Experimenter Effects

Parapsychologists have come to believe that success or failure in psi experiments has as much to do with the experimenter conducting the experiment as with the subjects themselves. These 'experimenter effects' may occur simply because certain experimenters are better than others at motivating subjects to produce psi. However, a more serious possibility is that experimenters unconsciously influence the results, according to whether or not they themselves are psi-conducive.

Introduction

It is widely accepted in parapsychological circles that certain researchers consistently get better results in their psi experiments than others, regardless of the topic or hypothesis tested. Although there has been no meta-analysis, it is unlikely there would be objections to the claim that the identity of the principal investigator (PI) is the best single predictor we have of the outcome of a psi experiment. (The PI is specified here, because in many experiments published by 'psi-conducive experimenters', the testing was actually performed by lab assistants or students of the PI.)

There are two main explanations for the experimenter effect in parapsychology. The first, which can be termed the *experimenter behaviour hypothesis*, is that certain experimenters are better than others in putting participants at ease, motivating them, and increasing their confidence of success. Note that in this case the PI is not relevant: The crucial individual is the experimenter who interacts with the participants.

The second explanation, called *the experimenter psi hypothesis*, is that psi-conducive experimenters (or PIs) influence the outcome of their experiments by imposing their own psi. The term 'experimenter psi' (epsi) will continue to be used here, in accordance with tradition, although 'investigator psi' would be more precise. The experimenter need not be the only psi source. There could even be an interaction effect (for instance, the experimenter blocks or enables the participant's psi).

Experimenter Behaviour

A comprehensive review of older research on the experimenter behaviour hypothesis was published in a book chapter by Rhea White,[1] The bulk of the chapter is devoted to (primarily) forced-choice explicit anomalous cognition (AC)[2] studies.

In some of these early studies, the same procedure was implemented by more than one experimenter and the experimenters got markedly different results. These different results were explained after the fact by noting differences in the way the

successful and unsuccessful experimenters interacted with their participants. Often these experimenters had reputations for consistently getting or failing to get significant results in past research. In other experiments, the behaviour of the experimenter was manipulated, with the experimenter generally being friendly and supportive in one condition and rude and abrupt in the other. White concluded

> A favorable subject-experimenter relationship favors [positive] psi test results. In addition, the motivation of the experimenter in carrying out his experiment appears to be an important factor in whether he will succeed or fail, although this supposition has not been tested.3

Experimenter Comparisons With No Manipulation

Marilyn Schlitz is a well-known psi experimenter who accepts that psi is real. Richard Wiseman is an equally well-known skeptic of psi. They had obtained significant and nonsignificant results respectively in previous experiments aimed at testing whether participants can detect when they are being stared at from a distant location. They decided to collaborate in three such experiments in which each served as experimenter for half the participants. The participants were drawn from the same population (mostly undergraduate psychology students) at the same location, using the same procedure and equipment.

Detection of staring was defined as greater electrodermal activity of the autonomic nervous system during randomly determined epochs when the experimenter was remotely staring at the participant via a monitor than during control periods, with the participant not knowing the sequence of epochs.

In the first two studies, the roles of starer and experimenter were confounded (each assumed both roles in the same session.).4 In the first study, participants tested by Schlitz demonstrated significantly greater activation during staring than non-staring periods, but their scores did not differ significantly from those of participants tested by Wiseman, whose scores were nonsignificant. In the second study, Schlitz's participants again had a significant result, but it is unclear whether it was in the same or a reverse activation pattern.5 In the third study, the roles of experimenter and starer were separated in a 2 x 2 factorial design, but there were no significant psi effects in any of the conditions or comparisons between conditions.6

The epsi hypothesis provides a parsimonious explanation of the three studies combined, if one assumes that in the third study Wiseman's (negative) psi cancelled out Schlitz's (positive) psi, because, in contrast to the first two studies, he had a role in the sessions in which Schlitz served as experimenter (as he did, for that matter, in the sessions in which she served as starer), and if one assumes that this level of involvement is required for epsi to manifest.

In an experiment by Watt and Ramakers,7 nine 'believer' and five 'disbeliever' experimenters, defined by their scores on a questionnaire measuring belief in the paranormal, tested performance on a candle guessing task. Using a video monitor, a 'helper' observed and attempted to aid a 'helpee' maintain concentration on a candle as in meditation. The helpee was instructed to press a button every time he

or she became distracted. The AC score was the difference in number of button presses between help and control epochs, about which the helpee was not informed. The AC results of participants tested by the believer experimenters were significantly above chance and significantly higher than the chance results of those tested by the disbeliever experimenters.

Manipulation of Experimenter Behaviour or Expectancy

Honorton, Ramsey, and Cabibbo tested participants in a random number generator (RNG) precognition task. Prior to the task, the experimenter interacted with half the participants in a 'friendly, casual, supportive' manner and with the other half in an 'abrupt, formal, unfriendly' manner.[8] The positive group scored significantly above chance and the negative group significantly below chance.

Crandall[9] tested two groups of participants for a certain kind of displacement effect that he had found in his previous forced-choice AC research: significant scoring on the symbols immediately preceding and following the target symbol. With one group, the experimenter behaved in a warm, friendly, and enthusiastic manner; with the second he behaved in a cold, hostile, and indifferent manner. The displacement effect was significantly stronger when the experimenter's behaviour was positive.

Sender-receiver pairs participated in a DMILS experiment in which one member of the pair attempted to influence the electrodermal activity of the other member.[10] In one condition, the experimenters attempted to establish rapport with the participants before the session. In the other condition, personal interactions with the experimenter were kept to a minimum with the task instructions presented by computer. There was no significant effect in either condition or overall. Scores were non-significantly more positive in the impersonal condition.

Watt and Brady[11] tested volunteers using the candle gazing method described above. In the positive expectancy condition, the experimenter had the participant read a sheet indicating that she had gotten good results with the test procedure in the past and expected the good results to continue. In the 'negative expectancy' condition, the sheet reported that the experimenter had gotten chance results in previous experiments. The sheets can be considered equivalent to a manipulation of experimenter behaviour. The manipulation had no significant effect on the results, which were nonsignificant overall.

Smith and Savva[12] tested sender-receiver pairs in a standard ganzfeld study. Half of the pairs were told that previous research with the procedure at their laboratory had given positive results whereas the other group was told that this research had given chance results. The groups were matched for initial belief in psi using a 2×2 factorial design. Overall the AC scores were significantly above chance, although the authors noted a possible optional stopping artifact. The positive expectancy group scored non-significantly higher than the negative expectancy group on the AC task.

In two experiments, Taddonio[13] had two and four undergraduate student experimenters give a forced-choice AC test to undergraduates in a classroom setting. Half of the experimenters were told that this test had produced strong psi-hitting in the past and the other half were told it had produced strong psi-missing. In both studies, the two expectancy groups scored significantly in the direction of the induced expectation.

Ratings of Experimenter Behaviour

Schmeidler and Maher[14] had 24 students in two undergraduate psychology classes rate 5-minute excerpts of videotapes of five psi-conducive and five psi-inhibitory experimenters on a 40-item adjective checklist. The authors classified the experimenters based on their recent research. The psi-conducive experimenters were rated as significantly more flexible, enthusiastic, free, likeable, playful, and warm, but less rigid, cold, overconfident, irritable, egotistic, tense, and dull than the psi-inhibitory experimenters. Edge and Farkash[15] reported a close-to-strict replication of this study with a larger sample of 133 students rating six of the tapes (three of each classification) used by Schmeidler. They used a 28-item adjective checklist with some items overlapping Schmeidler's checklist. The psi-conducive experimenters were rated as significantly more active, nervous, and enthusiastic, but less poised, egoistic, and cold than the psi-inhibitory experimenters.

Experimenter Psi

Stanford's psi-mediated instrumental response (PMIR) model essentially proposes that people are constantly scanning the external environment for information relevant to their needs or desires and then act on this information without being consciously aware of it.[16] Until the introduction of this model, parapsychologists generally assumed that the psi source in psi experiments is always the participant. The PMIR model and the experiments that support it destroyed that assumption by demonstrating that a person can produce a psi effect without intending to do so, provided that the effect fulfills a need or desire. In most psi experiments, the PIs (assuming they favor the psi hypothesis, as is the case for the majority of parapsychologists) have at least as strong a need or desire for a positive outcome as their participants. There is nothing keeping them from using their own psi unconsciously and unintentionally to make their wish come true. In fact, epsi fulfills all of Stanford's criteria for PMIR except the third one: '…without prior sensory knowledge even of the existence of the need-relevant circumstance'.[17]

It is obvious how epsi could occur in psychokinesis (PK) experiments: The experimenter does essentially the same thing the purported participant does, but (presumably) unconsciously and unintentionally. With AC, the situation is more complicated. There are three possible mechanisms. The first is a two-stage process based on classical physics: (a) the experimenter gains knowledge of the target by AC (perhaps by active percipient telepathy, in which the percipient 'grabs' the information from the sender); and (b) the experimenter then plants the target information in the mind of the participant by active sender telepathy. These steps are entirely unconscious for both experimenter and participant.

The second is an application of theories based on quantum mechanics, in which the psi process is not further reducible. Such processes are sometimes called 'goal-oriented'. The third mechanism is developed in decision augmentation theory (DAT).[18] DAT postulates that the participant precognizes the target stream and initiates the trial or run at a point at which the immediately succeeding, to-be-analyzed target sequence is statistically significant, which occurs by chance 5% of the time assuming random output of the RNG. DAT is applied primarily, and its formalism applies exclusively, to RNG-type experiments ostensibly measuring AP.[19]

Direct Evidence for Epsi

Direct tests of epsi typically involve differences in AC scores between experimenters fulfilling roles in which they did not interact with the participants. The pioneering study of this type was by West and Fisk,[20] who prepared sealed decks of AC cards to be mailed by post to participants who were to guess their order without looking at them. Scoring on decks prepared by Fisk, who had a reputation as a psi-facilitating experimenter, was significantly above chance to a high degree; scoring on decks prepared by West, who had the reputation of a psi-inhibitory experimenter, was nonsignificant with a mean close to chance.

In all the other studies, the role of interest was scoring ('checking') the results produced by the participants. This role is of interest because of the observational theories of psi, which maintain that psi effects occur retroactively when someone looks at the results.[21]

Bierman[22] noted two previous studies in which rats were to learn from feedback to influence an RNG: One study demonstrated the predicted incline effect and the other a decline effect. Hypothesizing that the divergent results were due to epsi, Bierman conducted a two-run replication with no rats involved. Each of the original experimenters was sent results from one of the runs to observe. Bierman predicted that each experimenter would observe results consistent with their previous study. In fact, both runs showed a nonsignificant decline effect, so the hypothesis was not supported.

Houtkooper and Haraldsson[23] compared plethysmograph responses to a remote sender looking at cards containing emotionally evocative names to responses of the same sender looking at neutral names. There were two teams of four student experimenters who were paired in different ways for each session. One of each pair, the 'chief experimenter,' tested the participant, whereas the other checked the results without being in contact with the participant. The AC results differed significantly across checkers but not across chief experimenters. The experimental hypothesis, an incline in scores across participants, was not confirmed.

In four separate studies, Weiner and Zingrone[24] gave four forced-choice 25-trial precognition runs to groups of students in a classroom setting. Individually randomized target sequences were listed on record sheets inside sealed opaque envelopes with blank record sheets on top for participants to write their guesses. There were two orthogonally manipulated independent variables in all four studies: whether the person who interacted with the participants (Zingrone) or another

person (Weiner) served as checker, and which of these two the participants *predicted* would check the data.[25] The strongest and most consistent driver of the various effects seemed to be psi-missing in data checked by Weiner, regardless of whether she was predicted to be the checker or knew about the prediction. These studies were intended as replications of three earlier studies by Feather and Brier,[26] whose major significant finding, detected in the combined results of the first two studies and confirmed in the third, occurred on the runs checked by the experimenter (the opposite of Weiner/Zingrone). If the predicted checker was the experimenter, the result was psi-hitting; if it was the other person, the result was psi-missing.

The possibility that the psi source for these effects was the participants cannot be ruled out in any of these studies. The best we can do is make this hypothesis implausible and unparsimonious compared to the epsi hypothesis, and the best way to do that is to show that the participants had no reason or motivation to produce the specific effects observed, and to do nothing to them that might cause them to produce these outcomes. The Weiner/Zingrone studies are at a disadvantage in this regard because the participants were not only aware that who checked the results mattered to the investigators, but also knew who one of the checkers was (Zingrone). A better procedure for demonstrating epsi would have been to keep the participants unaware of these details.

Indirect Evidence for Epsi

Two experiments conducted by John Palmer, to determine whether a psychic could influence the AC task performance of a lab staff member, turned out to have relevance to epsi. The forced-choice AC task was a computer game called ESPerciser, in which the participant is asked to choose one among four symbols after being asked to remote view it. For each run, the computer randomly determines if the task is clairvoyance or precognition. In the first study, the psychic Malcolm Bessent completed eight sessions, each consisting of ten 10-trial runs.[27] In the four experimental sessions, he attempted from a distant room to make the participant score differently on trials with different background colors. In two of these, Bessent's goal was for the staff member to score high with a colored background and low with a white background. In the other two, the goal was high scores on white and low on colored. The order of the sessions was randomized.

The design of the four control sessions was the same as for the experimental sessions, except that Bessent only hoped the participant would score in the predicted manner while he carried out a meditation unrelated to the task. The predicted effect occurred only in the *control* condition, in which it was significant.

To a suggestive degree, the predicted pattern was stronger on precognition trials than on clairvoyance trials in the two conditions combined. In the precognition trials, the predicted effect was suggestively stronger in the control than in the experimental trials. This pattern of results is noteworthy, because Bessent's 'specialty' was precognition, and it is on precognition tests that he had performed most successfully in the past.

In the first experimental condition of the second study, the psychic Sean Harribance tried to influence the same staff member to get high scores in two sessions of 10 ESPerciser runs while he was in the room with her.[28] In the second condition, she completed a single 10-run session with Harribance attempting to influence her from a distant room. In the control condition, she completed a single 10-run session while Harribance carried out in a different room a personal meditation unrelated to the AC task. The staff member was given the goal to score high throughout. As in the Bessent study, the only significant condition mean was in the control condition, although this time it was psi-missing. Across all conditions there was significant psi-missing in the precognition condition, but the difference from the clairvoyance trials was not significant. Psi-missing characterized Harribance's performance on other tests he was given during his visit to the Rhine Center.

The relevance of these studies to epsi is that, in the control conditions, the psychics were acting like experimenters presumably do, hoping for the participant's success without consciously trying to exert psychic influence. Of course, the fact that they were in a meditative state may have facilitated the results obtained. The message here is that experimenters/investigators who don't want to psychically influence their results should avoid entering psi-conducive states of consciousness during test sessions. Finally, it is possible, and consistent with the epsi hypothesis, that Palmer was the psi source in these studies, although he has had no success in producing psi as a 'participant'.

However, it appears that some psi experimenters have tried to psychically influence their results, presumably without mentioning this fact in their experimental reports. Schlitz[29] published interviews she conducted with three psi-conducive PK experimenters – William Braud, Julian Isaacs, and Helmut Schmidt – about how they fulfilled their experimental roles.[30] The following three excerpts clearly indicate attempted psi influence: 'What I like to do is focus on the individual trial as if it were the only thing in the world. Maximize the effect on that trial . . . .'[31] ' ... the main task, is to fill myself with the goal ... to do this I use visualization.'[32] 'I conceptualize myself as part of a triadic relationship which is me, the subject, and the apparatus'.[33] Note that Bessent and Harribance were unsuccessful when attempting to influence scoring,[34] but they may have been using more active strategies than those adopted by Schlitz's interviewees.

It is also noteworthy that at least three experimenters known to be psi-conducive have achieved highly significant confirmation of the experimental hypothesis serving as their own participants: Charles Honorton[35] in RNG PK studies and Marilyn Schlitz[36] in a remote viewing study.

Finally, Kennedy[37] noted a negative relationship between statistical significance (z) and sample size in comprehensive meta-analyses of several RNG PK and ganzfeld studies, the latter including and a highly significant series of studies in which Honorton was the principal investigator. A positive relationship is expected if the participants are the psi sources; a negative relationship is more consistent with a single psi source, such as the investigator.

One of the most replicable effects in parapsychology is a positive correlation between scores on a projective measure of psychological defense mechanisms

called the Defense Mechanism Test (DMT), which is similar in structure and concept to the well-known Thematic Apperception Test, and scores on a variety of forced-choice AC tasks (less defensiveness, more psi). Although the testing was performed by multiple experimenters, the DMT was almost always scored by Martin Johnson, who in addition to being a parapsychologist was also an expert on the DMT. At least for parapsychological applications, the scoring is a two-stage process.

First, the characteristics of responses to successive subliminal presentations of potentially anxiety-evoking slides are coded for specific defense mechanisms. Then the codings are converted to ratings of overall defensiveness, and it is these ratings that are correlated with the AC scores. This latter stage is to some extent subjective and raters need to be extensively trained to do it properly. Haraldsson and Houtkooper[38] took data from a series of 10 DMT-AC studies conducted in Iceland and used a set of rules to predict Johnson's ratings by applying a regression equation. They found that the predicted ratings not only failed to significantly predict the AC scores but the direction of the correlation was negative. Thus, it was the residual (in statistical jargon) that predicted psi, and this reflected the subjective component of Johnson's ratings. Haraldsson and Houtkooper's preferred interpretation of the subjective component was that the ratings were influenced by Johnson picking up on the AC scores of the participants, in other words, epsi. However, it seems to me that a simpler interpretation is that the subjective component reflected Johnson's skill in interpreting the DMT responses as reflections of the operation of defense mechanisms.[39]

Conclusions

As is usually the case in parapsychology, the experiments aimed at testing the experimenter behaviour and experimenter psi hypotheses have yielded mixed results. It is also true that each hypothesis can explain the results of the other. Even the West and Fisk[40] results can be explained as the participants unconsciously learning by psi the proclivities of the two investigators and attempting to give them the results they think they wanted, as participants in psychology experiments are wont to do.

There may be some truth to both hypotheses. With respect to epsi, participants and investigators may both contribute to significance in most successful psi experiments, their contributions depending upon their respective operative psi ability times their motivation to obtain good (or bad) results in the experiment. Moreover, psi-conducive (psi-inhibitory) experimenters might achieve their effects by enabling/enhancing (disabling/degrading) the psi of their participants.

Finally, as noted by Millar,[41] the epsi hypothesis provides a compelling explanation for the lack of adequate *between-investigator* replicability in parapsychology. One might add, it provides an equally compelling explanation of the high rate of *within-investigator* replicability among psi-conducive investigators. The between-investigator replication problem is the single most important challenge parapsychologists face in their efforts to convince mainstream scientists of the reality of psi. They may not be able to make progress in this regard until or unless

they can get a handle on the experimenter psi problem, a subject which they unfortunately show little interest in.

For further discussion of experimenter psi, see Palmer (1997) and Parker and Millar (2014).

John Palmer

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Endnotes

Footnotes

- 1. White (1977).
- 2. 'Anomalous cognition' is a less theoretically-loaded term that some parapsychologists prefer as a replacement for 'extrasensory perception' (ESP).
- 3. White (1977), 298.
- 4. Wiseman & Schlitz (1997; 1999).
- 5. Schlitz, personal communication (2014).
- 6. Schlitz, Wiseman, Watt, & Radin (2006).
- 7. Watt & Ramakers (2003).
- 8. Honorton, Ramsey, & Cabibbo (1975), 136.

- 9. Crandall (1985).
- 10. Schneider, Binder, & Walach (1999).
- 11. Watt & Brady (2002).
- 12. Smith & Savva (2008).
- 13. Taddonio (1976).
- 14. Schmeidler & Maher (1981).
- 15. Edge & Farkash (1981).
- 16. Stanford (1977).
- 17. Stanford (1977), 844.
- 18. May, Utts, & Spottiswoode (1995).
- 19. See Palmer (2009) for a statistically significant application of DAT to AC.
- 20. West & Fisk (1953).
- 21. Millar (2015).
- 22. Bierman (1978).
- 23. Houtkooper & Haraldsson (1985).
- 24. Weiner & Zingrone (1986; 1989).
- 25. The details can be found in Palmer & Millar (2015).
- 26. Feather and Brier (1968).
- 27. Palmer (1996).
- 28. Palmer (1998).
- 29. Schlitz (1986).
- 30. Schlitz (1987).
- 31. Schlitz (1987), 195.
- 32. Schlitz (1987), 195.
- 33. Schlitz (1986), 195-6.
- 34. Palmer (1996; 1998).
- 35. Honorton & Barksdale (1972) Radin (1988).
- 36. Schlitz & Gruber (1980).
- 37. Kennedy (1994; 2013).
- 38. Haraldsson and Houtkooper (1995).
- 39. Brian Millar, Palmer's co-author in Palmer & Millar (2015), has a different take on this.
- 40. West & Fisk (1953).
- 41. Palmer & Millar (2015).