

Research Methods in Experimental Parapsychology: Problems and Prospects

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**Abstract:** Parapsychology can be defined as the study of apparent additional natural means of communication or exchange of influence between organisms and their environments, beyond those we presently understand. Its research procedures are designed to look for evidence of such interaction effects under conditions reported to facilitate their manifestations. At the same time, such procedures must safeguard against a wide variety of possible artefacts. The main part of this paper will describe the general nature of those artefacts, including deliberate fraud, as well as the methodologies designed to circumvent them.

The subject matter of parapsychology was first presented at an International Congress of Psychology convention over one hundred years ago, by none other than William James, one of the greatest academic psychologists of all time. It has appeared only once since then, in a paper by Professor Alrutz of Sweden

There is no formal definition of parapsychology. It has no legal definition; anyone can call themselves a parapsychologist, so let's look at the remit for the Koestler Chair of Parapsychology. How was it actually phrased in the Koestlers' will in such a way that the University of Edinburgh was kind enough to accept the money without too much trepidation? It was defined essentially as having the remit of furthering objective scientific research 'into the capacity attributed to certain individuals to interact with their environments by means other than the recognised sensory and motor channels'. This places it within a communication context. It is something that is attributed to people; there is no obligation to assume that it exists beyond the recognised sensory and motor channels, and it says nothing about whether or not such sensory and motor channels may come to be recognised in the future.

**Basic concepts**

There are five basic concepts involved, ESP (or extrasensory perception) includes three subcategories. First is the notion of telepathy or distant feeling, in which there appears to be some sort of person to person interaction; one individual appears to be aware of the thoughts and experiences of another. There is the concept of clairvoyance, literally clear-viewing and clear-seeing, in which it appears as though there is information transfer or communication from an event in the environment to the person; someone seems to be aware of physical events, without access to presently understood means. Then we have the notion of precognition, literally pre-knowing, in which a future event or person appears to become known or appears to influence an individual; someone seems to be able to be aware of future events. In each of these cases it is as though the individual receives information or influence from events in There is also within parapsychology the notion of psychokinesis or PK, in which it seems to various observers that an individual appears to be having an influence upon the environment without access to presently understood means. Those are the basic terms, the basic concepts.

**Interpretations of anomalous experiences**

Now then, how do we apply the tools of science to try to investigate this? One thing we can do is to try to look at the groupings of explanations for anomalies, for anomalous experiences. We can identify at least twelve different kinds of interpretations of anomalies as shown in table 1:

**Table1 Interpretations of Anomalies**

1. Coincidence
2. Poor observation
3. Poor interpretation of observation
4. Poor memory storage and retrieval
5. Self-deception
6. Deception by others
7. Functional distortion of biological processing
8. Hidden causation
9. New application of existing principals
10. Additional natural causes
11. Causes beyond nature
12. Supernatural events

The first ten all have to do with interpretations placed within the context of what we presently know and understand. Number one is the notion of coincidence. Occasionally coincidences will happen; it would be amazing if they didn't. If we are at one of the tail ends of the chance distribution, we may be amazed at the coincidences that have just taken place. We are notoriously poor evaluators of the likelihood that X event might occur simply by chance alone. Our second category is the notion of poor observation. Sometimes we simply do not notice everything going on around us that might have provided us with a little cue about what is actually happening. As a result, if we are not able to observe very well we may miss out on crucial causal links that might potentially connect two events that ostensibly have no business being connected. Third is the problem of poor interpretation of observation. We may make observations and simply not be very good at interpreting them; we don't have quite enough background knowledge. Fourth, we may have problems with what I am calling poor storage and retrieval, two essential components of memory; we may not remember things very well or accurately. The fifth notion is self-deception. We are all excellent at self-deception, we do it daily and it gives us all a good time now and then, it helps us essentially to propagate beliefs for our use which may flatter us, and may support a belief system that helps us organise the world. Number six, which we will hear more about in a bit, is deception by others. There has really been very little work done on the nature of deliberate deception, and it recently has become one of the important components of work in parapsychology. Number seven is functional distortion of processing. This just means that as we take information in from the world around us, if in fact we have extremely strong views, we may actually distort the ordinary, usual process of bringing information in, translating it, understanding it and so on. Such people may often perceive the world differently from those around them. Number eight, closely related is biological distortion of processing. It can be due to such factors as lack of sleep or drug intake. The fact that the brain sends signals down to modify input as it is coming in, can contribute to both kinds of distorted processing. Number nine is hidden causation. Sometimes there is a cause, an explanation for the anomalies that we see; but it is hidden. It is more than something that we didn't observe very well. The causation is really concealed, shielded from us intentionally or unintentionally in one way or another. Number ten is a new application of existing principles. In this case we have a circumstance in which science may know quite a bit about the way the world works but we don't always apply that knowledge to new situations. Sonar was understood as a means of physical communication prior to our discovery of its relevance for animal communication.

These first ten are regarded as well within the province of ordinary science. Parapsychology comes within the eleventh one: is there the possibility of some new, additional natural causes that can still be found to contribute even after we take into account these first ten and any others that I have left out. Parapsychology as we define it is essentially part of natural science. We are looking for laws of nature, we are looking for regularity, we are looking to extend the corpus of existing scientific knowledge, not to confront it or fly in the face of it. What about number twelve, causes beyond nature? We would argue that we have very little to say about this other than an in an exclusionary way. We try to take the first ten into account and to see whether or not they can

account for what would appear to be evidence for ESP or PK or some new means of communication. Then we try to take all eleven into account to see whether or not they may also account for events that have been taken as evidence for something literally beyond nature; as supernatural. We would argue that it is very difficult to build a case in a scientific way for the existence of something beyond nature. We're good at finding out what belongs within nature; at any given time there may be things left over, that seem to be quite chaotic, not looking as though there are rules or laws of nature involved. In any particular case all we could say is that given our current level of observation and interpretation, we haven't yet spotted any pattern suggesting lawfulness. But we cannot then draw the inference that we will never spot such patterns, and there are many examples which were previously regarded as supernatural or miraculous which now have yielded to science and have more conventional interpretations.

### **An observer-centred model**

To help us organise our research, both our descriptive research and our experimental research, it is useful to try to develop models of one sort or another, of what happens when an observer draws an inference that some new means of communication may have taken place. I will preface this very briefly by simplifying the notion of ESP and PK once again. Psi is often a term that is used to incorporate the two of them. For ESP it is as though some sort of source of influence in the environment conveys information or influence to an organism that serves as a receiver, despite the presence of barriers which should prevent or preclude all such means of information transfer. For the notion of PK or psychokinesis this communication process, if you will, is reversed. Now it seems as though an organism is imparting influence or information to some sort of target event in the environment, once again despite the presence of barriers which should prevent or preclude all presently understood means of communication transfer.

We can elaborate on this a little bit to develop an observer-centred model. Let us consider an observer observing different components in a complex system. This can be an experiment, or a naturally occurring set of events. I can illustrate these different components by generating a simple anecdote of the sort that is periodically sent in to us. Suppose that one evening one of my daughters suddenly became extremely upset and distressed, and felt that her boyfriend had just had an accident, shortly after nine o'clock. She had an experience, it was crudely measured and recorded or described as she communicated it to us. About eleven o'clock that night in came a telephone call from the boyfriend's parents telling us that earlier in the evening he was in a car crash; there were eyewitness accounts, it was measured and recorded as happening shortly after nine o'clock. So it looks to the observer that there seems to be a linkage between these two events, or certainly between the two descriptions of them. These two descriptions tended to resemble each other to a meaningful extent in a way that appeared to go beyond simply what you would expect by chance. And please note that if my daughter had anxiety attacks most evenings or if her boyfriend had car crashes most evenings this would be a less impressive coincidence. The more unusual each of these are, the more interesting and impressive the coincidence is. These are the features that would lead us as the observer in any kind of system to say it looks as though there is a linkage that would be silly to ignore.

Now, what about the system may lead us to the possibility that there is some new means of communication going on? This is where barriers come into account. It looks to us as though there are barriers which should prevent real-time cross-talk. It is a good anecdote if for instance there is some distance or sensory shielding in between experiences and events so that there could not be cross talk between them. It is impressive if in fact those barriers extend to the two acts of describing; if one of these can be influenced or informed by the other, of course they may naturally therefore tend to resemble each other. The most complex are the sets of antecedent factors that could lead to the experience or to the accident. These are sets of factors which sometimes are very difficult to draw a nice tidy circle around. In systems terms we say they may be open systems. It is very hard for us to identify all of the different events that might have affected my daughter's experience and it is very difficult to specify all of the events that might have affected the car crash. Suppose the experience happened quite some distance away, her

boyfriend was driving in perfectly good weather in a safe automobile, and in fact the accident was caused by swerving to avoid a small furry animal that just darted out into the road. We might say that is a fairly closed system, not likely to overlap with whatever system of factors contributed to my daughter's experience. On the other hand suppose that my daughter's boyfriend was over at our house earlier in the evening, and they had an argument shortly after seven o'clock. He stormed out of the house, slamming the door behind him saying, he never wanted to see her again and that he was going to go down to the neighbourhood pub, get completely rip roaring drunk, and then take the long winding mountain drive home, in the face of the oncoming blizzard. Now, these two sets of factors have overlapped. Depending on how sophisticated her knowledge is about his pub behaviour, she may come pretty close to getting the exact time right. So, this anecdote illustrates the kinds of interactions amongst different sets of factors that should be taken into account in a system being observed by an observer who is trying to piece together which of these components are able to interact with each other. The more conventional interactions they have the more likely it is that there will be a resemblance and that it will have an ordinary interpretation.

If we go beyond this system of potential interactions, there are additional difficulties. The observer may have problems getting good information out of the system. For instance, the information may be obscured from the observer, accidentally or intentionally by a clever fraud. Or indeed, information may simply be inaccurate; it is taken as accurate but it is not. Or the information may be misperceived; it starts off being valid information but due to accidental or intentional capitalisation or distortion in our perception, in fact the information as perceived is simply no longer good information. Or the information may be correct from the system; it is good information but the observer's attention is diverted, either accidentally or intentionally via clever fraud. Or the information may be misinterpreted; it arrived but it is interpreted improperly. A clever fraud may help us to frame things in such a way that we are all set to interpret things in one way and we should have done it in another. And finally sometimes the information may arrive successfully and be interpreted properly at the time but then is miss-remembered. Each one of these can happen accidentally or can be the result of deliberate fraud.

#### **A specimen experimental procedure**

*Given the above considerations, how do we go about designing and conducting our research, such as to rule out alternative interpretations? Various examples will be provided later in this symposium, but I would like to illustrate by describing a particular kind of study, involving a "free response ESP" procedure.*

In free-response studies the target could be almost anything such as a picture or a sixty second long video clip. Participants are told they are free to respond in whatever way they want. They can generate imagery or impressions for a period of time. After they have done that, they or perhaps another judge is given a set of choices. We may show the person four pictures, or show them four video clips, one of which is identical to the correct one and then ask to them to rate the extent of correspondence to each of these four possibilities. They and the experimenter are of course blind as to which of the four is the actual target. We can then see whether or not participants consistently rate the correct one higher than the incorrect ones even when we hopefully have eliminated all possible means of information transfer from the target to the individual.

I would like to illustrate with one particular line of research. Certainly one of the things that would have to be evident to everybody here is that if there is anything new going on, then it is not something that is so evident, so easy to obtain that we can say to participants 'why don't you come into our laboratory and be psychic between four and four-thirty next Thursday afternoon'. If it were that easy we would have known it quite a long time ago. So either it isn't that easy and we have to be able to understand what special circumstances are needed to produce psychic effects; or else we are fooling ourselves in increasing sophisticated ways. In either case, by continued scientific research we will learn something interesting. One strategy is to try to take a look at

some of the anecdotal claims emerging from the spontaneous cases, from different cultural groups, even from psychotherapeutic case studies and see what kinds of themes and patterns run through them. This has been done by many researchers in the past, and, for instance, led to the noise reduction model of Honorton (1977) and others. This, in turn led to different kinds of controlled laboratory research on ESP in dreams, hypnosis versus control conditions, mediators versus non-mediators, relaxation versus control and so on. These different lines of research in turn seemed to have certain commonalities, in that the results seemed to be better whenever there was physical relaxation and reduced sensory processing, yet sufficient cortical arousal so that the person was able to respond in some way or another.

The resulting noise reduction model argued that ESP may represent one or more communication systems that are ordinarily crowded out by those that we presently understand. This in turn suggests that we should employ sensory deprivation procedures. The most frequently used is the Ganzfeld procedure in which a person would have headphones on that might play them white noise or pink noise or sounds of seashore; they would have table tennis balls fixed over their eyes and a diffuse light source about a metre in front of them. It puts one into the kind of state that we would be in if we were lying out on a comfortable air mattress by the seashore hearing the waves with our eyes closed and the sun bathing us in a kind of reddish or pinkish hue. It is very relaxing and conducive to imagery. The idea was that by using such a procedure we could essentially turn the participant's attention internally and help them to avoid being distracted by presently understood external sources of information. Several studies were done with this procedure. However, there were certain kinds of flaws and problems that were occasionally coming up in these studies, as will be seen later in this symposium.

Berger and Honorton (1986) designed a procedure to do the best job possible of addressing these problems. The sender was in an acoustically shielded room, as was the receiver, with the experimenter console between them. A video tape system was controlled by an automated procedure to select one of several pools of four targets, then within that pool one target sixty second film clip, to project to the sender. The receiver at the same time would attempt to generate imagery and describe it out loud. The experimenter would hear the description through headphones and take notes on it; it would be tape recorded. After that had been done for almost half an hour then the receiver would be shown by the computer all four possible film clips and then would make a judgement about which of the four film clips was thought to be the correct one. The experimenter would interact with the receiver somewhat, but try not to guide them and also was blind to the actual identity of the target until the judging was completed and the ratings entered into the computer. The whole thing was set up in an automated way. They got fairly strong results in this set of studies, especially with pools of dynamic targets where the film clips depicted events rather than static images (Honorton et al., 1990) They had a forty percent hit rate with those and much less with the static targets; the difference between these was significant.

But that automated Ganzfeld procedure as well was challenged, as will be described later in this symposium. At the University of Edinburgh we tried to follow up on this work with an improved procedure (Morris et al., 1995). We had greater separation between the sender and the receiver, we had two sets of videos, we had the experimenter not at all in the same room as the video equipment so there was no possibility of subtle cueing. We only used lab staff in our main study as the senders, to try to eliminate the possibility of some kind of signalling device between sender and receiver planning to cheat and so on. In this study we were trying to see whether or not it mattered whether there was actually a sender. We had ninety-seven trials, thirty-two in each of three conditions. As participants were assigned to conditions randomly, one of these wound up having an extra one to it; we kept for the purposes of comparing conditions the first thirty-two in each condition. Overall, we had a thirty-three percent hit rate, just barely statistically significant. We found no real difference whether there was a sender or not. There were experimenter effects in that one experimenter tended to get better results than the others. We tried to address the possibility that this experimenter was cheating and without her knowing it modelled several ways

that that might have happened, with additional kinds of judging, with looking at the characteristics of the targets that were selected and so on and didn't find any support for that model.

This individual, Kathy Dalton, continued with another study which was looking at different kinds of creative groups (Dalton, 1997). According to the literature, musicians especially and creative groups in general tended to do fairly well in free response studies. She had a total of one hundred and twenty-eight separate sessions of which forty-seven percent of the time the receiver got it correct, which is quite unlikely to occur just by chance. Musicians and artists tended to do the best, creative writers and actors not so well. These differences are not significant in themselves, suggesting that these were very good groups of people to work with.

The Dalton study provides an example of a well designed study that also obtained very positive results. Later in this symposium you will hear more about the ganzfeld procedure and other studies that have used it. Individual studies, however, can always in principle have some alternative interpretation including some that in principle may be unfalsifiable: chance, undetected participant fraud, experimenter or investigator fraud, undetected procedural flaws, inadequate description of experimental procedure, file drawer problems and so on.

### **Deception research**

As one of the major alternatives is deliberate deception by one or more of those involved in a study, part of our research involves generating a further understanding of the general nature of deception as well as the specific strategies often used to simulate psychic functioning.

Some of my colleagues and former students such as Richard Wiseman and Chris Roe, and now Peter Lamont working with us (e.g., Wiseman and Morris, 1994; Lamont and Wiseman, 1999), have tried to work with us and to develop theoretical systems to describe and understand deception. Some of the different kinds of research have involved looking at physical effects. There are many different ways to make something vanish, or suddenly appear, or two things to change places, or one thing to transform into another, or one thing to be destroyed and then brought back again. There are slightly fewer ways to levitate, to simulate anomalous attraction and so on. We also can consider mental effects. Simulating psychic powers has been big business. There is specialisation within the magic community; mentalism is one particular kind. It includes both simulating psychic powers and also other kinds of mental abilities. There is a sizeable literature on how to be a very rapid calculator and sometimes people will attempt to persuade you that they have unusual mental abilities because they can do their sums very quickly. Some of the research involves how information is presented to observers and whether or not if there is a distortion it occurs during the process of observing itself or whether it occurs in the course of remembering, reconstructing after the fact what happened. We investigated problems in both the initial observation and also the reconstruction from memory (Wiseman and Morris, 1995). We also try to understand the processes of negotiation, how it is that a magician or perhaps a real psychic may attempt to modify the rules of the game after the fact, to renegotiate exactly how we are going to judge whether or not something is genuinely psychic. There are also psychic reading techniques which I will cover below. This is big business and has been for hundreds and possibly thousands of years. Regarding confidence artists, sometimes people are not necessarily good magicians but they are excellent at gaining your confidence quite literally. They may look a little bit like a fraud but they are such a nice person, and then they have your wallet. Evaluating archives can come to be an art in itself. Often we have an archival description of a set of events that happened in the past, so part of what we are trying to do is to study different ways of unpacking that description to find out what more should have been said, to make a slightly richer picture so we can evaluate the prior events more completely. The socio-cultural context of deception sometimes can involve attempts to gain power. That power can involve large scale societal factors or simply the dynamics of a married pair.

Part of what we are also trying to do in our own work is to devise models, once again for deception. Within psychology we have schema theory. It basically talks about the ways that we

come up with schemata, to represent the way the world works. Pseudo-psychics can often capitalise on this; they know what an observer's schemata are likely to be and they deceive more in terms of our sophistication than they do our ignorance. Most deceivers would like to know what you are good at; then they will know how you are going to interpret what you observe and they can set you up better. We also are trying to use a systems approach as you have already seen to a certain extent, to draw comparisons between the different kinds of models for pseudo-psychics, for stage magicians, for deceptive advertising, for military deception and so on, and also trying to look at deception from a communication standpoint. There are many different kinds of conceptual issues that arise in the study of deception, for instance the study of whether or not it can occur in non-humans or in infants, what the difference is between conscious and unintended deception and so on.

Some of the work that has been done is on so-called psychic reading techniques, some of the different strategies that colleagues like Chris Roe have been able to articulate, with regard to how somebody may persuade you that they have psychic knowledge of you (e.g. Roe, 1995). Many people do advance scouting. If you write a cheque for somebody's services in advance, there are up to eleven different pieces of information that can be gleaned from that cheque, not the least of which is your home address, which allows them to do a bit of advance scouting. They will be remarkably accurate in saying exactly what colour your drapes are. We tend to shy away from population stereotypes but they do exist in a crude sense and many people became quite sophisticated at them. A book called Passages by Gail Sheehy became one of the big favourites, especially of American pseudo-psychics, because it was all about what kinds of crisis you have given your sex, your gender, your age, your cultural milieu, your socio-economic indicators and so on. Fakes know about interest areas; there are certain interest areas such as health, money and love that capture us all the time and part of being a successful reader is knowing what kinds of topics to discuss. Then there are Barnum statements, essentially statements which sound to each of us as though they are unique to oneself. But everyone else thinks the same thing about themselves too. Such statements can be persuasively given to most people. They often have a sort of two-faced category: "On the surface you seem to be regarded by many as not caring too much, but deep inside you're really very vulnerable". Generality and feedback is another strategy. Pseudo-psychics can make a general statement, get feedback and then reintroduce it later on with more specificity and people will remember just the specific statement but not that it was guided by the general statement. Fishing is the strategy of giving information to a client in order to get information. Setting up repeaters, in the language of many of the confidence artists, refers to setting clients up so they need your services and will come back again and again and again. Reinterpretation after the fact is a very important problem. Often the rules will be changed after the fact, 'Yes, I said there would be an accident in the East and what I meant by that was the East coast of that country; and so on. In addition, it is important to understand the characteristics of clients that enable such techniques to be applied effectively with them and the characteristics of psychics that enable them to deploy these techniques effectively.

### **Clinical relevance of parapsychology**

The relevance of the various research areas of parapsychology for psychology can be summarised by considering the interests in our work expressed by students in a seminar I conduct once a year for advanced clinical psychology trainees. At least eleven distinct areas have so far emerged:

1. Norms for experiences. In different cultures, what kinds of experiences are common that would be anomalous in ours?
2. Acquisition of beliefs. How do people form and maintain beliefs and attitudes about their own experiences?
3. Evaluating specific experiences. Can we develop models to help counsellors and clients evaluate specific experiences?

4. Personal importance of experiences. Why do some experiences appear to have very favourable consequences for the experiencers and others very unfavourable consequences?
5. Helping re-evaluation of experiences. How can counsellors help individuals re-evaluate their interpretations of experiences, e.g. through cognitive intervention strategies?
6. Understanding deception. What are the tricks of the trade used by confidence artists and pseudo-psychics? How do psychic readers compare with traditional counsellors?
7. Evaluating apparent strong evidence. How can one evaluate events that appear to provide strong evidence for some sort of communication process well beyond those we presently understand?
8. Current status of parapsychology. What evidence is there for the various new capacities attributed to people?
9. Other practical considerations. What specific techniques can be used to help clients deal with their fears and concerns about their experiences?
10. Cult involvement. What do we know about the techniques used by cult leaders to exert control over their clients and persuade them of their powers?
11. Dissociation. What do we know about dissociation states and the experiences reported during them?

Thus parapsychology hopefully can contribute to understanding the various forms of evidence for and against the existence of new means of interaction between organisms and their environments. We are studying complex systems and looking for their properties and the mechanisms involved. We are attempting to avoid both false positive and false negative errors, as both are misleading when committed. The following papers in this symposium will provide more specific details regarding recent research methods and findings in parapsychology.

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