 1 and 2 = hits Ranks 3 and 4 = misses) N = 30 Dev. = -4 P = non significant.
SHIFT IN STATE :	from the first 10 minutes to last 10 minutes (30" - 10") Mean Shift = .50
Above Mean	4 hits and 15 misses MCE = 9.5 Dev. = -5.4 S.D = 2.18 C.R = 2.48 P = .013
Below Mean	7 hits and 4 misses MCE = 5.5 Dev. = +1.5 P = non significant.

High Versus Low Overall State

Mean Sum State = 360.5/30

Scores per Subject = 12.02 (for 5 responses per subject)

Above Mean	1 hit and 10 misses MCE = 5.5 Dev. = -4.5 S.D = 1.66 C.R = 2.71 P = .0069
Below Mean	9 hits and 7 misses MCE = 8 Dev. = +1 P = non significant.

Results

The same analysis was carried out as had been used in the previous work (Honorton et al 1973). Ranks 1 and 2 were counted as hits, and ranks 3 and 4 as misses. The results appeared to be a mirror image of this previous work but with the significance due to psi missing rather than positive scores (Table 3).

The total score was 11 hits and 19 misses (where M C E is 15) which is clearly non-significant. However, the mean shift in state between the first ten minutes and the last ten minutes was .50 and subjects whose state reports showed a large shift in state above this mean produced only 4 hits and 15 misses (P = .013, two tailed) Subjects with a relatively small change in state below this group mean, scored 7 hits and 4 misses (non significant). Those who had overall high state reports (that is above the group mean of 12 for the sum total of 5 responses) also produced significantly negative scores by recording only 1 hit and 10 misses (P = .0069, two tailed) Those who scored below the mean produced 9 hits and 7 misses (non-significant).*

Discussion

It is puzzling as to why large shifts in state and high overall state reports should be associated with what appears to be a psi-missing effect (significant below chance scoring) while in previous studies such measures have been associated with positive scores. Moreover, most of the subsequent Ganzfeld work reported significant overall scores and did not include or make an analysis in terms of state report. An exception is the Stanford and Neylon (1974) experiment. Instead of state reports, subjects were required to give time estimates of how long they were exposed to Ganzfeld stimulation. Like this study, the overall scores were at chance level but the subjects who under-estimated time spent in the Ganzfeld tended to score positively while those who did not showed significant psi-missing (P = .005, two tailed) Similarly changes in body image noted during the Ganzfeld period, had a significantly negative association with ESP scores. Stanford and Neylon attributed this psi-missing effect to displacement of the ESP from the target card on to the control cards in each set. They note

* Three scores occur at the group mean; one hit and two misses. Although it is thought they are best dealt with by omitting them as in the above computation, even if they were included as occurring above the mean, they would not appreciably alter the significances.

that there were several striking incidences of what appeared to be exact descriptions of control cards. This is also an explanation favoured here since there seemed to be several occasions on which descriptions matched the non target cards.

Nevertheless, even if this is true, it has to be explained what influence was responsible for this displacement. Honorton (personal communication June 1974) noted that a major difference of this study from other Ganzfeld experiments lay in the absence of continuous reporting of thoughts, feelings, and images by the subject during his Ganzfeld period. If this were not done, Honorton reasoned, the lack of contact with the experimenter might result in the isolation being experienced as alarming or unpleasant. It is under such conditions that psi-missing is said to occur (Rhine 1952). However, it seemed more likely to the writer that the cause lay in the unsatisfactory method of interrupting the subject in order to obtain a state report. It was therefore decided that the confirmation study would incorporate :

(a) continuous reporting back by the subject of his experiences.
(b) requests for state reports pre-recorded and played automatically over the background white noise.

CONFIRMATION STUDY :
A THREE EXPERIMENTER COMPARISON

Factors in the Design

Since the pilot study suggested the technique had some efficacy as regards ESP induction it was decided to use it as a basis for experimenter comparison. Three experimenters were involved, J B., B.M., and the original experimenter A P. Because of the difficulties in matching subjects, a same subject design (in which subjects were rotated around the three experimenters) was chosen instead of an independent group design (in which each experimenter would have received matched groups of subjects). The objective was to use the Ganzfeld technique as a means of promoting a psi-conducive state and evaluate the effects of the experimenter-subject interaction on this reported state and the resulting scores on the ESP test. The ESP test scores were analysed in terms of the interpersonal and intrapersonal measure described in the previous section. Several other considerations entered

into the design of the experiment since by the time the follow up study was initiated several other Ganzfeld studies had been published with findings that were relevant.

The Agent : Several studies have stressed the importance of rapport between the agent/sender and the subject (e.g. Honorton and Harper 1973, Palmer 1974). It was also felt important not to confound the effects of the experimenter's (or assistant's) ability as agent with experimenter-subject interaction effects per se. For these reasons subjects were asked to attend with a close friend who would act as agent-transmitter.

Allocation of Subject-Agent Pairs : Twenty four subject-agent pairs were used and allocated randomly to the three experimenters according to one of six possible orders of sessions. These were :-

1. J.B. - A.P. - B.M.
2. A.P. - J.B. - B.M.
3. B.M. - A.P. - J.B.
4. J.B. - B.M. - A.P.
5. A.P. - B.M. - J.B.
6. B.M. - J.B. - A.P.

Thus each experimenter received 8 first session pairs, 8 second session pairs, and 8 third session pairs. It was also necessary to prevent any biasing through the deliberate allocation of any particular experimenter order to any particular subject-agent pair. For this purpose four sets of the above six combinations of experimenter order were written on cards, the cards shuffled, and the subject-agent pairs allocated in the order of their appearance to each card in turn.

Length of the Ganzfeld Period : It is reported that successful Ganzfeld experiments are associated with a longer period of perceptual isolation (average 37 minutes) than unsuccessful Ganzfeld experiments (average 22 minutes). The difference is statistically highly significant (Honorton 1975a). For this reason a 35 minute Ganzfeld receiver optimization period was used.

Instructions to Subjects and Agents : A survey of 'successful' Ganzfeld experiments also revealed that these experiments had included various instructions to both subjects and agents aimed at creating maximum understanding of what the objective of the experiment was together with an expectancy that it would succeed. In addition most of these experiments included clear instructions to participants concerning the procedure, such as how to relax and give continuous reports of experiences, how to view the target, and how to evaluate and

rank the possible target material Consequently it was thought advantageous to include the following sets of instructions. (For full details of these - see Appendix A.)

1. The Purpose of the Experiment (to S. and A.) : It was explained that previous research had suggested a link between ESP and ASCs, and in particular the Ganzfeld technique was a simple method of a hypnogogic like altered state. The apparatus was then demonstrated.
2. Viewing Instruction (to A.) : The agent was asked to avoid an over-intellectual attitude towards the target picture but to become involved in it as if it were a real scene that he was part of.
3. Ganzfeld Instructions (to S.) : The subject was told how to relax and asked to talk continuously describing anything he thought, felt, or imagined. He was told the Ganzfeld would promote a state of mind in which he would be receptive to ESP.
4. Target Judging (to S.) : The various ways in which the target may have been wholly, partially, or symbolically represented in the Ganzfeld experiences were briefly explained.

In addition to this a procedural protocol was prepared to each experimenter to follow. Beyond this experimenters were free to respond to subjects in ways which they felt natural to them. The following specific measures were included to evaluate this aspect of the experimenter-subject interaction.

The Measurement of Interpersonal Variables

As previously discussed, we were interested in assessing the influences of such variables as the expectancy of success, moods, rapport, and involvement in the experimental task. It was hypothesised that experimenters might affect different results by virtue of these factors. The difficulty is that psychology has developed few assessment techniques that are applicable to interpersonal behaviour. This situation exists notwithstanding the current upsurge of interest in this area, so that most of the focus has been purely observational or phenomenological (Hinde 1976). Although it is necessary to make frequent recourse to subjective self report scales in this area, some objective techniques of assessing rapport and other aspects of human interaction have been derived from the clinical field.

Several clinical instruments exist such as the repertory grid and the interpersonal perception method which can be used as measures of empathy (Parker 1973). However, most of these are based on the concordance between constructs and are only applicable to situations where an established relationship already exists. In an ESP testing situation it is uncommon for a pre-established relationship to exist between subject and experimenter. In order to check the validity of the type of factors advanced by Rhine and Honorton, what is needed is an instrument which measures social skills and sensitivity. Experimenters could then be evaluated on such a scale and their success related to the subject's performances on the ESP test. Again the difficulty arises that no such instrument appears to exist as yet (Cook 1971, Smith 1972, McHenry 1975). Recently Rosenthal and his associates (1974) have been involved in developing a 'Profile of Non Verbal Sensitivity' test in which individuals are required to 'read' the emotions and affect being expressed in real life situations presented in audiovisual form. Unfortunately at present the instrument is not generally available but it would seem to offer promise for future work in this area.

With regard to the immediate concern of the experimentation here, one technique was found to be readily applicable. It has been shown in client centred psychotherapy that reliable ratings of empathy and other variables in interpersonal behaviour can be made from taped extracts of interaction between client and therapist (Truax and Carkhuff 1966). The reliability of these ratings are high (between .65 and .95) and can be made from short extracts (between 2 and 4 minutes). In the therapeutic context, they have prognostic value and the scales have been cross validated by British judges (Shapiro 1976). It was therefore decided to apply this technique to experimenter-subject interaction by compiling a scale of rapport, and standardising it on taped extracts of interactions. A scale of experiment expectancy was also derived but this was found to have insufficient reliability to justify its application.

Several other measures were used to assess the remaining variables of the subject's mood, his expectancy of success, and involvement in the task. A self report ten-point rating scale was used to assess the subject's mood. Two ten-point scales were used for the subject to rate his belief in ESP and his expectancy of demonstrating ESP in the

particular session. (These are reproduced in Appendix B.) The factor of the subject's attitude towards the experimenter and experimental situation was thought to be best assessed by the use of a projective technique, the object relations technique (Phillipson 1955). It consists of a set of picture cards depicting ambiguous scenes about which the patient is requested to produce a brief story. One of the cards (A1) is designed to elicit information concerning the individual's attitude and fantasies about his immediate situation and relationship. It was decided that this might provide some useful information in the present context. Subjects responded to this after the experimental session (but before knowing the result), and were introduced to the test as a 'test of imagination', to produce a short story to card A1. These were subsequently rated on a ten point scale of negative to positive involvement (See Appendix B) by Dr Boris Semeonoff, a recognised authority on projective techniques.

Standardisation of the Rapport Scale :

The initial interaction between experimenter and subject (and agent) was tape recorded. This was the period during which the purpose of the experiment was explained. A total of 72 extracts (24 subjects x 3 experimenters) was obtained from which 12 samples were chosen so as to be as far as possible representative of the first, second, and third sessions, to include 4 sessions with each experimenter, and to be evenly distributed in time throughout the total period of the experiment. Four judges were used who had little or no previous contact with any of the experimenters (and were therefore presumably not biased in their judgments towards a particular E). They were provided with the 12 extracts in the form of a cassette and the rating scale. The scale required judges to rate on ten point intervals, the interaction from 'no exchange or only formal exchange' to 'spontaneity, flow, and understanding' in conversation, (See Appendix A). The results are presented in Table 9. The correlations of individual judges with the mean ratings were statistically significant for three out of four judges, and judge 'A' volunteered to allocate ratings to the total 72 extracts.

Table 9 : Correlations of the Judges' Ratings of Rapport with the Mean Rating (compiled from the other three judges' ratings)

JUDGE	PROD. MOM. CORRELATION	t TEST
A	+ .58	2.27
B	+ .67	2.87
C	+ .48	1.73
D	+ .65	2.68

Attempted Standarisation of the Expectancy Scale :

The same method was used for this. Judges rated the extracts on a ten-point scale from 'E believes the experiment will fail and S believes this also' to 'E and S are confident and treat the experiment as an interesting challenge, and are highly motivated' (See Appendix B). The results (Table 10) were significant for only one judge and therefore the scale or length of extracts were concluded to be unsatisfactory.

Table 10 : Correlations of the Judges' Ratings of Expectancy with the Mean Rating (compiled from the other three judges' ratings)

JUDGE	r	t TEST
A	- .12	.39
B	- .08	.26
C	+ .71	3.22
D	+ .35	1.18

Hypotheses

Three main hypotheses were formulated with respect to the major variables. These were :

1. There will be significant differences in ESP scores obtained by different experimenters.
2. The ESP scores will relate positively across experimenters to differences in state reports favouring those sessions with the larger changes in state and higher overall state.
3. The ESP scores will relate positively and significantly across experimenters to a weighted combined measure of rapport, expectancy, mood, state, and involvement, in the form of a multiple regression coefficient.

These deserve some further comment. No significances were hypothesised for the results taken as a whole, or each experimenter's results taken individually, since this was not a feature of the pilot study. It was, however, reasoned that each experimenter might produce results that were so to speak characteristically his, and these might emerge as significantly different from each other in overall scores. Hypothesis 2 was made a separate main postulate since it directly concerns the aim to replicate the finding of the pilot study. Instead of making separate hypotheses and tests for the interpersonal variables, an overall multivariate statistic was preferred since this would eliminate the problem of 'probability pyramiding', (Chapter 2) as well as providing the best prediction from combined variables.

A fourth, ancillary hypothesis, was postulated :

4. There will be significant differences in the interpersonal measure between experimenters. Psychological differences thus were reasoned to underlie the above hypothesised effects if such were forthcoming.

The following statistics were stipulated as tests of the hypotheses :

1. Analysis of Variance.
2. t tests for scores above and below means.
3. Multiple Regression Coefficient.
4. Analysis of Variance.

t tests were used for 2 in preference to the critical ratio since the former takes individual subject deviations into account rather than just the total deviation, and the effect was presumed to be due to such subject variation (Stanford and Palmer 1972).

All hypotheses and tests were specified in writing prior to experimentation.

Procedure

Twenty four subject-agent pairs were selected on an unpaid volunteer basis. About half were friends of A.P., and the remainder responded to a general appeal for subjects. Subjects were asked to attend with a close friend to perform the role of agent.

The subject-agent pairs completed three sessions with each of the three experimenters J.B., B.M., and A.P., taken in random order as described earlier. Thus each experimenter received 3 first session, 3 second session, and 3 third session pairs. The sessions were tape recorded for the initial interaction between experimenter, subject, and agent, since it was thought this period was crucial to determining the outcome of the experiment. It was during this period that the purpose of the experiment was explained and instructions to the subject on how to respond to the Ganzfeld were given. These taped extracts were later rated on the standardised rapport scale as described previously. Both subject and agent were next shown to the Parapsychology Laboratory which was used as the projector room, and the instructions for viewing the target slide (and using the projector) were given. Next the subject returned to the laboratory and the same five-point relaxation scale as used in the pilot study taught to him Then he relaxed in a chair and the halves of the hemispheres (split ping-pong balls) were fitted over his eyes To reduce discomfort to the minimum, sponge pads had been attached around the edges (making skin contact less irritating) and velcrose straps provided an easy means of attachment round the head. A coloured light source was placed in the centre of the visual field Three colours (red, blue, and green) were used so as to produce some initial* novelty from session to session. Finally the head-phones were fitted and white noise fed into these from a lateral response unit. Instructions given to the subject requested him to give a continuous report of all thoughts, feelings, and images that occurred, and the experimenter recorded these. In practice, less than half of the subjects actually complied with this. Subjects entered a 35 minute Ganzfeld period, and every 10 minutes they received a request for a 'state report' which had been recorded on a cassette tape and played together with the noise At the 30 minute period they were informed by the cassette recording that this was the 'impression period' during which the agent would view the target slide. Shortly before this occurred, the experimenter pressed a switch which activated a lamp in the agent's room. When this happened the agent unsealed the envelope containing the target slide, placed the slide in the projector, and viewed it for five minutes.

At the end of the Ganzfeld period, both subject and agent rated their mood and expectancy of success on the ten point scales Next

* In practice after 3-4 minutes of homogenous stimulation the subject's field of vision becomes achromatic.

the subject responded to the brief projective test. Finally, he was given a set of six picture cards, one of which corresponded in content to the target slide, and asked to rank order these in proximity to the imagery that had occurred to him during the Ganzfeld period. Instructions were administered detailing ways in which the ESP material might have manifested and a brief review was given of the written record of the subject's continuous report (if any).

When the cards had been allocated ranks, the experimenter and subject conferred with the agent to reveal the actual target and discuss the results. 'Hits' were designed by ranks 1 to 3 and 'misses' by ranks 4 to 6. As is explained more fully below, neither the experimenter nor the assistant who selected the target knew the actual content of the slide, so there was no possibility of communication of this through normal channels.

Throughout the experiment, individual experimenters were kept blind as far as practical, to each other's results in order to reduce confounding of expectancy effects.

Selection of the Target Material

A total of sixty slides matched with a set of sixty cards of corresponding content constituted the target pool. These were arranged into ten sets of six slides and cards on the basis of contrasting content. This was to facilitate the ranking of targets to the experiential reports. Cards were used for ranking purposes rather than slides in order to reduce time consumption. It was also thought this separate material should be used for the ranking process from that actually used by the agent in case any differences (e.g. in temperature) between the target slide and the others in the set arose through its use. This was a precaution that was not always observed in the Maimonides experimentation.

The sets of target slides were placed in envelopes by A.P. and the envelopes numbered. The individual targets for each session were randomly chosen by an assistant using a coin throwing method to gain entry to random number tables and continuing the sequence from there for the whole experiment. Thus neither A.P. nor the assistant knew the content of the target cards. The numbering of the envelopes was arranged to be different from that of the slides they contained, again, in order to eliminate any possibility of the target identifi-

cation number being communicated to the subject by normal means.

Results

The overall results in terms of hits (ranks 1 to 3) for the experiment as a whole and for the individual experimenters, were close to chance expectation (Table 11) There were 33 hits overall (MCE = 36, N = 72, p = .5) and there were no significant differences between the results of individual experimenters (experimenter A receiving 10 hits, B : 10 hits, and C : 13 hits).

An analysis of state reports in relation to hits also failed to show any significant relationships either to changes in state or overall state attained, and thus failed to replicate the earlier findings. (Table 12). Furthermore, there were no significant differences in those values given to individual experimenters.

Correlation coefficients were computed for the relation of hits to the interpersonal variables taken separately. These were clearly all statistically non significant. Moreover, the means of the hits and misses for the four variables also clearly showed non-significant differences and only one of the four measures produced differences in the predicted direction (Tables 13 and 14).

There were, however, some differences between experimenters in their interaction with subjects. Two way analyses of variance for the four interpersonal variables (Experimenters x Subjects) and a U test for the state report variable were computed. Highly significant differences were shown in terms of rapport and marginal differences on the projective measure and Question 2 of the expectancy scale. Differences between experimenters with regard to the subjects' moods and state reports were non-significant (Tables 15 and 16). t tests were computed to identify the sources of the variances between Es for the measures of rapport, projection, and expectancy. Two of the nine comparisons are highly significant and three marginally so (Table 17). Thus there is some indication that subjects responded to the three experimenters differentially. However, these interaction effects do not relate to the ESP test scores obtained. Eleven out of the 15 coefficients are positive in sign suggesting some basic psychological factor underlies these measures. The multiple regression coefficient with the five variables combined in a weighed measure with hits was non-significant (r = .15, df = 71) (Table 18).

TABLE 11

Overall Results of the Three Experimenter Ganzfeld Study

Ranks 1 - 3 hits Ranks 4 - 6 misses p = .5

		MCE	N
Total hits	33	36	72
E a	10	12	24
E b	10	12	24
E c	13	12	24

F (Es x Ss) = .125, df. = 2

TABLE 12

Analysis of State Report

Shift in State	Above Mean 23 hits and 29 misses
Mean = .88	Below Mean 10 hits and 10 misses
Overall State	Above Mean 20 hits and 18 misses
Mean = 9.6	Below Mean 13 hits and 21 misses

TABLE 13

Correlation Coefficients for Interpersonal Variables

	correl.	P
Hite - State Report	r_{tt} - .10	
" - Expectancy	r_{pb} - .04	
" - Mood	r_{pb} - .06	
" - Proj. test	r_{pb} - .06	
" - Rapport	r_{pb} + .06	
Expectancy - Mood	r + .23	.05
" - Proj.Test	r + .32	.01
" - Rapport	r + .09	
" - State	r_{pb} + .07	
Mood - Proj. test	r + .09	
" - Rapport	r + .07	
" - State	r_{bis} + .12	
Proj.test - Rapport	r + .22	
" - State	r_{pb} + .06	
Rapport - State	r_{pb} + .10	

TABLE 14

Standard deviations and Means for Interpersonal Variables

	MEANS :			
	Hits	Misses	Overall	S.D.
S's expectancy *	14.4	14.6	14.4	2.52
mood	7.2	7.4	7.3	1.53
proj. test	4.9	5.2	5.1	2.33
rapport	4.7	4.4	4.5	1.80

* Expectancy is scored on 2 ten-point scales and the other variables on a single ten-point scale.

A further analysis was made of interpersonal measures which had been recorded for the agent in the experiment (self-report ratings of expectancy and mood). These also failed to reveal any significant differences.

A post-hoc analysis was made of the scores of those subjects who had high (above the group means) state reports, expectancy, mood, and rapport ratings. This revealed 6 hits and 8 misses (N = 14). An analysis for decline effects revealed 12 hits for all three sessions.

Conclusion

The results of the study clearly support the null hypothesis against the ESP hypothesis. Thus the three main hypotheses were rejected. The fourth hypothesis concerning the occurrence of experimenter-subject interaction effects was clearly supported in one of the variables, and a weak effect was suggested in the case of another two. The major finding was that such interaction effects do not appear to determine the occurrence of ESP.

While it can be said a negative result such as this proves nothing, the findings do suggest there is no simple one to one relationship between psychological conditions and the outcome of an ESP experiment. The familiar replication problem also reappears here. Why did the pilot study produce significant results and the replication fail? The major difference between the studies seemed to be in the presence of what appeared to be more favourable psychological conditions in the replication attempt. (The Ganzfeld apparatus had been designed to be more comfortable, and coffee and reading material provided.) Yet compared with other successful Ganzfeld series there were differences. The most obvious was the difficulty in getting subjects to give continuous reports during the Ganzfeld isolation. If Terry and Honorton's observations (quoted earlier) are correct, this could be taken as a sign that few of the subjects felt relaxed and reacted positively to the experience.

How valid a test did this experiment provide of the hypothesis of interpersonal factors mediating experimenter effects? One serious objection that could be levelled is that we failed to provide a sufficient diversity of psychological conditions in order to incorporate those factors necessary and sufficient for the occurrence

TABLE 15

F tests for Differences between Experimenters on the Interpersonal Variables

Two way analysis of variance (Es x Ss), df. = 2

S's expectancy		1.92	
"	Q2 only	2.62	.08
mood		1.41	
proj. test		2.92	.06
rapport		13.99	.0001

TABLE 16

U tests for State Report Differences between Experimenters

Sum of State Scores :	Means	E a	21	E b v E c :	
		E b	25	U_1	235
		E c	18	U^1	341
				P	non. sign.
Change in State :	Means	E a	.88	E b v E c :	
		E b	1.00	U_1	254
		E c	.75	U^1	233
				P	non. sign.

TABLE 17

t tests for the Sources of Differences between Experimenters on the F tests

				t diff.
Rapport Means :	E a	3.43	E a v E b	2.53
	E b	4.57	E a v E c	4.33
	E c	5.52	E b v E c	1.91
Proj. Measure Means :	E a	4.38	E a v E b	1.72
	E b	5.58		
	E c	5.29		
Expectancy Means : (Converted to a 10 pt. scale)	E a	5.33	E a v E b	1.71
	E b	6.12		
	E c	6.04		

TABLE 18

Multiple Regression Coefficient of the Five Variables with Hits

R 12	- .10	B 12	- .097	1 = hits
R 13	- .04	B 13	- .043	2 = state
R 14	- .06	B 14	- .037	3 = expectancy
R 15	+ .06	B 15	+ .076	4 = mood
R 16	- .06	B 16	- .050	5 = rapport
				6 = proj. test

R = .15 Df. = 71

TABLE 19

Analysis of Agent Variables

Expectancy	Mean for hits	6.7	
	misses	6.8	
	F test (Es x Ss)	.04	df. 2
Mood	Mean for hits	7.3	
	misses	7.2	
	F test (Es x Ss)	1.52	df. 2

of ESP. Yet the means and standard deviations suggest subjects come to the experiment with an expectation of success and in a positive mood, and were provided with a wide degree of variation in experimenter interaction. Certainly the above argument is plausible but it is also unassailable by virtue of its appeal to unknowns, and in a controversial field this is less than acceptable.

CHAPTER 7 : EXPERIMENTER PERSONALITY

One of the regrettable consequences of the repeatability issue in parapyschology is that it can easily degenerate into a one-upmanship between those who are 'successful' at ESP experimentation and those who are not. The former group will often dismiss the efforts of the latter as lacking the necessary social and personal skills to engage the subject in the task. Those who fail to find evidence of ESP reply by deriding the success of those who do, as due to errors, incompetence, or even fraud. Yet there is little evidence that either of these is the full explanation. There is, however, some evidence mainly of an anecdotal nature that the experimenter effect is mediated by those areas of personality that relate to sociability and social skills. This has featured in several reviews beginning with the well-known comments of Rhine (1948), Rhine and Pratt (1957), Rao (1966), and most recently White (1976). Much of this has been detailed earlier and consists of recommended ways of handling subjects and interpersonal skills required, based on the experimenter's own experience. In addition, there are post-hoc analyses of experiments in which one experimenter obtained different results from another by apparently behaving in a different (but often unspecified) manner. Finally, there is the tangential support from research studies in which the experimenter has purposively treated groups of subjects in, say, an aloof detached manner versus a warm personalised style and thereby obtained a differential scoring pattern between the two groups (Johnson and Johannesson 1972, Honorton, Ramsey and Cabibbo 1975). However, there has apparently been no definitive attempt to pursue this further to see if there are any stable identifiable personality traits which characterise the 'successful' or psi-conducive experimenter.

What exists are again anecdotal descriptions of the personalities, or supposedly psi-conducive aspects of personalities, of those experimenters who have been exceptionally successful as ESP experimenters. For example, Gardner Murphy has written of J.B. Rhine :

"Everyone who knew J.B. Rhine during the early days of the Duke work knew that a great deal depended upon the combination of flexibility and terrific determination which characterised him - attributes often

thought to be mutually exclusive. An iron will and an irresistable determination to get a real performance out of his good subjects were combined with great gentleness and charm in dealing with each person as a person ..... From all I have seen of these elusive phenomena over thirty years, I'm convinced that they come to certain people and not to others largely because of deep-seated personality factors in those investigating them and that the searchlight should be turned directly upon the investigator." (Quoted in White 1976a, P.9).

Rhea White has also given a description of a successful experimenter, David Kahn, who while still a student at Harvard pioneered the first automated tests of ESP using computer scoring of the results. She notes how he succeeded under circumstances in which many others would have failed and "it is clear how strongly motivated he must have been and how unusual were the social gifts employed." (White 1976a, P.6). Of contemporary experimenters, Schmidt, Honorton and Krippner, and Stanford probably rank among the most 'successful'. Helmut Schmidt attributes his success to testing subjects in their own homes and establishing a close friendly relationship with them (Schmidt, personal communication 1972). Douglas Johnson a former subject of the Maimonides researchers, Honorton and Krippner, has testified to how they went to great lengths to create a warm, personalised atmosphere in their research. (Johnson, personal communication 1976). Rex Stanford in one of his publications (Stanford, Zenhausern, Taylor and Dwyer 1975) suggests that extraverted experimenters may be more 'successful' than introverted experimenters in psi research.

What do 'psi-conducive experimenters' - those experimenters who consistently report findings indicative of ESP - have in common, and in what ways do they differ from 'psi-inhibitory experimenters' - those experimenters who consistently fail to report evidence of ESP in their findings? The research reported below was an exploratory attempt to answer these questions. The most obvious choice of subjects for such an investigation are those parapsychologists who have already established a reputation for either obtaining significant results in ESP research, or who have gained a reputation for failing to do so or even inhibiting the phenomena. The choice of a personality test was more difficult. Since the above evidence did not seem to implicate a specific or narrow band of factors being involved, a global measure of

personality was chosen as the most appropriate, namely the 16 PF.

PARAPSYCHOLOGISTS' PERSONALITY IN RELATION TO THE EXPERIMENTER EFFECT

The basic design of this study involved the administration of the 16 PF to parapsychologists who could be designated on set criteria as psi-conducive or psi-inhibitory. It was hoped that an analysis of scores on the scales of the test would reveal differential profiles. However, it must be stressed in no way was this meant to be a test of a psi hypothesis. If such differential patterns were revealed it would be erroneous to conclude from this that there is a necessary connection between this and the ability to produce 'genuine' psi effects. Several other non psi hypotheses might be equally tenable. It could be argued that such differences, if they occur, merely reflect the different ways in which 'psi-conducive' and 'psi-inhibitory' experimenters evaluate and present their data. For example, there would be an obvious explanation if the 'psi-conducive' group scores lower on the N (Shrewdness - Naivete) Scale of the 16 PF than their 'psi-inhibitory' counterparts!

Nevertheless, it was felt that such an investigation would be an important initial step in checking whether such differences are as critical and definitive as claimed. Its meaningfulness of course, depended on contacting a sufficient number of parapsychologists whose success (or lack of success) as ESP experimenters was widely acclaimed. In this respect, the study achieved its aim.

The 16 PF - The Sixteen Personality Factor test (Cattell and Stice 1962) was chosen because it provides a reliable and diverse sample of personality traits many of which appear to relate to the social areas implicated in the evidence reviewed earlier. It is an externally and objectively validated test for which normative data are readily available. In addition, it has the advantages of existing in a multiple choice answer form which is convenient both for the subject to answer and the experimenter to score. Several forms are available, of which Form C was chosen because it is the shortest and least time consuming. These considerations were thought to be important since much of the data collection was conducted by mail and relied on the goodwill of the subjects involved.

Sixteen dimensions or trait factors of personality are measured by the test. One of these, Factor B, is that of intelligence.

Since there was little reason to suppose that this would be a differential factor between the two groups, respondents were instructed to omit questions relating to this dimension. The remaining factorial dimensions can be briefly described as :

Factor A - Cyclothymia - Schizothymia. This concerns the emotionally expressive, socially warm and co-operative to the reserved aloof, self sufficient dimension.

Factor C - Ego Strength. This is the dimension of emotional stability and is negatively correlated with neuroticism.

Factor E - Dominance - Submissiveness. This is social dominance referring to the degree of self assertion the individual has.

Factor F - Surgency - Desurgency. This can be described as nonchalance versus melancholia and sobriety.

Factor G - Superego Strength. This concept is derived factor the psychoanalytic one and refers to the degree of conscientious behaviour that occurs.

Factor H - Parmia - Threctia. This refers to socially adventurous versus shy behaviour.

Factor I - Premsia - Harria. The dimension approximates to tender versus toughminded behaviour but also relates to sensitivity.

Factor L - Paranoid Tendency - Security. This concerns suspicious versus trusting, accepting behaviour.

Factor M - Autia - Praxernia. This concerns the tendency to wish-fulfilment, unconventional behaviour versus practical, conventional behaviour.

Factor N - Shrewdness - Naivete. This refers to the degree of intellectual sophistication shown.

Factor O - Guilt Proneness - Confident Adequacy. This refers to the degree of self-confidence and security shown.

Factor Q1 - Radicalism - Conservatism. This is used in the socio-political sense.

Factor Q2 - Self Sufficiency - Group Dependency.

Factor Q3 - Self Sentiment. This refers to the expression of energies in a controlled ego directed manner versus an instinctual manner.

Factor Q4 - Ergic Tension. This refers to the degree of tenseness and excitability versus composed and phlegmatic behaviour.

A second order factor of Extraversion - Introversion can also be computed from loadings of the first order factors of cyclothymia, surgency, parmia and security (Cattell and Stice 1962, P.47). (Form C of the 16 PF is included in Appendix B.)

HYPOTHESES

It was predicted from the literature (above) that psi-conducive experimenters would score significantly higher than psi-inhibitory experimenters on the first order factors of cyclothymia (A+), confident adequacy (O-), and premsia (I+), and the second order factor of extraversion (Introv. -). This was intended as a psychometric translation of the stereotype of the successful ESP experimenter as warm, sociable, confident, sensitive and extraverted!

METHOD

Parapsychologists were contacted directly at the Parapsychological Associations 1975 Convention and by post. In both cases they were given a typed instruction sheet (Appendix A) informing them of the nature of the research and asking them to complete the attached 16 PF*.

In all, about 70 parapsychologists were canvassed in this way of which there were 37 respondents. The high rate of return can be attributed to the importance currently attached to the experimenter effect among parapsychologists.

These respondents included nearly all the major figures who were or had been recently active in parapsychological research. Of the 37 respondents 29 could be classified using set criteria as psi-conducive or psi-inhibitory. This group included 14 American, 11 British, 2 European, and 2 Indian parapsychologists. The mean age was 45.4. This created difficulties with use of normative data since the sample was so heterogeneous. However, as the comparison was to be between two groups, this is not as serious a problem as it first appeared. The American norms (Cattell and Stice 1962) were used to derive standard scores from which the psi-conducive and inhibitory groups could be compared on the above factors.

Criteria were specified in advance to classify experimenters into psi-conducive and psi-inhibitory groups. A psi-conducive experimenter was defined for the present purpose as one who consistently obtains

* Another test was also included. This will be discussed in the next Chapter.

statistically significant results, who has worked in parapsychology for at least two years and published at least two papers (as the main author), reporting statistically significant findings. A psi-inhibitory experimenter was defined as one who consistently fails to obtain statistically significant findings and who is known to have carried out at least three major projects reporting non-significant results. Included in the latter category were those experimenters who obtain results only with special subjects (and who have had no success themselves in discovering these), and also those experimenters who only obtain significant findings in the field of spontaneous phenomena.

The classification of respondents was carried out independently by three researchers J.B., B.M., and R.B., who were familiar with the field and literature of parapsychology. In order for a respondent to be classifiable as psi-conducive or psi-inhibitory, it was decided that agreement between at least two of the three judges would be required. Only those experimenters for whom this was possible were included in the subsequent analysis. By this method the personality profiles of 15 psi-conducive and 14 psi-inhibitory experimenters were obtained.

RESULTS

The results are presented in Table 20. None of the four predicted differences was shown to be statistically significant. Moreover, only one of these differences was in the predicted direction (premsia I+). In fact the data suggested that psi-conducive experimenters were slightly more introverted than the inhibitory group.

Of the remaining 13 factors that were evaluated on a purely post-hoc basis, two revealed significances at beyond the .05 level. Ironically, these were on Factors E+ and N+ suggesting psi-conducive experimenters were more dominant and shrewd than their counterparts. Consistency tests (Wilcoxon Composite Rank Method) were applied to see how general these effects were across subjects: that of Factor E just failed to reach significance, while that of Factor N reached significant at the .05 level (Rl = 155, N = 14).

Conclusions

As was mentioned, this procedure could only be regarded at best as a very crude comparative study with the aim of giving

TABLE 20:
Comparison of 16 PF socres for psi conducive and psi inhibitory experimenters

	Predicted Factors		
	Mean (Stand. Scores)		t test of diff.
	Psi-Cond. Es.	Psi-Inhib. Es.	
Introversion	6.77	6.62	.22
A	3.87	4.21	-.35
I	7.66	6.21	1.51
O	5.23	4.86	.60
	Other Factors		
C	5.33	5.86	-.65
E	6.13	7.71	-2.32 *
F	3.87	4.36	-.41
G	4.73	3.86	1.07
H	5.47	5.64	-.19
L	5.13	5.43	-.33
M	7.47	6.43	1.31
N	7.13	5.57	2.22 *
O	5.23	4.86	.60
Q1	7.67	7.57	.12
Q2	8.67	8.36	.54
Q3	5.60	5.86	-.38
Q4	4.60	4.36	.27

* P significant at .05 level.

leads for more precise hypotheses. The 16PF cannot be regarded as a sensitive means of testing the hypothesis of personality differences between experimenters since it is confounded by national differences and difficulties over normative data. Nevertheless, much has been claimed for the power of discrimination of the factors studied and one would have expected to find some support for some of the hypotheses in question. If such factors as extroversion and sociability are so universally critical in deciding the fate of the experimenter in ESP research, then it would seem reasonable to expect some of the predicted differences to show up on a crude comparison of the renowned 'successful' and 'unsuccessful' experimenters. It is particularly inimical to them that only one of the supposed differences was in the predicted direction.

With regard to the two post-hoc significances that did emerge, it is felt that too much importance should not be attached to these since the study did encompass 17 independent statistical tests.

While personality differences of some sort may yet be shown to underlie the experimenter effect, they do not appear to be of an elementary and obvious nature, as has been suggested in some of the literature.

CHAPTER 8 : PSI-MEDIATION OF EXPERIMENTER EFFECTS

That the transmission of experimenter expectancies might find a base in parapsychological communication, is a view that was considered seriously by Rosenthal himself. As early as 1961 he discussed with Rhine the possibility that ESP might underlie the experimenter effect (Rosenthal 1966 P.282).[1] The difficulty that Rosenthal was presented with was the failure of research to identify any unitary source of cues by which the effect could be transmitted. Moreover, the effect had been shown to be present on the first trial before the subject could receive any feedback or conditioning from the experimenter as to whether or not he had acted in accordance with E's hypothesis. Rosenthal (1966) writes :

"It might be expected that when observers can agree so well on experimenters' expectancies they would agree on the channel by which these expectances were communicated. This was not at all the case, however." (P.283)

Subsequent experimentation also failed to reveal any specific sensory channel :

"For all the hundreds of hours of careful observation and for all the valuable things learned about experimenter-subject interaction, no well specified system of unintentional cueing has been uncovered. Each experimenter may have some types of unintended signalling in common with other experimenters, but beyond that each may have some unique unintended signals." (Rosenthal 1969 P.254).

The absence of a channel, however, is hardly an argument for psi-mediation of the effect. Moreover, the hypothesis is at best extravagant and at worst tautologous. In a way that is suspiciously reminiscent of the Unconscious, psi is used here to 'explain' the unexplainable in the experimenter effect and then the effect used to explain the unexplainable in psi. Yet it is hoped that the further discussion here will convince the reader that the hypothesis has some logical foundations for it as well as some formidable empirical support.

1. It may be of historical interest that Rhine advised that ESP was too weak an effect to mediate the transmission of expectancies.

Given the existence of ESP and PK as working hypotheses, then it becomes presumptuous and arbitrary to suppose that they only operate with these individuals formally designated as subjects. A case can only be made for such special or high scoring subjects where their performance has been previously chronicled. Moreover, as Kennedy and Taddonio (1976) and White (1976c) have recently emphasised, when psychological factors are considered it is often the experimenter who has the strongest motivation and investment in ensuring that the experiment fulfils his expectations (positive or negative) and therefore to engage his own psi abilities. Eisenbud (1963) deserved credit for bringing this point to the attention of parapsychologists - with some added humour:

"Experiments are conducted on the curious assumption that the subjects in them will not use the very faculties they are being tested for .... until they step across the threshold of the laboratory and hear the starting gong, and that they will use these faculties only within the confines of their designated roles in the particular design employed .... By the same token, it seems implicitly to be taken for granted that experimenters (or 'independent' judges or checkers or raters, for their part) will not for whatever obscure reason, use any psi faculties, in short, as if there were some sort of gentleman's agreement committing subjects, experimenters, judges, and other participating personnel to stick faithfully to their assigned roles in the experiment as scripted and to neither take any notice of or infringe upon what any of the others are doing." (P.258)

Paradoxically, such role playing may be the very situation that is conducive to psi-mediated effects from the experimenter. An interesting article by Rex Stanford (1974) while at the University of Virginia, suggests this type of situation facilitates psi through the creation of 'ego alien conditions' in which the responsibility or cause can be attributed to some other agency (e.g. the subject). In this way he saw certain parallels between religious and magical rituals and that of the experiment. One of Stanford's main propositions is that PK functions most effectively when the attention of the agent is removed from the task:

"An experimenter preparing his apparatus, getting his animals ready, and then leaving them with some feeling of assurance that the exper-

ment will run and the animals will appropriately 'do their thing' cannot but remind us of certain aspects of magic, ritual, or perhaps petitionary prayer. Something is done with confidence that it will produce a desired result, and the participant, once he has done this, psychologically puts a distance between himself and the outcome. He is not trying to make things happen, but just trusts that they will. Again, such circumstances may provide an optimum opportunity for psychokinetic intervention." (P.338)

Indeed, in many cases where several personnel are involved, it becomes difficult to determine whether the psi effect is due to the subject, the agent, the randomizer, the checker, or the experimenter. J.B. Rhine has referred to this as 'the problem of psi indeterminacy' and noted that all the available evidence to date suggests that psi can penetrate complex combinations of equipment and method (Rhine 1975). The term 'dominant participant effect' has also been suggested (Nash 1975) to replace that of 'subject' and to refer to the individual who appears to influence the pattern of scoring.

Others have noticed how particular experimenters seem to 'impose the stamp of their own individuality' on their findings. They seem to have the ability to obtain results in some specific form or with some specific type of phenomena that come to be characteristic for that experimenter. For example, K.M. Goldney (1974) has noted the precognitive element in Soal's success with the medium Blanche Cooper (the 'Gordon-Davis' case) and his Basil Shackleton experiments, and the fact that he was himself an automatist. Similarly, Thouless (1976) notes that Soal initially did not accept the evidence for clairvoyance and therefore it may have been no coincidence that his subjects scored only on tests which involved an agent who knew what the target was. Similar effects may be true of other experimenters. There are those who seem only to obtain results with spontaneous phenomena (Pratt and Roll for example) and others who seem to be successful mainly in a specialised field of interest (Stanford with the P.M.I.R. Model and Schmidt with machine testing, for example).

But perhaps the most obvious effect that may be psi mediated is the so called 'Midas Touch' (Dale and Taves 1943). When an experimenter devises a new procedure or when he investigates a new problem which is challenging, subjects will often give higher scores than when the same

procedure is replicated although the conditions may seem the same. The first pilot study is successful then subsequent studies only produce non-significant results. It seems unlikely that we can explain this as an expectancy effect since the experimenter's expectancy of success should be higher after his first success. So if we suppose the Midas Effect to be psi mediated then it is possible that the psychological factors which were invoked to explain declines in scoring among subjects (loss of interest, boredom etc.) may equally apply to results that are contingent on the operation of the experimenter's psi.

A further implication that some of the results are due to the experimenter, is that many of the successful experimenters in parapsychological research have themselves started as subjects in ESP or PK experiments. Rhine was a subject in an experiment on the influence of alcohol on PK scores. (Averill and Rhine, 1945), Schmidt has used himself as a subject in some of his experiments with machine testing (Schmidt, 1974) and Stanford has been an ESP subject in a relaxation experiment. (Stanford and Stevenson, 1972). Particularly illuminating was an experiment which involved Honorton (who would surely head the list of contemporary 'psi conducive' experimenters) as a subject. The experiment involved the effects of muscle tension and relaxation on PK scores (Honorton and Barksdale, 1972). Subjects received suggestions to promote relaxation following which significant psi hitting on a random number generator was reported. However, it was very noticeable that the effect only occurred when Honorton was involved either as an individual subject or one among a group of subjects. On this basis, it was cncluded that "traditional boundaries between subjects and experimenters cannot be easily maintained..." (Honorton and Barksdale p. 213.)

Another example cf possible psi-mediation by the experimenter is given by Honorton (1975). This concerned an experiment in which control checks were made by himself on a random number generator before and after the experimental series. As individual samples the data provided good evidence of randomicity. However, when the two samples were compared, they were found to deviate in opposite directions at a highly significant level. Since most of the effects in psi research are differential ones, this is obviously important. (However, it is always open to the critic to suppose that this difference merely demonstrates the non randomicity of the R.N.G.!)

Several writers have recently commented on the unsurpassed success or Honorton as a psi experimenter. For instance, Millar (1976) writes:

"One wonders too that if the experimenter's own psi is involved could this bias the outcome of experiments to confirm the experimenter's pet theory .... Is it merely due to good judgment that Honorton has never had a hypothesis disconfirmed?" (P.41) Certainly there have been occasions where intuitively improbable hypotheses have been confirmed. For example in a Ganzfeld experiment the agent operated under two conditions of target transmission. In one he was exposed to the target tachiscopically for only 1 millisecond, while in the other, he viewed the target directly for a ten minute period. Only the tachistoscopic exposure gave significant results (Smith, Tremmel, Honorton 1975).

So far we have surveyed the general areas of application the hypothesis of psi-mediated experimenter effects has. This will be taken further in the final chapter when an attempt will be made to collate the theories of Schmidt, Stanford, and others against this background. But next we look at the more empirical evidence which supports the psi-mediation hypothesis and then the research project that was undertaken to evaluate part of it.

THE EVIDENCE FOR PSI MEDIATED EXPERIMENTER EFFECTS

The evidence has accumulated to such an extent that it has featured as a major part of several contemporary reviews of the literature on experimenter effects in parapsychology (Kennedy and Taddonio 1976, Thouless 1976, White 1976 b, 1976 c). This can be taken as an indication that the hypothesis is now receiving serious consideration from parapsychologists. The evidence features in four main categories; the error phenomenon (where a procedural error illuminates an apparent experimenter psi effect), the influence of personnel remote in space from the subject, the influence of personnel remote in time from the subject, and finally, a more direct type of evidence from disguised or 'unintentional' psi tests.

The Error Phenomenon.

This refers to the procedural errors, equipment failures, randomization, or checking errors which result in significant psi scores being produced. Because of their nature, such findings can only be considered suggestive.

Rao (1968) has cited several cases where errors in matching the targets to guesses have occurred and thereby produced significant scores. Here the errors were purely procedural and unlikely to

produce significances as artifacts. For example, in a precognition test subjects were required to respond to a set of words written in Telugu and then to the same words written in English. Target word order was determinted by random number tables. However, the sets were presented in the wrong order and the result was a significant number of hits.

Examples of mechanical error in recording have also been reported as having led to significant (but non-artifactual) scores (e.g. Schmeidler 1964). Procedural errors have also led to apparent significances. Ullman, Krippner, and Vaughan (1973 p. 190) report such a case in which a subject misunderstood the experiment to involve an attempt at precognition with different targets instead of, as was the case, telepathy using represented targets. The subject accordingly produced hits on non-synchronous targets which were to be used later.

It is difficult to know what significance to attach to such cases, especially since the hypothesis is an extravagant one, that these errors are themselves psi-mediated effects resulting from either the experimenter or the subject so as to bring about the desired significant result. However at the present state of knowledge this remains anecdotal and conjectural. Fortunately there is some more direct empirical evidence suggesting that experimental personnell can have an influence when spatially or temporally remote from the subject. We look at this next.

The Influence of Experimenters Remote in Distance from the Subject

These are cases in which the scoring pattern of subjects has known a differential response to changes in moods of experimenters or else the mere involvement of an experimenter, about which or whom they could have had

no sensory knowledge. The classical example again involved D.J. West, an experimenter who has in many ways gained a reputation opposite to that of Honorton; that of consistently obtaining non-significant results in ESP research. Partly because of this he decided to collaborate with an experimenter who had had some success, G.W. Fisk. The celebrated West-Fisk study (1953) was a home test for clairvoyance using clock cards on which the subject had to draw an arrow on one of the twelve sectors as a guess of what was indicated on the target card. The targets were determined by random number tables, then sealed and sent to subject with each of the two experimenters responsible for half of the data. The involvement of West was without the knowledge of the subjects who believed Fisk to be the only experimenter. Yet the results revealed a differential response with significant scoring (.00015) on Fisk's half of the data while West's were at chance level. If cheating had occurred (it was a home test), it is difficult to see why it should have only been present on Fisk's data.

There is also some evidence that the experimenter's mood can influence the subject's scores. Osis, Turner and Carlson (1971) conducted an experiment to check on the decline of ESP over distance. As part of the attempt to equate the influence of psychological factors, the 'target person' or experimenter who was present with the targets at the various locations completed several mood rating scales. The evaluative procedure was a multivariate one incorporating measures of psi-hitting, missing and displacements. The testing method was a clairvoyant one in which the subjects had no sensory contact with the experimenter whereby they could be influenced by his moods. Yet the scores showed the target person's (experimenter's) mood ratings to be strongly associated with the composite measures of psi. Some further support for this is gained from an experiment by Price (1973). Again the findings were almost incidental; the randomizer's mood description was again recorded although the experiment was designed primarily to evaluate imagery and response pattern to erotic versus non-erotic targets. However, the most noticeable effect concerned a dramatic shift in the randomizer's mood which seemed to have an effect on scores. Because of circumstances involving her work, her mood changed on the final day of target preparation from a relatively neutral one to

a state described as being 'nervous', 'sad', 'disappointed', and 'angry'. Yet this mood or mood shift was associated with highly significant differential scoring by the subjects on the targets. Moreover, since she was not physically present during the session, the influence must be presumed to be an extrasensory one. If there is a causal link, it is difficult to understand why the high scores should be associated with a negative mood change in the key person in the experiment. It can only be speculated that the targets by association took on an emotional loading which acted as a releaser for psi.

There is also a suggestion that hope for success or failure can have an influence on the outcome of an experiment. Schmeidler has reported an experiment (1961) in which agent-subject pairs were tested under GESP conditions and under clairvoyant conditions. However, the subjects believed all the runs were to be under GESP conditions. Instead, during the clairvoyant runs (in which the agent did not see the targets and so did not have a chance to transmit) the agent was instructed to hope for success or failure. The difference in scoring rate between the 'success' versus 'failure' conditions was significant, and led Schmeidler to conclude that in so far as experimenters have hopes of success or failure, they can have influences which may be similar to that traditionally attributed to agents.

If such effects have the validity claimed for them they may explain the consistency in the results of some experimenters that seems to occure even when their presence is remote from the actual experiment. In the research with teacher-pupil attitudes mentioned earlier, Van Busschbach (1956) noted how his findings were remarkably consistent although different assistants were involved at different locations.

"It seems important to note that a number of different experimental assistants have taken part in the three investigations and yet ... the scoring rate has been remarkably consistent for the three series". The three series were in Amsterdam, Utrecht, and North Carolina and the C.R.'s were respectively 2.79, 2.73, and 2.70. He concluded:

"If ESP exists, and if it tends to be associated with persons, objects, events, and ideas of central importance to the participants, then the experimenter himself is the person who is most closely involved in the research for he has designed and initiated it". (Quoted in White and Angstadt 1965 P.83.)

Obviously, many questions need to be answered. The situation becomes complex and perhaps indeterminate. Is the effect of field or gestalt type? Who influences whom and in which way, ESP or PK? Before attempting to deal with this it is necessary to consider an additional complexity; the influence of personnel remote in time, as well as taking a more critical look at the evidence.

The Influence of Experimental Personnel Remote in Time from the Subject

In this category, I again include the influence of all those individuals involved in the experiment other than the one formally designated as the subject. There is evidence implicating not only the experimenter, but the checker, the randomizer, and other assistants as important component sources of the psi effect. The evidence suggests, moreover, that the results are not determined until the point of observation of the data by the experimental personnel.

An experiment by Schmeidler (1964 a, 1964 b) illustrates something of this. 75 subjects responded under three clairvoyant conditions with 50 calls to targets that they would see later, 50 calls to targets they would never see but the experimenter would, and finally 50 calls to targets that no one would actually see and only the final results were printed out by the computer. Subjects had no prior expectancies in the sense that they had not been told that their responses would be treated by one of three methods. The results showed psi-hitting in the first two conditions and psi-missing in the last but also a significant negative correlation between those calls the experimenter saw and those the subject saw. Schmeidler suggests that they were responding differentially to future procedural events that had not been determined at the time of the responses. However, it is left unclear as to why there should be a negative correlation.

An experiment by Feather and Brier (1968) is less equivocal. This concerned the so-called 'checker effect'. Groups of subjects completed a precognitive test in which they filled out four runs of ESP cards on call sheets. The tests were administered by either Feather or Brier who would each check one half of the subject's runs (determined randomly) against targets generated by a dice randomization procedure. Subjects were told that the experimenter would check half the runs and the remainder would be checked by another person (either Brier or Feather depending which one was not acting as experimenter).

They were asked to mark which runs would be checked by the experimenter. The results showed a significantly higher score on the runs which the subject correctly predicted the experimenter would check than on the run on which they correctly predicted someone else would check. This difference was not present in the data actually checked by the other checker. In other words, it was only present in one half of the data that was checked by the experimenter (test administrator). The effect was found at about the same level of significance (P.04) in the two pilot studies and one confirmation study. The authors point out how the findings suggest that the person who checks the data has an effect on outcome :

"Since the significance occurs only on those runs the experimenter checked, it appears that the person who actually checks the test is having some effect upon the scores of the test he is checking." (P.173)

In addition to the 'checker effect', there is also a suggestion that the target generation may not be immune to psi influences. An experiment by Morris (1968), using himself as the subject, attempted to locate non random digits from a random number table. Two methods were tried; calling numbers and tossing dice to fix the points of entry. The numbers from both methods were entered into equations which finally determined the entry point. Morris tried for sequences in the random number table that had more odd than even or vice versa in accordance with a pre-arranged order of trials. While the dice method produced non-significant results, the self generated numbers produced significantly biased results with 17 out of 20 sequences fitting the target (of either a majority of even or odd numbers).

Some critics might regard these findings as due to the defects in the random number tables rather than psi. Yet on the other hand many control comparisons have been made between unrelated sets of ESP cards or of guesses with non target series generated by random number tables, and the results have been in accord with probability theory. This contrasts strikingly with the results obtained by Hardy, Harvie and Koestler (1973). Harvie matched 24,000 random digits generated by computers or random number tables with a corresponding number taken from other sets of random number tables. The result was a significant below chance number of matchings. Significances have also been found by comparing quartiles of random number tables. For example, Oram (1955)

found a P value of .00014 by this method, although this was the best of 14 statistical tests and no data is given on how many other characteristics were checked. Thouless (1974) has made some interesting comments and suggestions concerning these incongruities. He proposed a study be made of all such cross checks of randomicity.

"Perhaps what such a survey would reveal is that when a comparison is made between two random series with the expectation that they will conform to orthodox probability theory, this expectation is confirmed, but that when the comparison is made with the expectation that the results will deviate from probability theory, then they do deviate. If this should prove to be the case, what would be indicated would be some form of psi rather than a defect in the theory of randomness." (P.426)

So far the evidence presented for psi based experimenter effects is hardly convincing and at best circumstantial and suggestive Many of the experiments reported, those of Schmeidler, Osis et al, and Price, employed multiple analyses of their data and it is left unclear as to whether any statistical adjustment has been made for this. Further, many of the findings appear to be of a post-hoc nature. Analyses of non-randomicity and effects due to procedural errors are unlikely to impress the sceptic, but serve rather to strengthen the suspicion that ESP is an experimental artifact. Yet some of the experiments remain singularly impressive in particular the West-Fisk series in which the experimenter's influence seemed clear. In addition to this there is a further category of evidence which lends strong support to the hypothesis of psi mediated experimenter effects. This concerns unintentional or disguised ESP tasks in which the experiments were deliberately designed to investigate whether or not subjects could respond by ESP to aspects of the experimental situation about which they were uninformed.

Disguised Psi Tests

If ESP as the evidence suggests is an unconscious process in the sense that it may occur without the subjects' recognition and control, then it may be appropriate to test the subject without his awareness. Moreover, it would appear from both spontaneous cases and research studies that ESP influences some ongoing psychological activity such as dreaming, perception and memory. It would thereby seem that it does not have its own sense modality but is recognised

by the incongruity imposed on normal processes. This is then the rationale on which the disguised or unintentional tests of ESP are based. To date, an impressive array of studies can be marshalled which seem to demonstrate the success of this approach. The impressive aspect is that they involve several different investigators and laboratories as well as several different areas of psychological functioning. In short, they appear to have some replicability and construct validity. Since they provide the basis of the work to be reported here, they will be presented in some detail.

Rex Stanford is a major proponent and pioneer of such tests. He has also developed a model, the psi-mediated instrumental response (P.M.I.R.) model relating to the unintentional functioning of both ESP and PK in this situation. Some details of this have already been advanced and a fuller evaluation of the model will be reserved for the final chapter. In essence, the P.M.I.R. model supposes the organism uses psi to scan the environment for need relevant incentives. When information about such incentives is obtained, a disposition towards a psi mediated response is established and the organism then acts in such ways to maximise an encounter with the need relevant object or event.

A major aspect of the model concerns the way in which this disposition affects the behaviour of the organism. This is the 'response bias hypothesis' which proposes that seldom made responses are more likely to be accurate than frequently made ones, (Stanford 1967). There are two assumptions that underlie this. Frequently made responses are less likely to be identified as ones due to psi while with infrequent ones, the subjects' sensitivity is increased and the number of 'false alarms' reduced. Secondly an extra 'push' of psi would appear to be needed to initiate a response against which the subject has an habitual bias. On this basis, this type of response when it does occur is more likely to be due to psi. Stanford and his associates have reported an extensive series of experiments which seem to confirm this and some other hypotheses of the P.M.I.R. model (Stanford 1970, 1973, Stanford and Fox 1974, Stanford and Thompson 1974, Stanford, Zenhausern, Taylor, Dwyer 1975, Stanford and Associates 1976). Those relevant to the response bias hypothesis and those which form an

important background to the research project will be discussed next.

The basic technique has been to present the subject with some form of multiple choice test or questionnaire which can be scored either in terms of an objective right answer or a high frequency response. Without the subject's knowledge one of the answers is chosen by random means to be a target for the ESP part of the experiment superimposed on the initial task. For example Stanford (1970) tested thirty male college students individually for what was ostensibly their ability to remember details of a tape recorded dream report which had been played to them. The test consisted of a set of four choice multiple choice questions. The ESP test superimposed on this was a precognitive one in which one of the alternatives was later chosen as the 'correct' answer by using a random number table. Those 'correct' or target answers were analysed into those that agreed with the dream report and those that ran counter to it. The results showed, as predicted, that subjects scored significantly only on those responses that were counter to the story. Furthermore, the analysis of responses showed that subjects actually increased their number of responses counter to the report on trials in which the target was also counter to the report (relative to the number they gave when the target was in agreement with it). Thus on trials in which the targets agreed with the tape only 1 out of 51 responses (1.96%) were counter to the report. This compared with 31 out of 189 responses (16.40%) that were given when the targets were counter to the dream story! The difference was significant (P .003). It would seem either there was some form of PK by the experimenter during the target generation or subjects were being influenced to respond against what they had heard from the tape by ESP. Clearly they appeared to be responding by ESP to aspects of the experimental situation about which they could have had no sensory knowledge. Thus, as well as supporting the response bias hypothesis, the results provide strong support for the psi-mediation theory of experimenter effects.

The response bias hypothesis received further support from two other Stanford experiments. In one of these (Stanford 1967) subjects were given the task of locating by ESP the positions of targets on a paper 'radar screen'. There were 36 sectors to this and each sector

either contained one target or none at all (p = .5). The task was a clairvoyant one and they were given screens sealed in opaque envelopes with targets marked on. The absence or presence of targets in each individual sector had been determined using a random number table. Subjects were asked to make between 12 and 18 identification marks as guesses of target locations. The completed screens could thereby be divided into those with low frequency (16 or less) and high frequency (17 or more) responses. The trials on the low frequency screens gave a strong positive deviation (P .0005) while those on the high frequency screens gave a slight negative deviation (P .06).

The other Stanford experiment used word associations as the ongoing psychological process to be influenced by ESP (Stanford 1973). Again the objective was to show that ESP primes unusual low frequency associations and that responses contrary to the subject's natural bias are more likely to be correct than those in accord with it*. Sixty subjects were given three word association tests (2 of a multiple choice type) along with instructions to promote relaxation. Although subjects were told there was also an ESP task involved, they were requested not to give much attention to this aspect of the procedure. Subjects were given a photograph of Stanford's wife who acted as agent during the test and attempted to transmit words designated as targets from the word association tests. Targets were selected on a p = .5 basis by a complex randomisation procedure involving die throwing entry into random number tables. The target words were classified either as primary or secondary according to the normative data from the group responses.

Responses to the targets were classified as primary or secondary and the results independently analysed in relation to those categories. It was predicted that the success on secondary responses (relative to primary responses) would increase in proportion to the number of primary responses given. Thus a subject who gave many primary responses would be more likely to be successful on the few secondary ('unusual') responses, than one who gave many unusual associations. A correlation coefficient between success on secondary responses compared with primary responses and the number of primary responses given was significant supporting the hypothesis.

* A second hypothesis, the 'associative-mediation' hypothesis, was also tested in this experiment. At a certain level high frequency or over learned responses are hypothesised to be vehicles for ESP. This hypothesis however only concerns those subjects who produce few primary responses.

Since the response bias hypothesis seemed to have an impressive amount of support from this and work to be reported next, it was decided to make this a major feature of the research project. In addition, it was decided to use parapsychologists as subjects namely those who participated in the personality testing reported earlier. As most of the evidence for the psi-mediation hypothesis of experimenter effects seems to concern unintentional or 'unconscious' effects, it seemed most appropriate to use some form of disguised ESP test. A type of word association test was finally constructed and thus the above experiment provided a direct model for the research. The major difference concerns the fact that although the effects were unintentional, subjects were aware in the Stanford experiments that there was an ESP test involved in the experiment. Nevertheless, there is a body of work showing that response bias effects are also found when subjects are tested for ESP without their knowledge.

The major work of relevance here is by Hans and Shulamith Kreitler (1972). Their research concerned the question 'can extrasensory perception affect the results of psychology experiments?' To answer this they chose three psychological procedures: subliminal perception, perception of autokinetic movement, and responses to T.A.T. cards. These procedures were chosen because it was reasoned that their ambiguous nature might facilitate the influence of psi on the decision making process. Like Stanford, a process concept of psi was basic to their approach. In all three experiments the agent, unknown to the subject, was located in a separate room attempting to transmit specific answers to him. In the first experiment Latin letters were projected to subjects at near threshold of speed and illumination. The slides were presented twice, once with the agent viewing and once without. 'Hits' were scored only for those responses that were incorrect in the non agent phase and then changed to correct identifications during the agent trials. A control series was also included. Results were significant at the .02 level. The second study was similar with the agent attempting to influence the direction of autokinetic movement that the subject was observing. For the third study the Thematic Apperception Test was used with particular words relating to common themes being viewed by the agent. Scoring was carried out blindly without knowledge of the target thematic word. For the last two experiments clear significances only emerged on a response

bias analysis. This effect was also found in the first study. In other words, the ESP effect occurred mainly on those responses which without the agent's presence have a low probability of occurrence. This has also received some replication by Lübke and Rohr (1975) who repeated the first experiment on subliminal perception and as well as finding a significant overall effect of the sender, found the same prevalence of successful identifications to occur with low probability responses. An important feature of the Kreitler experiments was that stringent precautions were included to eliminate artifact. Special care was also taken to choose experimenters who did not believe in ESP. Further, to prevent any sensory bias none of the experimenters or investigators knew all the details of the design until the experiment was complete.

Disguised ESP tests have also been independently pioneered as a research method by Martin Johnson at Utrecht University. A distinctive feature included the use of material that had real life motivational value to subjects in the form of answers to examination questions. These were presented as clairvoyant targets inside opaque envelopes on whose surfaces the examination questions were attached. There were eight questions of which four were chosen by random means to be those to which clairvoyant target answers would be provided. As predicted in two studies it was found that the scores on the target questions were significantly ($P = .022$, and $P = .045$) higher than those on the non target ones. A third study used correct information with encouraging remarks versus incorrect information plus discouraging remarks as target material accompanying all the questions. Two independent judges evaluated the answers and the scores confirmed the expected differential ($P < .005$) of scores on questions with incorrect and discouraging material being lower than thos with correct and encouraging target material.

William Braud at the University of Texas at Houston (1975) has replicated and extended these findings. Envelopes containing hidden answers to seven of fourteen items of a psychology examination were attached to the examination paper. A conscious clairvoyance test was also included. In both the pilot and confirmation studies, the 46 subjects scored significantly higher on questions for which the hidden answers had been provided compared with those for which it had not been. The conscious clairvoyance test revealed chance results.

An important feature was that a further analysis of the disguised test showed individuals who had apparently less knowledge of the subject (as suggested from scores on another part of the examination) scored higher on this test than those with a good knowledge. Braud sees this as lending support to Stanford's P.M.I.R. model which stresses that psi functions in relation to the need relevance of the information involved.

All of the work that has just been reviewed then gives strong support for the hypothesis that subjects can via ESP gain access to and respond to information concerning the purpose of the experiment. Disguised ESP tests suggest subjects can respond unintentionally to parts of the experimental design they could have no sensory awareness of. Kreitler and Kreitler (1972) have succintly expressed the wider implications of the psi mediation hypothesis :

"Since in the case of any experiment there are expectations about the results, and there are several people who know about these expectations and enough about the design in order to 'concentrate' intentionally or unintentionally on these expectations at temporally relevant points, it seems plausible to regard ESP as a possible source of errors in experiments. A part of these errors appear to have been included under the phenomenon of the experimenter's bias (Rosenthal 1966). But since it has been shown that an ESP communication can be transmitted to the subject also through a stranger who has never met the subject and who is spatially separated from him, the effect seems to transcend the effect of the experimenter's bias." (P.44).

Conceptually the situation becomes intricate, and perhaps intractalbe with regard to the isolation of causal agencies involved in the psi process. Several possible processes may be involved in the mediation of the experimenter effect. These include :

(1) Experimenter ESP influences the subject. Stanford's concepts may be appropriate here. He distinguishes between 'active percipient' and 'active agent' telepathy. The latter would concern the case in which the experimenter is active in transmitting information relevant to targets etc.

(2) Experimenter PK influences the subject's response. This may be the same as the above. Stanford uses the term MOBIA for the 'mental or behavioural influence of an agent'.

(3) Experimenter PK influences the data.

(4) Experimenter PK influences the randomisation.

(5) Experimenter ESP in choice of non random digits.

(6) Subject ESP in receiving information telepathically from the experimenter or clairvoyantly from the data. Here the subject is the active percipient.

We shall leave further discussion of this until later, and next report on attempt to investigate ESP abilities of parapsychologists.

A STUDY OF PARAPSYCHOLOGISTS' PSI IN RELATION TO THE EXPERIMENTER EFFECT.

The literature reviewed above provided the foundation for an attempt to evaluate the hypothesis that successful or 'psi-conducive' experimenters obtain their successes through use of their own psi abilities. In particular, application was made of the response bias hypothesis and the disguised psi test method in designing the experiment.

Experimental Design

The project was combined with the 16 PF study reported earlier. The subjects were parapsychologists who could be classified according to set criteria as 'psi-conducive' or 'psi-inhibitory'. Because of the difficulty in testing parapsychologists without evoking expectations or defences which would affect their performances, it was decided to use a disguised form of ESP test. Moreover, the administration of the 16 PF to parapsychologists provided a readily available 'cover story' for the use of an ESP test disguised as an additional psychological test. Subjects were canvassed either directly at the 1975 P.A. convention or by letter. (Details of how the test was presented to them are given in Appendix A.)

The Hypothesis : The design followed closely Stanford's research using word association tests (Stanford 1973) detailed earlier. The response bias hypothesis in this context was then the appropriate ESP hypothesis to be tested. (The evidence for this was also detailed earlier.) However, in a more general sense, the hypothesis concerned whether or not the experimenter effect is partially or wholly itself psi mediated. Do those experimenters who have a reputation for success in ESP experimentation, score themselves significantly high (as a group) on ESP tests?

In its specific form tested here, the response bias hypothesis

predicts that subjects' infrequent or secondary responses will show a greater excess of hits on the targets than the frequent or primary responses. However, this holds only relative to the number of high frequency responses given. Thus when the individual gives a large number of 'infrequent' responses (as defined by the group pattern), then such responses are less likely to be vehicles of the psi process than when they are rarely given by the individual. Stated more generally, when an individual gives many bizarre or unusual responses (as defined by the group) he is less likely to be accurate in terms of choosing an ESP target than one who seldom gives such responses. The hypothesis then predicts that there will be a significant correlation between relative accuracy on rare responses and the number of frequent responses given. It was predicted that this hypothesis would only hold for 'psi-conducive' experimenters, and not for the psi-inhibitory group. This was stated in writing in advance of experimentation.

The Test : A survey of existing psychological tests revealed none that could be readily adapted to the purposes of this experiment. Although some word association tests could have served this purpose it was felt, because of the existing Stanford publication, they would immediately arouse suspicion among the respondents that the test was an ESP one. It was therefore decided to design a multiple word choice or 'construct preference' inventory on which the ESP could be superimposed. This consisted of 44 multiple choice lists. Each list contained 4 words of which respondents were required to choose one. The instructions were for the respondents to indicate their preference for one word in each list by encircling it. They were further told that the word should be one that instantly appeals and that they should give their first reaction. To give the test some meaning and 'face validity' most of the words or constructs were chosen from existing inventories and were mainly of a psychodynamic nature. Further 'face validity' was given by the use of a spurious title 'The Falchikov Preferential Construct Inventory', a standard test format, and a footnote relating to copyright and author. A copy of the test is included in Appendix B.

The ESP aspect of the test was set up by using the inventory as a basis for a multiple choice ESP test with one of the words in each list ($p = .25$) being chosen as the target by computer randomisation. So as to avoid any 'stacking effect', different targets

were chosen for each individual. An existing randomisation program was fed into the Link 8 computer for this purpose. (Several checks had previously upheld the randomicity of this.)

A further criterion in the design of the inventory was that the words could be easily divided into those that would be likely to elicit frequent or primary choices and those that would be rarely chosen. A pilot use of the test with 10 individuals supported the feasibility of this before the test was finalised. This was for the purpose of producing a clear division between the frequently chosen and infrequently chosen categories of response. As far as possible, it was arranged to have 2 secondary or 'rare' words and 2 'primary' words per list. (In practise the data showed that this occurred in about half the items on the list.) The test was 'normalised' on data from the respondents and each item determined as a rare or primary response word. A primary response word was defined as one chosen on more than 75% of occasions. A secondary or rare response word was defined as one chosen on less than 25% of occasions. (Data relating to the standardisation of items is given in Appendix C.)

Respondents : The respondents were classified (as was detailed in the previous chapter) into 'psi-conducive' and 'psi-inhibitory' experiments. This was on the basis of set criteria and the classification was determined by two parapsychologists independent with respect to the research. For this purpose a psi-conducive experimenter was defined as one who has established a reputation for obtaining results in psi research supporting the psi hypothesis, and who had published two papers in the last two years to this effect. Conversely, a psi-inhibitory experimenter was one who was known to be unsuccessful in this respect and known to have carried out at least two major studies. (Further details of these criteria are given in the preceding chapter.) Using this classification system test material was obtained from 15 psi conducive experimenters and 12 psi inhibitory experimenters.*

Results :

The number of high frequency or primary choice words (F) selected by each individual was calculated together with his accuracy

* Two respondents failed to complete the second page of the test so their scores were pro-rated.

percentage (A%). Accuracy percentage was given by the percentage of 'hits' (Selection of target words) on the infrequent response category minus that on the high frequency category. From this rank difference correlation coefficients between accuracy and frequency were calculated for the psi-conducive and psi-inhibitory groups. (This corresponds to the analysis used in the Stanford research.)

The results supported the hypothesis of a difference between the groups in their performance on the ESP test (Table 21). The rank difference correlation for the psi conducive group was significant at beyond the .05 level ($r = .5$, $t = 2.08$, $df = 13$). As also predicted, the same analysis for this inhibitory group was non-significant ($r = .15$, $t = .52$, $df = 10$).

Although no predictions concerning overall scores some further analysis was carried out of the data on a strictly post-hoc basis. The number of hits for both groups was at chance level (Mean 10.93 for conducive group, Mean 12.00 for the inhibitory group, M.C.E. 15). The difference between the groups was also at chance level ($t = .73$). It might be expected that subjects are relatively more accurate (in terms of hits) when they give only a few responses to the infrequent word category. This, of course, assumes the relationship between A and F to be linear which a graphical analysis supports. Accordingly the data was divided at the mean F score of 33. The data is small with 7 scores below the mean and 8 above, and produces a Mann Whitney U 19, t 1.3 P .094 (Table 22). The corresponding analysis of hits split at the same mean is clearly non-significant with a mean of 10 hits for those who gave a high F score (above the group mean of 33) and a mean 12 hits for those who gave a low F score (below the group mean). These analyses are comparable ones to those that were reported in the Stanford radar screen study described earlier. However the situation is more complex here because we have the influence of habitual preferences and associations to words. Some findings by Stanford and other indicate that when there are few high frequency or primary responses there are more positive ESP scores. In short, in word association type tests there is a competing and interacting effect due to the tendency of ESP to use readily available

TABLE 21

Results of the Falchikov Test

'PSI CONDUCIVE' GROUP			'PSI INHIBITORY' GROUP		
S's Code	No. of F	A%	S's Code	No. of F	A%
46	35	- 28	7	36	+ 12.9
38	21	- 12.8	47	37	+ 35.5
37	29	- 3.9	11	36	- 5.8
34	37	+ 18.5	8	38.1*	+ 11.5
14	34	- 7.7	22	34	+ 1
30	29	- 4.4	6	21	+ 6.2
36	29	- 14.5	25	29	+ 5.7
20	37	- 1.9	21	29	+ 16.3
1	36	- 4.2	9	29.3*	- 10
10	32	- 9.8	4	30	+ 20
45	40	+ 2.5	3	31	+ 8.9
39	31	- 35.5	5	33	- 27.3
13	37	+ 18.6			
24	36	- 25			
23	32	+ 8.3			

* pro-rated

Rank difference Correlations :

N = 15	N = 12
R (A% - F) = .50	R (A% - F) = .16
t = 2.01	t = .52
d.f. = 13	d.f. = 10

TABLE 22

Post Hoc Analyses

Mann Whitney A% for Conducive Group

Above/Below Mean No. of F. responses (33) : U = 19, t = 1.3, P = .094

Mann Whitney Hits for Conducive Group

Above/Below Mean No. of F responses (33) : U = 37 non-significant.

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memories and associations.*

CONCLUSIONS

The first question may be how much confidence can be based in these results. Because of the complex scoring procedure the results were independently checked. Moreover, the small sample size (N = 15 in the conducive group) gives some support to believing the effect to be a genuine one. It may also be asked how successful was the test in practice in masking the true nature of the research. Only on one occasion was there a suggestion that suspicion was aroused in this direction. Correspondence and interaction with 'subjects' suggested that this was not the case in the majority.

If the effect is a genuine one and not an artifact, what interpretation can be placed on it? One of the unfortunate paradoxes of the hypothesis of a psi-mediation experimenter effect is that in principle at least, all findings even those such as this may be experimenter effects. The hypothesis thus becomes reflexive in nature on those findings in support of it! Yet there are some factors in the present case that argue against the effect being experimenter dependent. In terms of prior expectancies A.P. was particularly doubtful that this project would reveal anything other than chance scores (since at this point in time he favoured the 'psychological theory of the experimenter effect mediation').

* Correspondence with Stanford (April 20, 1976) also supported this interpretation : "I think you are asking whether a median division of response bias data should not result in overall psi-hitting for the responses below the median in frequency. My answer is 'Possibly but not necessarily.' It depends on many factors .... It seems relevant to your observations to note in my word-association ESP study (1973) I found more positive ESP scores for the primary word association responses than for the secondary (less common) responses - but this effect was related to subjects' tendency to produce primary responses. Those who gave few primary responses did best on them. This may be related to your findings. Conceptually, it surely makes sense. ESP use of memories and associations which are readily available in a given situation, but if responses related to such associations are too prepotent in a given situation, there will be a high false alarm rate diluting success."

Moreover, the programming was run independently by R.B. and each individual's target sheets matched numerically with the number order on the test sheet, so there was little opportunity for the intervention of any supposed psi from A.P. in this way.

Although the test did include data from nearly all the active major figures in parapsychology, regrettably the test could not be considered an evaluation of each individual's ESP ability. In hindsight, it would have been much more preferable had this been so. Rather it was a test of group performance as a whole. The most meaningful interpretation may be then to regard the effect as a field effect - that when parapsychologists serve as subjects they produce a result as a group which supports the ESP hypothesis. More will be said about field effects in the next chapter.

Clearly more work is needed in this area. This study at best represents a small beginning. We need to develop non-intentional psi tests (both of ESP and PK) that can be used at the individual level. These need not necessarily be of disguised or surreptitious nature but may merely serve to engage the subject's psychological abilities on some task while a psi influence is attempted on the decision making processes involved. From this it is hoped some evaluation can be gained of indivudal experimenter's psi abilities and related to success in the field.

At present, however, it is felt that the experiments reviewed in this chapter make a persuasive case for the view that experimenter effects are at least partially psi based. I shall next attempt to develop some theoretical and predictive framework for this as part of a larger objective of integrating some of the work that has been presented.

CHAPTER 9 : CONCLUSION

It is always easy to be wise after the event and with the advantage of hindsight plan how the research program should have been designed. In retrospect some hypotheses seem too simplistic and naive and the studies perhaps too diverse and short. A systematic longitudinal design might have fared better and yielded more definite results. But several circumstances determined the course taken and these may have been meaningful in themselves. The initial success the experimenter had with subject screening, with the Ganzfeld, and the group expectancy study made him confident that in whatever direction the phenomenon was pursued, it would eventually yield some lawful relationships. It also provided the necessary reinforcement to a preconception that getting significant results could be directly equated with merely being ultra nice to subjects. But perhaps experimenters decline in their effects as well as subjects. Certainly the original effects were short lived and did not repeat themselves. Yet even in retrospect it would have seemed foolish not to have taken advantage of these inroads, fortuitous or otherwise.

Although much of what has been learned about the mediation of the effect can be stated negatively, this may be important in shifting the search for mediating agents from interpersonal factors to new areas, and to new methods. A propos the psychological theory of experimenter effect mediation, it can be said with some certainty that 'conducive interpersonal conditions', whilst they may or may not be necessary for the occurrence of psi phenoma, do not appear to be sufficient for it. The finding with respect to the various hypotheses can be summarised thus:

1. Experimenter Expectancy : No evidence was obtained that expectancy affected the performance of an individual subject and there seemed to be no relationship between his estimates and that of the experimenter. A significant differential effect was obtained with groups of subjects exposed to experimenters who had been given either a positive or negative expectancy treatment with regard to the success of the experiment. Unfortunately, difficulties arose in trying to replicate this and the follow up that was finally attempted was unsuccessful.

2. Spontaneous State : No evidence was obtained to support the hypothesis that those who experience frequent and intense periods of abstraction score successfully on an ESP test. Research with a special subject also failed to support the hypothesis that there would be experimenter differences in the subject's reported relaxation which would relate to ESP test scores.

3. Experimenter Personality : A study of successful or psi-conducive experimenters in ESP research and unsuccessful or psi-inhibitory experimenters failed to reveal any significant differences that could relate to the type of factors that have been traditionally advanced to explain the differences in success.

4. Rapport : Rather suprisingly no evidence was obtained that a measure of 'rapport' between 20 subjects and 3 experimenters was related to the ESP test scores obtained. A multivariate inclusion of other variables of an interpersonal nature, also failed to be significantly predictive. Differences between experimenters on the interpersonal measures failed to relate to the differences in scores they obtained with subjects.

5. Experimenter Psi : This involved the use of a disguised ESP test; a construct/word choice inventory on which was superimposed an ESP test by designating individual words as targets. Results were analysed in terms of the response bias hypothesis and the hypothesis was confirmed as predicted only for the psi-conducive group. Although the analysis was complex, and the correlational significance was at the .05 level, the finding can be taken as giving some support to the psi-mediation hypothesis.

What follows next are some theories, some speculations and some suggestions for further research.

THEORIES OF PSI MEDIATED EFFECTS

Concurrent with the development of the work reported here, there has been an increase in interest among parapsychologists concerning experimenter effects. Recently this interest has become focused on the possible psi-mediating of the effect (Schmidt 1974, Kennedy and Taddonio 1976, White 1976b, 1976c). Certainly a detailed review of the extant literature (previous chapter) can make such a view highly

persuasive. In particular the findings of West and Fisk (1953), Osis and Carlson (1971) among others seem inexplicable on any other hypothesis. Furthermore increased plausibility to this hypothesis has been given by the work of the Kreitlers, Johnson, Stanford and Braud, on the non-intentional operation of psi in effecting the results of psychology and parapsychology experiments.

Beyond this there have been two major theoretical developments in this area by Helmut Schmidt and Rex Stanford which as well as giving further interpretative background to these findings, also lead to some important predictive statements. Schmidt (1975) has developed a mathematical model of psi as an extension of quantum mechanics. In a similar way to which the form of an electron, as a wave or particle, is considered not to be determined until the point of observation, the model entails that the outcome of random macro-events are also not determined until the point of observation. For example, in the throw of a die the side that is face up, according to this model, is not decided until the observer actually looks under the cup. Some interesting predictions have been made and tested by Schmidt. One of these concerns the complexity of the process by which the random event is determined. The model predicts that the psi effect should be independent of this. Schmidt (1974) has compared the results of PK experiments with random number generators that were either simple or complex in design. All events were governed by the source of randomness, that of radioactive decay. The subject's task was to try to influence the binary process (arrival of the alpha particles) represented in an auditory manner as clicks. He was thus to increase or decrease the number of clicks heard. (The simple generator had a one step binary output, and the complex generator gave out the majority decision of a 100 binary events.) The choice of which generator was operative was randomly made so that neither the experimenter nor the subject knew which was in operation. In accord with the hypothesis, significant results were obtained on both with no significant differences occurring between them. A second prediction from Schmidt's model concerns the effect of PK on prerecorded targets. It is predicted that targets which have been recorded but not observed will if re-presented show an additive increase in PK scoring rate compared with those presented for the first time. Schmidt (1975) recorded sound signals ('clicks') on magnetic tape and subjects were required to listen and attempt to effect their rate of production. Some of the signals were momentarily generated, while others had been recorded on tape two days

previously. In both cases the subject thought he was affecting current outcomes of a random generator. Significant PK scores were obtained for both types of material. In a further study the pre-recorded material was re-presented along with momentarily generated signals. The re-presented material was replayed four times. The scores on both types of targets were again significant but those on the re-presented material were much higher than those momentarily generated and showed a significant difference in magnitude.

These results then support the view that the point of observation is critical in determining the results, and that such results are not dependent on the complexity of the results. If this is true, it has enormous implications for the modus operandi of the experimenter effect. Two recent reviews of the literature (Kennedy and Taddonio 1976, White 1976b) have concluded that if PK is not dependent on the complexity of the process involved, and the point of observation is critical, then the whole run, the session, or even the results of the whole experiment can be regarded as <u>one</u> psi trial, Kennedy and Taddonio write :

"Any psi experiment (whether PK or ESP) can be viewed as a series of random events which culminate into a single outcome. The outcome is the significance level of the experiment, and certainly bears a direct relationship to the desires of, or benefits to, the experimenter. From the experimenter's point of view, any experiment may be modelled as a single complex PK trial." (P.41). They go on to point out that if the act of observation is so critical, then this fits well with the 'lab lore' superstition of not looking at the data until it is all collected and the experimenter is in a good mood. Nevertheless, it would be interesting to compare the results for which experimenters obtained the data in small amounts and scored while in good moods and while feeling confident of success with those received and scored in bulk. That the point of observation is critical was a view independently arrived at by Rhea White in her review :

" .... if we assume for argument's sake ESP is diametric (independent of complexity) then it would easily be able to respond in one instant not only to the run or the record sheet or the session but to the experiment as a whole and to everyone taking part in

it." (P.16))

Grandiose as these speculations may seem, they help to explain some of the more enigmatic findings in parapsychology. By this I refer to the experiments mentioned earlier in which the experimenter seemed to impose a specific pattern on the results. Specifically I am thinking of the West-Fisk results in which the physically remote involvement of two experimenters had different effects for each experimenter, the Woodruff and Dale, and Johnson and Johannesson findings in which the desired effect occurred but there was inexplicably a reversal of what was predicted, and finally the Soal-West report concerning results where the normal pattern of scoring continued over record sheets on which there was a major checking error. If we regard the experiment as being susceptible in a holistic way to the psi influence of the experimenter than these results make more sense. Such findings as those of Woodruff and Dale, and Johnson and Johannesson are meaningful if we regard the 'differentiation' as the desired main target effect on which the experimenters succeeded but failed however through a 'psychic clumsiness' on the secondary target, that of affecting the direction of the differences.[1] In this respect I believe the importance of these experiments has been overlooked. Such findings are not uncommon, similar inverted findings were obtained by Casper 1951, and Nash 1960. A comparable effect was observed in some of the results reported here. The pilot Ganzfeld study was carried out before the Honorton and Harper work was reported and was modelled instead on an earlier sensory deprivation study in which the psi effect was obtained from a state score analysis. Accordingly, the significances here were obtained in this way rather than as overall scores like later Ganzfeld work. However the 'secondary task' failed; the direction of the effect was in reverse to that predicted. It may be also reasonable to explain the results of the Falchikov disguised psi test in this way as a holistic effect.

It still remains to be explained why, if the experiment can be determined by experimenter psi, only a few experimenters are blessed with success.[2] Most experimenters want positive results but few obtain them. Moreover is it really possible that the reports of Rhine, Gibson and Smith, and Terry and Honorton, were all based on

circumstantial events or malobservation? To try to answer this I need to introduce the second model, that of Stanford (1974a, 1974b). Some details of the Psi-Mediated Instrumental Response model have already been given. The model supposes that psi can operate in an unconscious or non intentional way to fulfil the organism's needs. Some aspects of the model, particularly the unconscious functioning and goal directiveness, may seem teleological. Yet there is empirical support. Stanford and Fox (1975) carried out an experiment in which the subject believed the session to be finished but unknown to him the randomizer was kept running. During this phase PK scores were better than when the subject was concentrating on the task. A related feature of the model (1974b) supposes that PK effects are enhanced when there is strong motivation, responsibility is given over to an agency, ritual, or procedure in order to obtain the desired effect, and attention is then focused elsewhere. This may relate to the psychological conditions necessary for the operation of experimenter psi. Thus the experimenter who is confident of his procedure, delegates responsiblity to his subjects (or assistants) for the results, and retires, may be establishing ideal conditions for experimenter psi. Failures of replication by the same experimenter may be due to changes in the way he regards the procedure. For example, Layton and Turnbull (1975) in comparing tape recordings of their performances, found major differences between that of the pilot and follow up. After the initial success the experimenter may become too anxious or his attention too focused on the experiment to repeat the effect.

Obviously there may be subject effects as well as experimenter effects on a particular result and the situation becomes complex. Further, both may be influenced by psychological factors in the subject-experimenter interaction. It may be difficult to isolate the results of a given experiment into S and E effects. Kennedy and Taddonio (1976) also argue for a holistic view:

"The experimenter-subject interaction may result in a trade off between experimenter influence and subject influence that determines whether the experimenter's contribution to the experiment as a whole will predominate, become negligible or fall somewhere in between." (P.33)

Field and Process Theories

Gradually there seems to be evolving a consensus of opinion that univariate manipulations, divisions between experimenter effects and subject effects or between ESP and PK, may be non-productive oversimplifications. White (1976b) also came to a view of the experiment as a holistic entity :

"I suggest that we abandon our attempts to restrict and isolate and do the opposite instead: expand and integrate. In this way, we might come across some new clues that our customary methods could not reveal .... Instead, perhaps the totality of each experimental situation should be studied as an entity, as a composite 'individual' in itself." (P.158-9)

In this respect, she is also supported by the views of such authorities as Gaither Pratt (1974) and Gardner Murphy (1949, 1971). Pratt was one of the first to recommend that the results of an experiment be regarded not by each trial but by the run, or total series. Murphy has taken this further and given an inter-personal or even 'transpersonal' description of the testing situation. He argues that the psychological and parapsychological interaction between individuals are trans-spatial and trans-temporal and that the classical univariate approach is therefore inappropriate.[3] This may be likened to trying to understand what a person is communicating by studying the pitch, frequency and grammatical structure of what he is saying.

The main prediction then from the process/field conceptualisation is that a combined phenomenological and physiological multivariate approach should be used whenever a finding is sought to be established. Team work becomes mandatory with several experimenters performing so that in a given result the variance that is due to the experimenter can be estimated. The disadvantage of this - and what may amount to a theoretical flaw, is that if the psi effect is indeed independent of complexity then the outcome of such an experiment may depend solely on the main experimenter or designer of the experiment, and thus become a one trial affair. Concepts of one trial experiments and experimenter psi while extragent hypotheses go along way towards explaining the vicissitudes in psi research. With a new effect or findings, experimenters carrying out replications usually 'score' first on most

aspects of the desired effect, but subsequently the phenomenon appears to retreat and ESP shows up in further replications as displacements, psi missing, variance effects etc., which all may be symptoms of decline in experimenter psi.[4] A multivariate approach may not eliminate this.

An alternative approach may be to establish procedure in which the experimenter is more fully incorporated into the experiment as a participant and thereby absolved from responsibility for its total results. Some years ago D.J. West suggested that the only way for the experimenter problem to be solved, might be for the experimenter to set up the experiment and sit himself in the subject's chair. Perhaps it would also be necessary to have the subject seated in the experimenter's chair. We may need to have all the participants involved in the design and running of the experiment. This way the experimenter would function as a combination between a group leader and research consultant. In the latter capacity he would be responsible for ensuring the design has no flaws in it. If such a procedure is devised, the experiment no longer becomes a 'one trial' ESP test for the experimenter. The point of observation then shifts from the experimenter to all subjects. This design would not preclude the multivariate measures previously discussed, being taken. Such an approach may seem highly unorthodox but then so are the phenomena.

NOTES

1. The parapsychologist might try to explain these results by the hypothesis of psi-missing (the use of psi to avoid giving the correct response). This can explain below chance scoring but cannot explain why for example low scores on 'liking the experimenter' were associated with high ESP scores. The sceptic might try to dismiss such irreconcilables as artifacts but there is too much consistency in the Woodruff and Dale findings for this (Chapter 6).

2. Some interesting experiments could be devised with psi-conducive and psi-inhibitory experimenters. What for example would happen if both unknown to each other received identical data from the same subject to score?

3. Such a view may not be entirely speculative. Osis and Carlson (1972) in their multivariate analysis of the effect of distance on ESP scores concluded the effect was more field-like than linear.

4. This leads to a further prediction from the holistic approach. As many secondary hypotheses as possible should be formulated so as to increase the points of observation. Of course this means the p values for rejection of the null hypothesis must be accordingly adjusted.

A P P E N D I X A.

Instructions and Protocols

Experimenter Expectancy Study : Instructions to Experimenters in Group A and B.

Ganzfeld Study (Confirmation) : Instructions to subjects and agents.

Personality and Psi Study : Letter of introduction.

INSTRUCTIONS TO EXPERIMENTERS IN GROUP A

Before I begin to tell you about how to carry out the ESP test, I think I should say something about ESP research itself. I had better admit straight away that I am convinced of the existence of ESP/strongly inclined towards belief in ESP. Why? Well, of all the controversial areas of psychological research, probably ESP research - or parapsychology as it is known - has been subject to the greatest criticism and scrutiny over a long period of time - and rather impressively it has survived and withstood the onslaught of the critics. When research first started in this field a whole host of alternative explanations were put forward to explain the results - recording errors, sensory cues, statistical flaws, selection of data, and even fraud. But as experiments were tightened up and results still continued, it became obvious that none of these explanations was really viable. Let me quote Hans Eysenck, who as I am sure you will know, is renowned for his incisive criticisms of many fields of research :

"Unless there is a gigantic conspiracy involving some 30 university departments all over the world, and several hundred highly respected scientists in various fields, many of them originally hostile to the claims of the psychical researchers, the only conclusion the unbiased observer can come to must be that there does exist a small number of people who obtain knowledge existing either in other people's minds or in the outer world, by means yet unknown to science."

And that statement appeared 18 years ago in 1957. Since then parapsychology has become a rapidly developing area of research in many universities throughout the States and Europe. To name only a few, there is a division of parapsychology at the University of Virginia, Professorships and Lectureships at the Utrecht University in Holland, at Freiburg in Germany, and at the University of California, -- and as you may know, several students in the psychology department here are doing parapsychology doctorates. But besides becoming gradually established in the universities, there have been other major steps forward, such as in 1969 when the American Association for the Advancement of Science gave parapsychology its final seal of approval

by admitting the Parapsychological Association as an associate member. As for the research itself, there are several respected journals of parapsychology, but orthodox journals now also occasionally publish ESP research. To name a recent case in point, last year the journal 'Nature' published some findings of scientists at Stanford Research Institute which supported the mind-reading claims of Uri Geller. But what do psychologists and other scientists in general think of ESP? Two years ago Chris Evans canvassed by questionnaire the readers of 'New Scientist' on whether they believed in ESP or not. The respondents were a highly educated sample and nearly 70% of them thought that ESP was an established fact or a likely possibility.

But having said this, it must be stressed that merely setting up an experiment or test does not always guarantee getting ESP. What does seem vitally important are the interpersonal factors - by this we mean making the subject in the experiment highly motivated to succeed, yet allowing him to be relaxed, and also being friendly towards him - and above all, confident and encouraging. And this is the task to-day. We are comparing the effect of different styles of behaviour towards the subject - but please don't discuss this with experimenters from the other group since they won't have been given instructions on how to respond to the subjects. O.K.? So when you test for ESP try to promote an atmosphere of friendliness, excitement, and interest. Yet, at the same time, don't behave in a way that is unnatural. Incidentally, it's also important to allow the subject to take as long as he or she wants (within reason) over each guess. We've used the technique before and previous testing has shown that scores of between 7 and 10 hits in each run of 25 guesses are obtained. So you should obtain something in this region of 7 to 10 hits per run

INSTRUCTIONS TO EXPERIMENTERS IN GROUP B

In fact I'd better admit straight away that I'm a disbeliever/ inclined to doubt the existence of ESP. Why? First of all, as I am sure you know, the history of science is peppered with cases of fraudulent and imaginery phenomena. Take for example Blondot's famour N rays. These were rays which supposedly made reflected light appear more intense, and their existence was 'verified' by many observers including some well known scientists of the day. But to everyone's embarrassment, they were later shown to be a colossal observer error - if not downright fraud. And, of course, as soon as this evaluation became generally agreed upon, the effects of N rays could no longer be observed! Numerous other examples of fraud or malobservation abound in the literature. The Kammerer experiments, for instance, on the inheritance of acquired characteristics in the midwife toad were a hoax enacted either by Kammerer himself or his assistant. Likewise, it would not seem that the data of Gregor Mendel on dominant and recessive genes in plants were just too good to be true, and were probably due to some bias or fixing of the results by Mendel or his assistant. So what are we to say about ESP?

Well, it seems almost certain that such alleged phenomena are simply leftovers from the occult times - a manifestation of a need to believe in the supernatural and magic. Indeed so called parapsychology has more in common with astrology than with psychology. It's true that there are a few experiments having evidence in favour of the phenomena, but invariably when they are subject to greater scrutiny, some major loophole or more plausible explanation shows up. So, you'll find very few psychologists to-day taking parapsychology seriously. Despite more than 90 years of research on ESP, parapsychology still has to come up with <u>one single</u> demonstrable finding or repeatable experiment. In short, it has failed to deliver the goods required for scientific recognition.

What then are the flaws in ESP research? It's difficult to list them all but there are some fairly common ones - the giving away of sensory cues for example, you know the kind of thing, smiling or giving them some facial reaction which indicates the correct answer or guess has been made. There's a famous example of a 'telepathic'

horse who could add up, multiply or whatever, and tap out the right answer with his foot - provided of course he could see the person who knew the correct answer and respond to subtle cues from his body movements! Selecting data in accord with your hypothesis and making statistical errors are also major crimes of ESP research. For example, a standard way to get results is to set up an experiment so that you can analyse your results in say five different way, looking for a significance at the .05 level. In fact your chances of finding such a significance is not 5 in a hundred but 1 in 4. So if you do the experiment four times, you will theoretically get a significance by chance! Anyway one can never be sure of the numbers of unsuccessful experiments that are not reported and which, if added together with the successful ones, would surely wipe out the significances of these. Finally, there is deliberate cheating and fraud. Most people think of scientists as being above such suspicion. But in a field such as parapsychology there are emotional issues at stake and the temptation to cheat is obviously a lot greater. When one's religious beliefs or research grant depend on producing results, it becomes much easier to either consciously or unconsciously write down the results you want. Indeed, in recent years there has been at least one exposure of a fraudulent experimenter, also publication of evidence suggesting cheating in other cases. (If any of you need any further convincing, can I recommend this book by Professor Hansel called 'ESP - A Scientific Evaluation', which has been described as giving the coup-de-tete to parapsychology.)

Why then are we doing this experiment? Well it's quite important. We are trying to show that when an ESP experiment is carried out properly and carefully controlled against errors, scores are obtained which are entirely in accord with the laws of chance. In this experiment it means you should obtain scores close to <u>5 hits</u> in each run of 25 guesses. The other group will be using a slightly different procedure which allows errors and cues to creep into the results - in fact a 'sloppy' procedure. So your job is to show that when the experiment is conducted in a strict scientific manner only chance results are produced - 5 hits per run.

INSTRUCTIONS TO THE SUBJECT AND AGENT

PRE GANZFELD PERIOD
ORIENTATION

PURPOSE OF THE EXPERIMENT : To S and A

During the last few years there has been an impressive amount of research which suggests that ESP occurs in altered states of consciousness. The particular altered state we are studying is called the hypnogogic state. This is a state of consciousness that occurs naturally between waking and sleeping. We all go through this state at least briefly when we fall asleep at night. We've developed a way to produce this in the laboratory by relaxing to unpatterned vision and sound. The unpatterned visual field is produced by looking at light through these halves of ping-pong balls (demonstrates). The sound is produced by 'white noise' - this is composed of random frequencies and you receive it through these earphones (demonstrates).

After you have been relaxing for a while, your friend (A) will look at a slide of a picture in the room down the corridor and try to influence your experiences. The tape will indicate when this is happening by a voice saying 'impression period'. This is the part of the experiment that involves ESP.

I'll show you where your friend will be located .....

VIEWING INSTRUCTIONS : To A

The idea is for you to concentrate on one of the slides which will be projected on the screen. Try to get involved with the picture as much as possible - but avoid intellectualising or thinking of the picture in words or associations. Instead try to submerge yourself into the picture as if it is a real scene which you are part of.

Do not unseal the envelope until 30 minutes from now when the buzzer (indicates location) will be activated.

STATE REPORT : To S

During the period you are relaxing, we will be interested in the degree to which your state of mind stays the same or changes. So to find this out can you learn this simple scale :

0 indicates you feel normally alert, as you are now.

1 indicates you are especially relaxed.

2 indicates your attention is directed on internal feelings and sensations.

3 indicates this shift to internal experiences is strong and impressive.

4 indicates you feel more or less unaware of your external surroundings.

So every so often you hear on the tape a voice call 'State Report' and I want you to just call out a number - the number that corresponds to your state of mind (repeats the scale briefly). Don't think about it too much - you'll find the correct number just comes into your head by itself.

GANZFELD INSTRUCTIONS : To S

Now when I place the ping-pong balls over your eyes adjust them so that you can's see through any gaps around the edges. Keep your eyes open throughout the experiment. Just relax and look at the light. (Places the ping-pong balls over S's eyes.)

In a moment I'll put the earphones over your ears. Just let the sound flow over you like the light is now flowing over you. Then begin to talk continuously. Say anything that pops into your mind. Talk continuously, and soon you will go into the hypnogogic state. Continue to describe anything you think, feel, or sense. No matter how silly or strange, keep talking. When you hear the phrase 'impression period' try to relax completely and blank your mind. This will be when your friend is concentrating on the picture. The hypnogogic state that you'll be in will help you to be very accurate in receiving ESP impressions. Be sure to talk about your impressions in detail. O.K.? You can begin to talk now (simultaneously places earphones on S.) .....

INSTRUCTIONS TO THE SUBJECT

POST GANZFELD PERIOD

QUESTIONNAIRE

Before we see which picture your friend was looking at, I would like you to answer these three questions on the experiment.

ORT STORY

I would like you also to do a short test of imagination - but there are no right or wrong answers - all you have to do is to look at this card (hands the card to S) and tell me a short story about what you see. Try to put a beginning to it to lead up to what you see, and a brief ending ....

TARGET JUDGING

In front of you are six picture cards. One of these is the target picture which corresponds to - that is the same as, the slide your friend was looking at. It could be any one of the six pictures. Do not assume that it is supposed to be in any special position among the five. We will check up afterwards to see which is the actual target. Before this, what you have to do is to place the cards in order of closeness to your experiences during the hypnogogic period. So the card that is closest to your experiences goes first and the card that is least relevant goes last. O.K.?

Bear in mind that your experience may be either a direct correspondence to the target - or it may be symbolic, i.e. it may correspond like a simile, a metaphor, or even a pun. So for each picture you should explore in your mind any possible association between the picture and the impressions you had. Your experience may not conform to the whole picture but may be only a part of it. It may also reflect the shape but not the meaning of the picture. For example, you may see something box shaped that corresponds to a house. Finally, the picture may be represented in your experience not as an image but as an emotion or feelings.

I'll refresh your memory by showing you/reading out what you said while you were in the hypnogigic state .....

Personal Copy

UNIVERSITY OF EDINBURGH
Department of Psychology
60 PLEASANCE, EDINBURGH EH8 9TJ
031-556 7103

1st August, 1975

Dear Colleague,

I am at present engaged in a program of research under the supervision of Dr John Beloff, into the experimenter effect in parapsychology. I am sure you will agree that this is a crucially important, yet much neglected topic, so I would like to ask for your co-operation in my current project.

It is widely assumed that the personality of the experimenter is one of the main components of this effect. Since up to now no empirical investigation has been reported on this, it is proposed to administer the two (enclosed) psychological tests to members and associates of the Parapsychological Association, and evaluate their previous degree of success as experimenters in parapsychology in relation to the scores on these tests.

One of these tests is the short form of the 16 PF. To save time, it is suggested that the intelligence items are omitted. These are question numbers 3, 20, 37, 54, 71, and 88. Otherwise the procedure is as clearly stated.

The individual results of these tests will be considered strictly confidential and will be communicated to no one outside the project.

I thank you in anticipation of your help and interest.

Yours sincerely,

Adrian Parker

Adrian Parker

A P P E N D I X B

Tests and Scales

Questionnaire and Awareness
State Report Scale
Belief in ESP (Sheep/Goat) Scale
Personal Experiences Questionnaire
Scales for Rapport and Expectancy
ORT Rating Scale
16 P.F. Test
Falchikov Inventory

Questionnaire on Awareness During Testing

(tick)

Name ..... Agent ..... Subject .....

Experimenter Group 1 .....

Group 2 .....

Please circle how you felt during the test:

(1)	Alert	Passive
(2)	Some calls were different to others	All were the same
(3)	Remote from others' experiences	Close and open to others
(4)	Concentration varied	Concentration did not vary much
(5)	Lacked confidence	Had confidence in success
(6)	Concentration was diffuse	Concentration was intense
(7)	Tense	Relaxed
(8)	Wide awake	Awareness seemed different
(9)	Insensitive to others	Sensitive to others
(10)	Uninvolved in the situation	Involved in the situation

STATE REPORT SCALE

During the course of this experiment, we will be interested in the degree to which your state of mind stays the same or changes. That is, at various times, we are going to want to know what state of mind you are in. In order to make it easy and convenient for you to tell me this, I am going to teach you a rating scale. This way, when you are asked "State?", you will just call out a number to indicate your state of mind, instead of having to explain it.

Here is what the numbers are to represent : -

Zero indicates that you are normally alert, just as you are now.

One indicates that you feel especially relaxed. In this state, you may feel more at ease, and the tension in your muscles may yield to a more peaceful state. Do you know what I mean?

Two indicates that your attention is being focussed more on internal feelings and sensations. This may be associated with a shift from your surrounding environment to your internal bodily feelings. If this shift is not only recognisable but strong, you should report three, and if it is strong and very impressive to you, report four. A report for four indicates that you feel more or less oblivious to your external surroundings. (Pause) Do you get the idea?

STATE REPORT

Name:

Dates:

Experimenter:

Run Numbers

STATE

RUN	0	1	2	3	4
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

EXPERIMENT QUESTIONNAIRE

Rate your answers to the following questions on the scales below them:

1. Do you believe in ESP?

YES									NO
1	2	3	4	5	6	7	8	9	10

2. Do you believe you will succeed in demonstrating ESP in this experiment?

YES									NO
1	2	3	4	5	6	7	8	9	10

PLEASE RETURN THESE BOOKLETS
TO EXAMINER AT END OF SESSION

Personal Experiences Questionnaire

Form TA: College Students

Ronald E. Shor, Ph.D.
Harvard University

Description and Instructions

A great many phenomena are considered common and everyday in one culture and bizarre or even pathological in another. Hallucinations, for example, are eventually experienced by every male Crow Indian during his maturation process--he must see his Guardian Spirit in order to become a man. In our society, however, when an individual has such an experience, he rarely reports it since he feels it is at best peculiar. Yet the Yogi or Zen Buddhist deliberately seeks mystical or transcendental experiences which are considered in their culture among the highest expressions of the human intellect.

As in the case of sexual behavior, it is hard to get honest reports on things which are sometimes intensely personal. The present questionnaire is based on extensive interview data with normal subjects where it became obvious that such experiences are very common even though rarely spoken of. Please take this questionnaire seriously as we are concerned with getting a true approximation of the incidence of some of these experiences in a normal college population.

We are interested in experiences which have happened spontaneously in the natural course of living, and not as a result of special techniques such as hypnosis, the experimental sensory-deprivation situation, or by means of drugs that cause hallucinations (such as lysergic acid, marijuana, or mescalin). Experiences which occurred only in dreams or as the result of special techniques should be labeled as such.

Please describe your experiences in the following two different ways. First, in terms of simple occurrence--that is, whether or not you have ever had the experience described. Secondly, in terms of intensity--that is, how vivid and profound was any given experience the single most intense time you experienced it. The intensity of the experience may be different from its frequency.

It is possible, for example, to have had a certain experience very frequently, but never to have had it particularly vividly or intensely. It is also possible to have had a certain experience rarely, perhaps only once in a lifetime, and yet with extraordinary vividness and intensity.

A special answer sheet is supplied with each booklet. Please write only on this special answer sheet. Please do not write in this booklet. You are to give the two kinds of answers--simple occurrence and intensity--in the following way:

1) Simple occurrence: Read through each question and then rate yourself as to whether or not you have ever had the experience described by placing a circle around the appropriate yes or no on the answer sheet. Give additional information only if a simple yes or no cannot be given. Please answer every question.

2) Intensity: When referring to intensity forget about how frequently you have had the experience. Select only the single most intense occurrence of the experience in your lifetime, then do one of three things:

a) If the single most intense of these experiences was not profound or vivid, put no check marks beside the question.

b) If the single most intense of these experiences was quite vivid or profound, place a single check mark beside the question. (✓)

c) If the single most intense of these experiences was extremely profound, intense, or vivid, place two check marks beside the question. (✓✓)

Check or double check for intensity as many or as few of the questions as you wish. However, answer all questions as to simple occurrence. If in doubt, make your best guess.

The questionnaire has been designed to require about ten minutes on the average to complete it.

1. Have you ever had the experience of walking in your sleep?

2. Can you fall asleep in noisy surroundings?

3. Can you fall asleep easily?

4. Can you easily fall asleep in strange surroundings (e.g., in a strange bed)?

5. Have you ever carried on an actual conversation with another person while you were asleep (for example, with someone who walked into your room at night)?

6. Have you ever awakened in the middle of the night with what seemed such a great idea that you wrote it down, and then found the next morning that you could not understand what you had written?

7. Do you enjoy losing yourself in thought?

8. Have you ever sat staring off into space, actually thinking of nothing and hardly being aware of the passage of time?

9. Have you ever been lulled into a groggy state or put to sleep by a lecture or concert even though you were not otherwise fatigued or tired?

10. Have you almost fallen asleep while you were driving on a quiet, level stretch of road?

11. Have you ever found yourself staring at something and for the moment forgotten where you were?

12. Have you ever forgotten that someone else was in the room?

13. Have you ever been so lost in thought that you did not understand what people said to you even when you nodded token agreement?

14. Have you ever wandered off into your own thoughts while doing a job so that you actually forgot you were doing it, and then found a few minutes later that you had finished the job without even being aware of it?

15. Have you ever become so absorbed in listening to music that you almost forgot where you were?

16. Have you ever become so absorbed in listening to music that you became lost in imagination?

17. Have you ever drifted off into your own thoughts while someone was talking directly to you?

18. Do you ever worry so hard that you forget what is going on around you?

19. Have you ever been able to think yourself into a state of calmness, peacefulness, or relaxation by deciding to do so?

20. Have you ever experienced everything becoming blurry and strange as if in a dream?

21. Have you ever caught yourself having driven a car for a length of time without having been aware of it?

22. Have you ever, even for a short time, forgotten who you are or where you are?

23. Have you ever walked up the aisle after a particularly absorbing movie and felt still so much in the movie that your walking up the aisle was unreal or like a dream?

24. Have you ever read a book and been able to picture the events so that for the time it appeared almost real to you, as if you were living it?

25. Have you ever been completely immersed in nature or in art (for example, in the mountains, at the ocean, viewing sculpture, etc.) and had a feeling of awe, inspiration, and grandeur sweep over you?

26. Have you ever had the experience of being caught up by music or dancing so that you became enraptured by it and had it live and express itself through you so that you as yourself seemed to cease to be during it?

27. Have you ever lost consciousness of your body and been aware of only your thoughts?

28. Do you ever notice yourself in a roomful of people, physically present yet mentally miles away?

29. Do you recall your dreams

frequently — at least once a
occasionally — at least once a
rarely — less than once a

HAVE YOU CHECKED THE QUESTIONS FOR INTENSITY AND VIVIDNESS?

IF NOT, GO BACK OVER THE QUESTIONS AND DO SO RAPIDLY.
IF YOU HAVE DONE SO, THE QUESTIONNAIRE IS NOW COMPLETED.

Personal Experiences Questionnaire
Form HP: College Students

Ronald E. Shor, Ph. D.
Harvard University

Name:_____ Age:____ Sex:____ Date:_____

Occupation:_____ (if student, name institution)

Local Address:_____ Tel:_____

Answer questions in the appropriate spaces below by circling yes or no. If this is not possible give the necessary additional information. Please answer every question. Also check or double check questions for intensity as described in the instruction booklet. Check or double check as many or as few of the questions as seems appropriate.

1. Yes No
2. Yes No
3. Yes No
4. Yes No
5. Yes No
6. Yes No
7. Yes No
8. Yes No
9. Yes No
10. Yes No
11. Yes No
12. Yes No
13. Yes No
14. Yes No
15. Yes No
16. Yes No
17. Yes No
18. Yes No
19. Yes No
20. Yes No
21. Yes No
22. Yes No
23. Yes No
24. Yes No
25. Yes No
26. Yes No
27. Yes No
28. Yes No

DESCRIPTION OF SCALES FOR RAPPORT AND EXPECTANCY

	RAPPORT	EXPECTANCY
1	No exchange between E & S.	E believes experiment will fail. Ss believe experiment will fail.
2	E gives formal instructions only. S gives only necessary responses.	E is doubtful the experiment will work and doesn't try to convince Ss
3	E and S engage in only polite exchanges.	E is unsure of the outcome and communicates this in some way.
4	E & S try to initiate and engage in conversation but little success.	E is unsure of the outcome, tries to convince Ss but fails.
5	Some understanding and exchange but brief and hesitant.	E believes the experiment may work and has some success at convincing Ss of this.
6	Moderate degree of mutual understanding and flow in conversation.	E thinks the experiment will work and communicates this in some way.
7	Definite flow and spontaneity as well as understanding.	E is sure the experiment will work and is convincing about it.
8	Open expression of feelings about the experiment as well as flow, spontaneity, understanding.	E is motivating in presenting the experiment as a challenge, as well as being confident and convincing.
9	Definite openness, spontaneity, understanding and flow.	E is definitely confident, convincing and motivating - in presenting the experiment as a challenge.
10	Complete understanding, flow, spontaneity and flow in the conversation.	E and S are confident and treat the experiment as an interesting challenge, and are highly motivated.

RATING SCALES FOR EXPERIMENTER-SUBJECT RAPPORT
AND
EXPERIMENTER EXPECTANCY

Rate the tape extracts of experimenter-subject interaction on the two ten point scales of experimenter-subject rapport and expectancy of success. In doing this use the attached description of the scales.

Session Code	RAPPORT 1 2 3 4 5 6 7 8 9 10	EXPECTANCY OF SUCCESS 1 2 3 4 5 6 7 8 9 10
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		

PREDICTION OF ESP TEST PERFORMANCE FROM
THE ORT STORIES

SESSION CODE		LOW 1	2	3	4	5	6	7	8	9	HIGH 10	

IPAT 16 P.F.

WHAT TO DO: The questions inside this booklet are to give you a chance to say what sort of a person you are and to state your interests and attitudes. Since each person is different, there are generally no "right" or "wrong" answers, but only what is true **for you.**

If a separate "Answer Sheet" has **not** been given to you, turn this booklet over and tear off the Answer Sheet on the back page.

Write your name and other particulars at the top of the Answer Sheet.

We first give you two examples so that you will know exactly what to do. To the right of each sentence there are three answers indicated. Look at the top left hand side of your Answer Sheet where it says "Examples." Although you are to read the questions in this booklet, **you must put your answers on the Answer Sheet,** alongside the same number as in the booklet.

Read the following examples and mark an x for your answers on the Answer Sheet:

EXAMPLES:

1. I find it hard to wake up quickly in the morning..... Yes (True) In Between (or Not Sure) No (False)

2. I would rather spend an evening:
   a. listening to good music;
   b. reading an exciting story..... a Uncertain (of either) b

Inside you will find more questions like these. When you are told to turn the page, begin with number 1 and go on at your own rate. In answering these questions we would like you to keep these four points in mind:

1. Answer the questions as frankly and truthfully as possible since there is no advantage in giving the wrong impression. Never give an untrue answer about yourself because you think it is the "right thing to say." There are ways of detecting such unfair answers.

2. Although this is an untimed test, we would still like you to answer the questions as quickly as you can. Do not spend time puzzling over the questions. Give the first, natural answer as it comes to you. Some questions are a bit similar to others but no two are exactly alike and your answers will often differ in these cases.

3. Use the middle answer **only** when it is **absolutely impossible** to lean toward one or the other of the answer choices. In other words, the "Yes" (or "a") or the "No" (or "b") answer should be used for **most** cases.

4. Do not skip any questions. Occasionally a statement may not seem to apply to you or your interests, but answer **every one,** somehow. Your answers will be kept confidential.

1. I think my memory is better than it ever was.....	Yes, True	In Between, Not sure	No, Fals
2. I could happily live alone, far from anyone, like a hermit.....	Yes	Occasionally	No
3. If I say the sky is "down" and winter is "hot", I would call a criminal: (a) a gangster, (b) a saint, (c) a cloud.....	a	b	c
4. When I see "sloppy", untidy people I: (a) just accept it, (b) get disgusted and annoyed.....	a	In Between	b
5. It annoys me to hear people say they can do something better than others.	Yes	Occasionally	No
6. At a party I let others keep the jokes and stories going.....	Yes	Sometimes	No
7. If my income were more than enough for ordinary daily needs, I would feel I should give the rest to a church or other worthwhile cause.....	Yes	In Between	No
8. Most people I see at a party are undoubtedly glad to meet me.....	Yes	Sometimes	No
9. I would rather exercise by: (a) fencing and dancing, (b) wrestling and baseball.....	a	In Between	b
10. I smile to myself at the big difference between what people do and what they say they do.....	Yes	Occasionally	No
11. As a child I felt sad to leave home to go to school each day.....	Yes	Occasionally	No
12. If a good remark of mine is passed by, I: (a) let it go, (b) give people a chance to hear it again.....	a	In Between	b
13. When someone has bad manners I feel: (a) it is not my business, (b) I should show the person that people disapprove.....	a	In Between	b
14. When I meet a new person I would rather: (a) discuss his politics and social views, (b) have him tell me some good, new jokes.....	a	In Between	b
15. When I plan something, I like to do so quite alone, without any outside help.....	Yes	Occasionally	No
16. I avoid spending time dreaming about "what might have been.".....	Yes	Sometimes	No
17. When I am going to catch a train, I get a little hurried, tense, or anxious, though I know I have time.....	Yes	Sometimes	No
(End, Column 1 on Answer Sheet.)			
18. I have sometimes, even if briefly, had hateful feelings towards my parents.	Yes	In Between	No
19. I could be happy in a job that required me to listen to unpleasant complaints all day from employees and customers.....	Yes	In Between	No
20. I think the opposite of the opposite of "inexact" is: (a) casual, (b) accurate, (c) rough.....	a	b	c
21. I always have lots of energy at times when I need it.....	Yes	In Between	No
22. I'd be extremely embarrassed to tell people I'd spent my vacation at a nudist camp.....	Yes	In Between	No
23. I greatly enjoy all large gatherings, like parties or dances.....	Yes	Sometimes	No

24. I feel that
(a) some jobs just do not need doing so carefully as others,
(b) any job should be done thoroughly if you do it at all..... a In Betwe

25. In streets or stores I dislike the way some people stare at one..... Yes In Betwe

26. I would rather be:
(a) a bishop, (b) a colonel..... a In Betwe

27. If a neighbor cheats me over small things, I would rather humor him than show him up..... Yes Occasiona

28. I would rather see:
(a) a good movie of hardy, pioneering days,
(b) a clever movie farce or skit on the society of tomorrow..... a In Betwe

29. When I have been put in charge of a thing I insist that my instructions are followed or else I resign..... Yes Sometim

30. I find it wise to avoid excessive excitement because it tends to wear me out..... Yes Occasiona

31. If I were good at both I would rather play at:
(a) chess, (b) bowling..... a In Betwee

32. I feel it is cruel to vaccinate very small children, even against contagious diseases, and parents have a right to stop it..... Yes In Betwe

33. I put my faith more in:
(a) insurance, (b) good fortune..... a In Betwe

34. I can forget my worries and responsibilities whenever I need to..... Yes Sometime

(End, Column 2 on Answer Sheet.)

35. I find it hard to admit when I am wrong..... Yes Sometim

36. In a factory I would rather be in charge of:
(a) machinery or keeping records,
(b) talking to and hiring new people..... a In Betwee

37. Which word does not belong with the other two:
(a) cat? (b) near? (c) sun?..... a b

38. My health is affected by sudden changes, causing me to alter my plans for that reason..... Yes Occasiona

39. I am quite happy to be waited on, at appropriate times, by personal servants..... Yes, Often Sometime

40. I feel a bit awkward in company and do not show up quite so well as I should..... Yes Occasiona

41. I think people should observe moral laws more strictly than they do... Yes Sometim

42. Some things make me so angry that I find it best not to speak..... Yes In Betwe

43. I can do hard physical work without feeling worn out as soon as most people..... Yes Sometim

44. I think most witnesses tell the truth even if it becomes embarrassing..... Yes In Betwe

45. I find it helpful to pace up and down when I am thinking..... Yes Sometim

46. I think this country would do better to spend more on:
(a) armaments,
(b) education..... a In Betwee

GO RIGHT ON TO THE NEXT PAGE

47. I would rather spend an evening:
(a) in a hard game of cards,
(b) looking at photos of past vacations..... a In Between b

48. I would rather read:
(a) a good historical novel,
(b) an essay by a scientist on harnessing world resources..... a In Between b

49. There are really more nice people than objectionable people in the world. Yes In Between No

50. I honestly think I am more planful, energetic, and ambitious than many perhaps equally successful people..... Yes Occasionally No

51. There are times when I do not feel in the right mood to see anyone:
(a) very rarely, (b) quite often..... a In Between b

(End, Column 3 on Answer Sheet.)

52. When I know I'm doing the right thing I find my task easy..... Yes, Always Sometimes No, Seldom

53. I would rather be:
(a) in a business office, organizing and seeing people,
(b) an architect, drawing plans in the back room..... a In Between b

54. Black is to gray as pain is to:
(a) wound? (b) illness? (c) discomfort?..... a b c

55. I am always a sound sleeper, never walking or talking in my sleep..... Yes In Between No

56. I can look anyone in the eye and tell a lie with a straight face (if for a right end)..... Yes Occasionally No

57. I have been active in organizing a club, team, or social group..... Yes Occasionally No

58. I admire more:
(a) a clever but undependable man,
(b) an average man but strong to resist temptations..... a In Between b

59. When I make a just complaint I always get matters adjusted to my satisfaction..... Yes Sometimes No

60. Discouraging circumstances can bring me near to tears..... Yes Occasionally No

61. I think many foreign countries are actually more friendly than we suppose..... Yes Sometimes No

62. There are times, every day, when I want to enjoy my own thoughts, uninterrupted by other people..... Yes In Between No

63. I get annoyed at being held up by small rules and regulations which, I admit, are really necessary..... Yes In Between No

64. I think much so-called modern "progressive" education is less wise than the old rule "spare the rod and spoil the child."..... Yes, True Sometimes No, False

65. I learned more in school days by:
(a) going to class, (b) reading a book..... a In Between b

66. I avoid getting involved in social responsibilities and organizations..... Yes, True Sometimes No, False

67. When a problem gets hard and there is a lot to do, I try:
(a) a different problem,
(b) a different attack on the same problem..... a In Between b

68. I get strong emotional moods—anxiety, anger, laughter, etc.—that seem to arise without much actual cause..... Yes Occasionally No

(End, Column 4 on Answer Sheet.)

69. My mind does not work as clearly at some times as at others..... Yes, True In Betwe

70. I am happy to oblige people by making appointments at times they like, even if a bit inconvenient to me..... Yes Sometin

71. I think the proper number to continue the series 1, 2, 3, 6, 5, is:
(a) 10, (b) 5, (c) 7..... a b

72. I tend to be critical of other people's work..... Yes Occasion

73. I would rather do without something than put a waiter or waitress to a lot of extra trouble..... Yes Occasion

74. I love to travel—anytime..... Yes Occasion

75. I have sometimes come near to fainting, at a violent pain or the sight of blood..... Yes In Betwe

76. I greatly enjoy talking to people about local problems..... Yes Sometin

77. I would rather be:
(a) a construction engineer,
(b) a teacher of social ideas and manners..... a In Betwe

78. I have to stop myself from getting too involved in trying to straighten out other people's problems..... Yes Sometin

79. I find the conversation of my neighbors dull and boring:
(a) in most cases,
(b) only in a very few..... a In Betwe

80. I generally fail to notice hidden propaganda in what I read, unless someone points to it..... Yes, True Occasion

81. I think every story and movie should remind us of a moral..... Yes Sometim

82. More trouble arises from people:
(a) changing and meddling with ways that are already O. K.,
(b) turning down new, promising methods..... a In Betwe

83. I sometimes hesitate to use my own ideas, for fear they might be impractical..... Yes In Betwe

84. Prim, strict people do not seem to get on well with me..... Yes, True Sometim

85. My memory does not change much from day to day..... Yes, True Sometim

(End, Column 5 on Answer Sheet.)

86. I may be less considerate of other people than they are of me..... Yes, True Occasion

87. I am more restrained than most people in saying what my feelings are. Yes Sometin

88. If the two hands on a watch come together exactly every 65 minutes (according to an accurate watch), the watch is running:
(a) slow, (b) on time, (c) fast..... a b

89. I get impatient, and begin to fume and fret, when people delay me unnecessarily..... Yes Occasion

90. People say that I like to have things done my own way..... Yes, True Occasion

91. I usually would say nothing if the tools given me to do a job are not quite what they should be..... Yes, True Sometin

GO RIGHT ON TO THE NEXT PAGE

92. At home, with a bit of spare time, I:
(a) use it in chatting and relaxing,
(b) plan to fill it with special jobs..... a In Between b

93. I am shy, and careful, about making friendships with new people..... Yes Occasionally N

94. I think that what people say in poetry could be put just as exactly in plain prose..... Yes Sometimes N

95. I suspect that people who act friendly to me can be disloyal behind my back:
(a) yes, generally, (b) occasionally, (c) no, rarely..... a b c

96. I think that even the most dramatic experiences during the year leave my personality much the same as it was..... Yes Sometimes N

97. I tend to speak rather slowly..... Yes Sometimes N

98. I get unreasonable fears or distastes for some things, for example, particular animals, places, and so on..... Yes Sometimes N

99. In a group task I would rather:
(a) try improvements in organization,
(b) keep the records and see that rules are kept..... a In Between b

100. To vote well on a social issue I would read:
(a) a widely recommended novel about it,
(b) a textbook listing statistical and other facts..... a In Between b

101. I get rather fantastic or ridiculous dreams (in sleep)..... Yes Occasionally N

102. If left in a lonely house I tend, after a time, to feel a bit anxious or fearful. Yes Sometimes N

(End, Column 6 on Answer Sheet.)

103. I may deceive people by being friendly when I really dislike them..... Yes Sometimes N

104. Which word does not belong with the other two:
(a) run? (b) see? (c) touch?..... a b c

105. If Mary's mother is Fred's father's sister, what relation is Fred to Mary's father:
(a) cousin? (b) nephew? (c) uncle?..... a b c

IPAT

ANSWER SHEET: THE 16 P. F. TEST, FORM C

NAME ______________ (FIRST) ______________ (MIDDLE INITIAL) ______________ (LAST) DATE ______________ ADDRESS ______________ (OR OCCUPATION OR AS INSTRUCTED)

SEX ______________ (WRITE M OR F) AGE ______________ (NEAREST YEAR)

Examples:

1	Y ☐	I ☐	N ☐
2	a ☐	U ☐	b ☐

☆

1 Y ☐ I ☐ N ☐	18 Y ☐ I ☐ N ☐	35 Y ☐ S ☐ N ☐	52 Y ☐ S ☐ N ☐	69 Y ☐ I ☐ N ☐	86 Y ☐ O ☐ N ☐	103 Y ☐ S ☐ N ☐
2 Y ☐ O ☐ N ☐	19 Y ☐ I ☐ N ☐	36 a ☐ I ☐ b ☐	53 a ☐ I ☐ b ☐	70 Y ☐ S ☐ N ☐	87 Y ☐ S ☐ N ☐	104 a ☐ b ☐ c ☐
3 a ☐ b ☐ c ☐	20 a ☐ b ☐ c ☐	37 a ☐ b ☐ c ☐	54 a ☐ b ☐ c ☐	71 a ☐ b ☐ c ☐	88 a ☐ b ☐ c ☐	105 a ☐ b ☐ c ☐
4 a ☐ I ☐ b ☐	21 Y ☐ I ☐ N ☐	38 Y ☐ O ☐ N ☐	55 Y ☐ I ☐ N ☐	72 Y ☐ O ☐ N ☐	89 Y ☐ O ☐ N ☐	
5 Y ☐ O ☐ N ☐	22 Y ☐ I ☐ N ☐	39 Y ☐ S ☐ N ☐	56 Y ☐ O ☐ N ☐	73 Y ☐ O ☐ N ☐	90 Y ☐ O ☐ N ☐	
6 [illegible] ☐ [illegible] ☐ N ☐	23 Y ☐ S ☐ N ☐	40 Y ☐ O ☐ N ☐	57 Y ☐ O ☐ N ☐	74 Y ☐ O ☐ N ☐	91 Y ☐ S ☐ N ☐	
7 Y ☐ I ☐ N ☐	24 a ☐ I ☐ b ☐	41 Y ☐ S ☐ N ☐	58 a ☐ I ☐ b ☐	75 Y ☐ I ☐ N ☐	92 a ☐ I ☐ b ☐	
8 Y ☐ S ☐ N ☐	25 Y ☐ I ☐ N ☐	42 Y ☐ I ☐ N ☐	59 Y ☐ S ☐ N ☐	76 Y ☐ S ☐ N ☐	93 Y ☐ O ☐ N ☐	
9 a ☐ I ☐ b ☐	26 a ☐ I ☐ b ☐	43 Y ☐ S ☐ N ☐	60 Y ☐ O ☐ N ☐	77 a ☐ I ☐ b ☐	94 Y ☐ S ☐ N ☐	
10 Y ☐ O ☐ N ☐	27 Y ☐ O ☐ N ☐	44 Y ☐ I ☐ N ☐	61 Y ☐ S ☐ N ☐	78 Y ☐ S ☐ N ☐	95 Y ☐ O ☐ N ☐	
11 Y ☐ O ☐ N ☐	28 a ☐ I ☐ b ☐	45 Y ☐ S ☐ N ☐	62 Y ☐ I ☐ N ☐	79 a ☐ I ☐ b ☐	96 Y ☐ S ☐ N ☐	
12 a ☐ I ☐ b ☐	29 Y ☐ S ☐ N ☐	46 a ☐ I ☐ b ☐	63 Y ☐ I ☐ N ☐	80 Y ☐ O ☐ N ☐	97 Y ☐ S ☐ N ☐	
13 a ☐ I ☐ b ☐	30 Y ☐ O ☐ N ☐	47 a ☐ I ☐ b ☐	64 Y ☐ S ☐ N ☐	81 Y ☐ S ☐ N ☐	98 Y ☐ S ☐ N ☐	
14 a ☐ I ☐ b ☐	31 a ☐ I ☐ b ☐	48 a ☐ I ☐ b ☐	65 a ☐ I ☐ b ☐	82 a ☐ I ☐ b ☐	99 a ☐ I ☐ b ☐	
15 Y ☐ O ☐ N ☐	32 Y ☐ I ☐ N ☐	49 Y ☐ I ☐ N ☐	66 Y ☐ S ☐ N ☐	83 Y ☐ I ☐ N ☐	100 a ☐ I ☐ b ☐	
16 Y ☐ S ☐ N ☐	33 a ☐ I ☐ b ☐	50 Y ☐ O ☐ N ☐	67 a ☐ I ☐ b ☐	84 Y ☐ S ☐ N ☐	101 Y ☐ O ☐ N ☐	
17 Y ☐ S ☐ N ☐	34 Y ☐ S ☐ N ☐	51 a ☐ I ☐ b ☐	68 Y ☐ O ☐ N ☐	85 Y ☐ S ☐ N ☐	102 Y ☐ S ☐ N ☐	

Do not write here

Factor	SCORE Raw	SCORE Std.
MD (Experimental)		
A		
B		
C		
E		
F		
G		
H		
I		
L		
M		
N		
O		
Q_1		
Q_2		
Q_3		
Q_4		

FALCHIKOV PREFERENTIAL CONSTRUCT INVENTORY

FORM A

NAME..... CHRISTIAN NAMES.....

AGE..... SEX..... OCCUPATION.....

Instructions

Listed below are groups of words selected so as to have contrasting meanings. This is not a test in which there are correct or incorrect answers. What you have to do is to indicate your preference for ONE of these words in each list, by circling the appropriate word. This should be the one you prefer and which instantly appeals to you. We want your first reaction. Do not spend too long on any particular list but work quickly and be sure not to make any omissions.

1.	DOCTOR	DOLL	CASTLE	FUR
2.	AEROPLANE	POLICE	LOVE	BLACKNESS
3.	HOUSE	FINGER	INSECT	SUN
4.	DEVIL	MOTHER	PARTY	WATCH
5.	FROG	SOLDIER	SHOE	RECORD
6.	FATHER	LIPSTICK	DEATH	FLOWER
7.	CHAIN	RAT	STAR	BED
8.	FAIRY	FIRE	PUDDING	PENCIL
9.	BROTHEL	BOAT	KING	SNAKE
10.	TREE	WORK	MOUSE	APPLE
11.	NEED	ROCKET	DRESS	BIKE
12.	SNOW	BOOK	EYE	FLAG
13.	FOOD	GARDEN	LETTER	KEY
14.	HOLIDAY	CHURCH	PISTOL	CHILD
15.	ANGER	DRINK	SLEEP	LANGUAGE

16.	SCREAM	MUSIC	BREAST	LONG
17.	MOUNTAIN	THIEF	SEX	RING
18.	MONEY	CLOWN	MIRROR	JEEP
19.	TIE	COUNTRY	CINEMA	HATRED
20.	COMPUTER	TRANQUILITY	DOOR	TREASURE
21.	MONSTER	POLKA	NEWSPAPER	JUMP
22.	BRIDGE	SKULL	BOSS	SKY
23.	HOLE	CROSS	HOT	LADDER
24.	WOMB	ILLUSION	ACCIDENT	GOD
25.	FAMILY	SHAVE	ISLAND	CAMERA
26.	TOUCH	SCHOOL	HEART	WORRY
27.	SELF	CLUB	JOKE	POLITICS
28.	SWEET	ART	SNAKE	TRUST
29.	MURDER	TEST	HAPPINESS	AXE
30.	CURIOSITY	DRUG	SWIM	BIRTH
31.	NEEDLE	SHOWER	CITY	POEM
32.	HAIR	FAT	BOX	FISH
33.	NAME	PIG	FUTURE	GOAL
34.	CROWD	PURPLE	CONVERSATION	PLAY
35.	WEATHER	SEPARATION	SOAP	SMILE
36.	SKERRY	PATH	TEAR	SCIENCE
37.	NOISE	DAWN	TRAIN	AUTUMN
38.	WITCH	POWER	HOBBY	JUNGLE
39.	NUDE	ADVENTURE	VIEW	PRESIDENT
40.	PATIENCE	CHRISTMAS	TENT	UNICORN
41.	TIDYNESS	DECISION	HEADACHE	TELEPHONE
42.	LAW	FAITH	PERFUME	MIDGET
43.	BEAT	PIRATE	GOLF	PULL
44.	STORM	EVOLUTION	POSSESSION	EQUALITY

A P P E N D I X C

Raw Data

J.D. Studies

S.B. Studies

Experimenter Expectancy Pilot Study

" " Follow Up

Results of Miss R.D.

Ganzfeld Pilot Study

Standardisation of the Rapport Scale

3 Experimenter Ganzfeld Study

16 P F

Falchikov Standardisation

RAW DATA : S.B. STUDIES

SCREENING SERIES

E.E.E.T.

17 runs : Dev. + 19 Mean 6.1 C.R. 2.32 P. .02

Scores : 3, 4, 4, 10, 8, 8, 9, 7, 7, 7, 5, 4, 5, 8, 5, 3.

ESP Cards

16 runs : Dev. + 22 Mean 6.4 C.R. 2.75 P. .006

Scores : 7, 6, 6, 7, 6, 8, 7, 9, 6, 6, 4, 5, 6, 8, 5, 6.

A.P. - B.M. - PILOT SERIES

Scores with A.P.

Hits	State	Expectancy
5	2	7
6	1	5
10	2	5
5	1	6
6	2	7
3	2	3
5	0	4
9	0	0
5	1	5
5	1	7

Scores with B.M.

Hits	State	Expectancy
6	1	
7	0	
3	0	
3	0	
9	1	
7	1	4
13	0	2
4	0	4
6	1	8
5	1	8

A.P. - B.M. - REPLICATION SERIES

SCORES WITH A.P.

Hits	State	
	Mental	Physical
3	7	2
5	5	5
4	1	2
4	3	3
4	5	5
8	7	4

Scores with B.M.

Hits	State	
	Mental	Physical
12	5	4
6	5	5
7	3	3
4	7	6
4	7	5
5	-	-

RAW DATA : J.D. STUDIES

SCREENING SERIES (E.E.E.T) :

10 runs G.E.S.P. : 4, 10, 8, 7, 15, 11, 13, 8, 13, 9

SCREENING SERIES (ESP Cards) :

10 runs G.E.S.P. : 9, 6, 2, 3, 6, 5, 6, 3, 5, 8

SERIES WITH J.B. ONLY (E.E.E.T.) :

15 runs G.E.S.P. : 7, 5, 5, 8, 4, 7, 6, 5, 3, 4, 1, 5, 2, 5, 3

RESULTS OF THE EXPERIMENTER EXPECTANCY STUDY

EXPERIMENTERS	RUNS				TOTALS	
	1	2	3	4		
A_1	9	5	6	6	28*	
A_2	3	5	5	6	19	67
A_3	3	5	7	5	20	
B_1	4	2	1	6	13**	
B_2	5	6	4	6	21	51
B_3	4	3	3	7	17	

* P = .02 (one tailed)

** P = .05 (one tailed)

Total Score Group A = 67 dev. + 7

B = 51 dev. - 9

9 = 9.78

$C.R_D$ = 1.64

P = .05 (one tailed)

RAW SCORES : FOLLOW UP EXPECTANCY SERIES

	RUN 1	RUN 2	
GROUP A			
K.W.	5	4	
F.D.	2	4	
A.M.	5	4	TOTAL : 35
L.V.	3	8	
GROUP B			
A.D.	6	3	
G.M.	5	2	TOTAL : 41
G.C.	7	7	
D.F.	3	8	

RAW SCORES : RESULTS OF MISS R.D.

SUBJECT PAIR	HITS	
L. & K.	4	
	5	
	6	
	3	
K. & J.	4	
	3	
		TOTAL : 78
S. & P.	2	
	5	M.C.E. : 80
	4	
	4	
G. & F.	7	
	6	
	4	
F. & S.	9	
	6	
	6	

RAW DATA FOR THE GANZFELD PILOT STUDY

SUBJECT	SHIFT IN STATE	SUM OF STATE SCORES	HIT
1	+ 1	16	
2	- 1	11	X
3	+ 1	17	
4	+ 1	7	X
5	+ 1	17	
6	+ 1	11	
7	+ 1	10	X
8	- 1	8	X
9	+ 3	10	
10	+ 1	18	
11	+ 1	8	
12	+ 1	13	
13	- 1	18	X
14	+ 1	13	
15	0	14	
16	- 2	12	
17	+ 2	9	
18	0	14	
19	+ 1	12	
20	0	17	
21	- 1	12	X
22	0	9	X
23	+ 1	10	X
24	+ 1	17	
25	+ 1	11	
26	+ 1	8	X
27	0	4	X
28	+ 1.5	9.5	
29	- 1	9	X
30	+ 1	11	
TOTALS	15.5	360.5	11.0

STANDARDISATION OF THE RAPPORT SCALE

EXTRACT	JUDGE								OVERALL MEAN
	S		Y		L		C		
1	4	(5.7)	4	(5.7)	6	(5)	7	(4.7)	5.3
2	6	(3.3)	3	(3.3)	4	(4)	3	(4.3)	4.0
3	5	(5.3)	5	(5.3)	6	(5)	5	(5.3)	5.3
4	5	(6.3)	3	(7.3)	7	(6)	10	(5)	6.3
5	5	(6)	5	(6)	5	(6)	8	(5)	5.8
6	7	(4.3)	3	(5.7)	5	(5)	5	(5)	5.0
7	8	(6.7)	4	(8)	7	(7)	9	(6.3)	7.0
8	6	(4.7)	5	(5)	5	(5)	4	(5.3)	5.0
9	5	(5.3)	5	(5.3)	6	(5)	5	(5.3)	5.3
10	5	(5.7)	3	(6.3)	6	(5.3)	8	(4.7)	5.5
11	5	(5.3)	5	(5.3)	5	(5.3)	6	(5)	5.3
12	6	(4.3)	3	(5.3)	5	(4.7)	5	(4.7)	4.8

( ) indicates the mean value for the extract excluding the judge's own value.

Raw Data : 3 Experimenter - Ganzfeld Study

Notes:

Scales are 1 - 10 with 10 as the highest.
Expectancy score is given on two 10 point scales.

	Ea									Eb										Ec								
S	Hits	Ranks	State Cis	Σ	Expect. 1	2	Mood	Proj. test	Rapport	Hits	Ranks	State Cis	Σ	Expect. 1	2	Mood	Proj. test	Rapport	Hits	Ranks	State Cis	Σ	Expect. 1	2	Mood	Proj. test	Rapport
1	X	1	0	4	9	9	10	10	6	X	2	+2	13	9	7	9	10	6		5	+1	8	9	9	8	10	7
2		4	-1	12	8	6	8	3	3		5	+1	15	8	6	8	5	5	X	2	-2	14	8	7	9	7	6
3		5	+1	7	9	7	9	6	2	X	2	+1	10	9	5	5	9	4	X	1	-1	8	9	9	4	6	5
4		6	0	5	5	3	7	2	5		4	0	4	5	2	5	4	4	X	3	+1	5	5	3	8	4	4
5	X	2	+3	10	10	5	7	3	3		5	0	12	10	6	7	7	6		5	+2	12	10	8	9	3	6
6	X	2	+1	10	6	4	8	4	-		5	+2	10	6	7	8	5	6	X	2	+1	11	6	4	8	4	5
7	X	3	+1	3	9	6	9	2	2		6	+1	3	10	7	9	9	2		4	+1	1	7	4	6	5	8
8		6	+2	9	6	4	9	2	3		6	+1	6	7	7	8	7	7	X	3	+2	9	8	8	7	3	7
9		5	+1	6	8	6	8	7	2	X	1	+2	9	8	8	7	8	6		4	+1	7	8	6	5	7	3
10		6	-1	15	10	6	5	7	2	X	1	+1	15	10	7	7	6	5		4	0	16	10	8	9	4	5
11	X	2	+2	14	2	4	7	7	3		6	+1	11	10	6	8	4	4	X	3	0	10	10	6	8	4	3
12		5	+1	6	9	6	9	2	2	X	3	+1	7	10	6	8	2	2		6	0	4	9	6	9	3	3
13		6	+1	11	8	8	9	9	3		6	+1	7	8	6	8	4	5	X	2	+1	7	8	5	7	8	7
14		5	+2	13	9	7	8	3	2	X	3	+2	13	9	6	7	5	5	X	3	+1	11.5	10	6	8	7	3
15		6	+2	9	10	5	8	6	6		6	+1	7	10	10	7	7	3		5	+2	9	10	9	9	7	7
16	X	2	0	12	9	5	7	6	5		4	+2	13	9	6	8	5	5	X	1	+1	7	9	6	7	3	7
17		6	+1	9	9	3	6	7	2		5	+1	10	10	5	8	6	4		6	-1	7	10	3	4	8	5
18	X	1	+1	15	10	3	8	3	4	X	1	+2	14	10	6	3	2	6		4	+2	10	10	2	8	3	5
19	X	1	+1	13	8	6	8	3	2		6	0	12	5	5	4	4	3	X	1	+1	11	6	6	7	6	8
20		5	+1	13	10	4	6	5	4		4	+1	11	10	7	8	4	7		6	+2	9	10	6	8	7	6
21	X	2	0	10	8	7	7	5	6		5	+1	14	8	7	9	8	7	X	2	+2	9	8	7	9	3	8
22	X	2	+1	8	10	2	4	1	4	X	2	+1	7	10	4	7	6	4		5	+1	8	10	6	5	6	6
23		5	+1	11	7	6	5	1	3	X	3	0	12	7	5	5	2	2	X	2	0	13	7	5	6	6	2
24		5	0	9	9	6	8	1	5	X	1	0	8	9	6	8	5	3	X	2	0	12	9	6	7	3	6

RAW DATA : 16 P.F.

E. CODE	INTROV.	A	I	O
Psi Conducive Group (Standard Scores)				
24	5.63	7	10	6
38	5.38	2	8	4
13	8.38	2	6	6
1	5.12	6	6	3
36	7.75	2	5	7
46	5.13	3	10	2
45	7.75	8	9	5
10	7.75	1	7	8
23	7.38	2	9	4
37	8.63	4	6	5
39	5.25	6	4	8
20	8.13	2	7	6
14	6.87	4	10	2
30	7.75	4	6	8
34	4.13	5	10	5
Psi Inhibitory Group				
9	7.00	5	7	4
51	9.25	1	7	7
50	.13	1	9	6
6	7.00	3	6	4
8	8.25	3	7	6
25	4.63	5	3	5
3	7.75	2	3	4
7	6.50	5	10	6
22	3.13	8	6	8
21	8.25	2	4	2
47	4.75	6	7	4
11	3.37	7	7	3
4	6.13	6	6	4
5	6.56	5	5	5

FALCHIKOV PREFERENTIAL CONSTRUCT — FORM A

INVENTORY

DESIGNATION OF PRIMARY AND SECONDARY
RESPONSE CATEGORIES FROM FREQUENCY OF CHOICE

NAME..... CHRISTIAN NAMES.....

AGE..... SEX..... OCCUPATION.....

Instructions

Listed below are groups of words selected so as to have contrasting meanings. This is not a test in which there are correct or incorrect answers. What you have to do is to indicate your preference for ONE of these words in each list, by circling the appropriate word. This should be the one you prefer and which instantly appeals to you. We want your first reaction. Do not spend too long on any particular list but work quickly and be sure not to make any omissions.

The numbers refer to the frequency with which the word was chosen.

Words underlined are those chosen as secondary response targets.
N = 35

1.	DOCTOR 14	DOLL 1	CASTLE 17	FUR 3
2.	AEROPLANE 9	POLICE 1	LOVE 23	BLACKNESS 2
3.	HOUSE 12	FINGER 0	INSECT 2	SUN 21
4.	DEVIL 8	MOTHER 18	PARTY 4	WATCH 5
5.	FROG 12	SOLDIER 3	SHOE 2	RECORD 18
6.	FATHER 10	LIPSTICK 3	DEATH 6	FLOWER 16
7.	CHAIN 0	RAT 0	STAR 30	BED 5
8.	FAIRY 18	FIRE 11	PUDDING 4	PENCIL 2
9.	BROTHEL 5	BOAT 18	KING 8	SNAKE 4
10.	TREE 15	WORK 7	MOUSE 4	APPLE 9
11.	NEED 3	ROCKET 18	DRESS 6	BIKE 8
12.	SNOW 9	BOOK 16	EYE 10	FLAG 0
13.	FOOD 5	GARDEN 23	LETTER 4	KEY 3
14.	HOLIDAY 14	CHURCH 5	PISTOL 2	CHILD 14
15.	ANGER 0	DRINK 6	SLEEP 17	LANGUAGE 12

N = 33

16.	SCREAM 2	MUSIC 24	BREAST 6	LONG 1
17.	MOUNTAIN 20	THIEF 0	SEX 13	RING 0
18.	MONEY 15	CLOWN 7	MIRROR 4	JEEP 7
19.	TIE 2	COUNTRY 16	CINEMA 15	HATRED 1
20.	COMPUTER 5	TRANQUILITY 17	DOOR 3	TREASURE 8
21.	MONSTER 5	POLKA 9	NEWSPAPER 15	JUMP 4
22.	BRIDGE 5	SKULL 6	BOSS 1	SKY 21
23.	HOLE 3	CROSS 12	HOT 5	LADDER 13
24.	WOMB 4	ILLUSION 13	ACCIDENT 0	GOD 16
25.	FAMILY 14	SHAVE 2	ISLAND 13	CAMERA 4
26.	TOUCH 5	SCHOOL 11	HEART 15	WORRY 2
27.	SELF 13	CLUB 3	JOKE 11	POLITICS 6
28.	SWEET 6	ART 17	SNAKE 1	TRUST 9
29.	MURDER 2	TEST 3	HAPPINESS 26	AXE 2
30.	CURIOSITY 18	DRUG 3	SWIM 7	BIRTH 5
31.	NEEDLE 1	SHOWER 7	CITY 7	POEM 18
32.	HAIR 10	FAT 0	BOX 9	FISH 14
33.	NAME 1	PIG 2	FUTURE 16	GOAL 14
34.	CROWD 0	PURPLE 6	CONVERSATION 18	PLAY 9
35.	WEATHER 7	SEPARATION 2	SOAP 1	SMILE 23
36.	SKERRY 0	PATH 2	TEAR 1	SCIENCE 30
37.	NOISE 1	DAWN 18	TRAIN 6	AUTUMN 8
38.	WITCH 5	POWER 2	HOBBY 10	JUNGLE 16
39.	NUDE 11	ADVENTURE 19	VIEW 3	PRESIDENT 0
40.	PATIENCE 8	CHRISTMAS 10	TENT 5	UNICORN 10
41.	TIDYNESS 9	DECISION 16	HEADACHE 1	TELEPHONE 7
42.	LAW 8	FAITH 20	PERFUME 3	MIDGET 2
43.	BEAT 1	PIRATE 17	GOLF 10	PULL 5
44.	STORM 5	EVOLUTION 22	POSSESSION 3	EQUALITY 3

REFERENCES

The following abbreviations are frequently used :

J. Parapsychol.	Journal of Parapsychology
J. A.S.P.R.	Journal of the American Society for Psychical Research
J. S.P.R.	Journal of the Society for Psychical Research

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