TAKING PSI ABILITY SERIOUSLY

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Traditionally, there have been two principal philosophies that have guided parapsychological research. The original underpinning of our research was largely derived from religious beliefs and dualistic philosophies. This view held that psychic phenomena were brought about by another order of consciousness—the mind, spirit, soul—which existed independently of the physical brain and body of a living individual. Although there were a number of variations of this view involving greater or lesser involvement by the living individual, the essential feature was that the causal agency of psi phenomena lay outside the sphere of an individual's physical body.

As the experimental approach to psychic phenomena became dominant it began to look as though the causal agent lay more with the living individual than with some non-material entity. In other words, psi phenomena began to look like the end products of *human abilities*, just like the ability to see or hear, or the ability to lift or move something, only in the case of psi phenomena the mechanisms of reception and of action remained obscure. To be sure, many early experimenters, most notably J. B. Rhine, believed that psi ability involved some non-material aspect of the living individual, although the causal, or at least the initiating, agency was now considered to reside in the living individual. Thus the guiding philosophy of the experimental approach to psi phenomena has come to regard the production of psychic phenomena as a human ability. Within the experimental tradition this point of view is simply assumed in the routine use of expressions such as "psi ability" throughout the professional literature.

There has always been an undercurrent of dissatisfaction with the experimental approach, however. This tends to wax and wane in reciprocal proportion to the perceived successes or lack thereof in experimental research. At the core of this dissatisfaction is the belief that perhaps psi is not really an ability at all. It only looks like an ability because our simple-minded experiments force it into that mold. But since psi is not really an ability, the reasoning goes, the experimental approach is doomed to failure.

Most would agree that the experimental approach has been less fruitful than we might have hoped. Many reasons have been adduced to account for this state of affairs—everything from a simple and obvious fact that, compared with other sciences, there has been a pretty small amount of experimental research in parapsychology, to suggestions that elusiveness is in the very nature of psi. Most common, however, are those suggestions that psi is not an ability and we will never come to understand it by trying to treat it as one (e.g. White, 1985).

It is possible that this view is correct, or at least partially correct, holding true for those psi phenomena that seem very much unlike the product of an ability—haunting and apparition phenomena, for example—that are lumped together with our very ability-like laboratory phenomena simply because of our ignorance. I think, however, a far more likely reason why the experimental approach has been disappointing can be found in precisely the opposite direction. Psi *is* a human ability, but our experimental progress has been slow because we have neglected to take it seriously as an ability.

Although the experimental approach to psi more or less assumes that psi is an ability, we have not thoroughly considered the implications of what having psi as an ability means. For the most part, we have either not thought about psi as an ability at all, or we have accepted a naive view that ESP is some sort of extended communication ability and that PK is an extended motor ability. But, everything we have seen of ESP shows it to be a particularly unreliable means of communication and, by the same token, PK appears to be a decidedly erratic way of effecting change in the environment. Our problem seems to be that we have not been asking—really asking—the very basic questions: What is psi ability for? Why do we have it? What is the true purpose behind the somewhat eccentric communication and action functions that psi appears to constitute?

There have been many speculations as to what the purpose of psi might be in an abstract sense, but there have been very few that have taken psi as a human ability for their starting point. The only speculative foray in this area which has had practical significance for experimental research has been Stanford's Psi Mediated Instrumental Response (PMIR) model of psi functioning (Stanford, 1974a, 1974b). The basic idea behind PMIR is that an organism uses psi to accomplish something (the instrumental response) which fulfills certain needs of the organism. Following Eisenbud's speculations (Eisenbud, 1966–67), Stanford argues that psi may be far more common in daily life than is immediately apparent, but psi accomplishes its "tasks" very subtly and, quite likely, without the conscious awareness of the individual.

Illustrations of how PMIR might be operating in life abound: A fortuitous meeting with someone that, say, results in a new and better job, or the "unusual" missing of an airline flight that subsequently crashes. It is not just anecdotes which buttress the PMIR concept. A growing number of experiments, principally of the covert or non-intentional type, have supported Stanford's ideas. The PMIR model comprises some 18 "assumptions" which describe how psi should be expected to operate, but the most important ideas can be summarized in just a few points.

1. Psi (as PMIR) operates in an individual's daily life far more than is commonly realized.

2. The chief function of PMIR is to accomplish certain goals or fulfill certain needs of the organism.

3. PMIR operates for the most part *unconsciously*. Not only is the operation of psi not normally under the voluntary control of the organism, but the needs which PMIR serves may not even be consciously recognized.

Stanford's PMIR remains the most important consideration of psi as a faculty in service of an individual's needs to date. While it has been hailed as something of a conceptual breakthrough on the theoretical level it has not had the impact it should have had on experimental parapsychology. With some notable exceptions—mostly Stanford's own research—experimental parapsychologists have done little more than pay lip-service to psi's need-serving character. As Weiner (1987) has noted, this all too often arises as an unsatisfactory *post hoc* search for who had the greater motivation to use psi in an experiment that yielded unexpected results.

Trying to discover who has the most reason to use psi after we have finished an experiment is going about our research backwards. If psi is an ability then it makes no sense at all unless it is fundamentally need-serving and, if we want to capture psi in our experiment, the *first* thing we should be doing is thinking very long and hard about how a need-serving psi might be operating, *before* we design the experiment.

Psi as an Evolved Ability

Given the little that we know of psi at present, it is clearly premature to attempt to identify particular needs or specific ways psi may help to fulfill these needs. We can, however, begin the process by considering the overall framework within which we should be looking. If psi is like all of our other many abilities, than our framework comes from evolutionary biology. Unless we want to take the position that psi ability

is something conferred directly upon us by the gods then we must recognize that psi ability as we see it and we exercise it is the result of evolution. Psi ability has been molded and shaped by the same selective evolutionary pressures that have shaped our other abilities.

Evolutionary biology provides us with a fairly simple and straight forward answer to the question of psi's purpose. Indeed, contemporary interpretations of Darwinian theory have a very basic "bottom line" for the explanation of any ability or behavioral pattern: it serves to help the organism survive and pass on its genes to the next generation. The bottom line is *survival*, but it is the survival that the biologist speaks of, not the parapsychologist.

The generally accepted position among evolutionary theorists is that selective pressures of evolution operate at the levels of individual genes. The British biologist, Richard Dawkins (1976), has argued that the true survivors in natural selection are the genes rather than the species. The genes insure their survival by enabling the host organism to acquire whatever abilities and characteristics are necessary to insure successful rearing of offspring and, in turn, leaving them well positioned for successful reproduction. Whether Dawkins' "Selfish Gene" model of survival proves to be the best fit, the general schema of evolutionary biology does provide a starting point from which we can begin to understand the function of psi. To the extent that psi ability is a product of human evolution then its function is to help insure the individual's *biological* survival. Psi is need-serving and those needs are going to be important ones which contribute to the individual's health and well-being so as to make that individual better able to reproduce.

I think we must be prepared to recognize that much of the psi that originally attracted the attention of researchers—the D. D. Home's and Palladino's of the world—may well be aberrations. They are, of course, aberrations worth studying—in the way we study persons capable of great feats of memory or mathematical and musical prodigies—but they are not representative of *normal* psi. Any attempt to understand the nature of psi based on such individuals may be misleading and not at all relevant to the ordinary persons toward whom our experimental efforts are usually directed.

As a survival-related product of evolution there are several characteristics that we could reasonably expect of the psi ability. First and foremost it would be need-serving, but those needs would necessarily be non-trivial. The primary function of psi is probably to help the individual survive when faced with serious threats to health and safety, *but it is also to gain a competitive advantage* in the struggle for survival. Fortunately, for most of the human race survival is not the physical

struggle it was centuries ago. However, life remains full of competition for success, not only personal success in continuing to survive, but also reproductive success and success in rearing offspring and leaving them well-positioned in a competitive society. To a large extent for *homo sapiens*, physical competition has been replaced by psychological and emotional competition. Evolutionary psi may not only be "missing" an airline flight that crashes, but also so called "intuitive" business decisions which contribute to personal success, or perhaps "chance" encounters with persons that result in some benefit coming to the individual.

A second characteristic that we would expect of evolved psi ability is that the organism will recognize—though not necessarily consciously—those situations which have sufficiently serious consequences that the application of a little psi could well benefit the organism. Conversely, and very important for those who design experiments, the organism will recognize when there is no need to use psi. This is simply fundamental to the notion of an ability—the organism will know when to deploy that ability to its best advantage and when to conserve it. This does not mean that psi will *only* be used in crisis circumstances or that any event which can plausibly be attributed to psi must have some vitally important need behind it. It does mean, however, that the rules for deployment which evolution has programmed into psi ability may be far more complex than we typically have been prepared to deal with in our experiments.

A third characteristic, related to the previous one, is that the manner in which psi is normally used will conform to what is known in evolutionary biology as an Evolutionarily Stable Strategy (ESS). An evolutionarily stable strategy is defined as a strategy, that is, a pattern of behavior, which, if adopted by most members of a population, cannot be bettered by any alternative strategy. Since a population is composed of many competing individuals, the strategy which persists, once evolved, will be the one which cannot be bettered by any deviant indivdidual. Based on a cost-benefit analysis for the individual the concept of an ESS can explain why, in a hypothetical population, it may be in one's best interest to be aggressive, say, 60% of the time and submissive 40% of the time. Obviously, we are not here talking about *conscious* strategies, but patterns of behavior which have, over time, proved to be the most effective in promoting an individual's ability to pass on its genes.

For the parapsychologist, an ESS may go some way to explaining a curious discrepancy that has often been noted, most recently by Braude (1986). If psi seems so unlimited in power, as evidenced by

the so called "super stars," as well as by many spontaneous cases, why does it appear so circumscribed and ephemeral in the laboratory? Well, if psi ability is generally evolved among the population as part of a survival strategy, than we have to remember an important fact: if I have psi ability, then probably you have psi ability, and there is going to be a lot of competing psi out there, too. Some of it could well be more effective than mine. In other words, the psi we find in real life will probably be that which has evolved to deal with all the competing psi using a strategy which is *most likely* to benefit the individual in the long run: gain a little advantage here, give a little ground there. We are a long way from being able to do a cost-benefit analysis of various types of psi behaviors, but if psi exists as a human ability it probably fits into this model. Apart from the occasional deviant individual, the psi that we find in life is no doubt the result of a finely tuned evolutionarily stable strategy.

The idea of psi ability that is part of an evolutionarily stable strategy leads to some very interesting speculations about possible subsidiary aspects. I stress that these are speculations, or at least even more speculative thoughts than the foregoing, but I think they are worth bearing in mind as we seek to design ways to capture psi in the laboratory. The first of what I think would be some likely possibilities simply echo the points made by Stanford (1974a, 1974b) and Eisenbud (1983), namely that the operation of psi is ordinarily not subject to conscious control. Not only may we be largely unable to control our psi ability by deliberate conscious intent, but the goals and needs which psi serves may be very different from the ones which an individual consciously holds important. Indeed, it seems quite possible that what we might term "evolutionary wisdom" has determined that conscious control of psi is counter-productive, so "normal" psi is deliberately de-coupled from conscious intention. Of course, from the beginning J. B. Rhine was saying that psi is unconscious, as have many other parapsychologists and many of the psychics who have been studied. I have found it intriguing to think that perhaps psi ability is emerging in our species as a survival strategy designed to counter the advantage that consciousness confers on our competitors.

Related to this is a second quality that it is entirely reasonable to expect to find in an evolved psi. Psi may be elusive and obscure by design. Effective psi may need to be imperceptible psi and its elusiveness in the laboratory may be a by-product of its essential nature. Again, the trial-and-error methods of evolution may have determined that if psi abilities become too obvious, then the individual's chances of living long enough to reproduce and raise offspring may be seriously curtailed.

Psi may have evolved to be deliberately self-obscuring for its own purposes, that is, it works best when it is not noticed by the individual it is serving, and it may even be necessary for the individual's protection that the operation of psi remain secret. Batcheldor's (1984) concept of "ownership resistance" may have something to do with this aspect of psi. Certainly in shamanic practices, where we seem to have relatively controlled uses of psi by individuals, there are elaborate rituals and attributional characteristics to protect the practitioner from the harm that might otherwise befall someone displaying psi too ostentatiously. Likewise, the yogic tradition, which claims that one can achieve conscious control of psi at certain levels of development, assiduously warns practitioners against pursuing this tempting by-product of spiritual development.

One can go on speculating about the nature and the characteristics one might expect to find in an evolved psi ability—and I certainly think that we must continue to do this—but for the moment you are probably wondering what all this speculation has to do with experimental methodology, the theme of this conference. My answer is this: it has *everything* to do with experimental methodology. How can we design experiments to show us psi in action if we have no idea what psi is for? If psi is evolved to service fundamental needs related to an individual's health and well-being, are our experimental manipulations actually affecting anything that is related to the use of psi? At the very least, I think much of our methodology has been created in total obliviousness to any serious thoughts regarding the purpose of psi. Most probably, however, if we are to take the concept of an evolved psi ability to its logical end, it will force a radical re-examination of the methods that are used to test psi ability or solicit its appearance in the laboratory.

Some years ago there was a great hue and cry in psychology, particularly among the cognitive psychologists (e.g. Neisser, 1976), about the lack of what was called "ecological validity" in much of contemporary psychological research. Many psychologists rightly complained that researchers were trying to draw conclusions about real-life behavior or cognitive functioning based on highly artificial experimental circumstances that bore no relationship at all to the real-life situations they were trying to understand. These experiments lacked ecological validity—they did not accurately represent the circumstances which obtained when the behavior was observed in the real world. Generally parapsychology has been quick to adopt trends and techniques from orthodox psychology, but somehow the concern for ecological validity in experiments has completely passed us by. Granted, it is difficult to

design ecological valid psi experiments when one has no good idea what the purpose of psi ability is. But, if we want to emerge from the malaise engendered by weak and contradictory findings, ephemeral and frequently unrepeatable results, then we will have to start paying attention to the ecological validity of our experiments. For too long we have been doing the equivalent of saying that finger-tapping or leg-lifting is a test of an individual's ability to run fast.

The key to making a start towards ecologically valid psi experiments, I think, lies in a serious consideration of the basic purpose of psi ability and the human needs that psi serves. While we can more or less deduce that psi has evolved to serve important, survival-related needs, these need not be limited to countering or escaping immediate threats to life and limb. Probably most of the needs that psi serves involve *promoting* the individual's well-being, both physical and mental, which are fundamental factors in an individual's ability to survive, reproduce and rear offspring in human society. I suspect that "ordinary" psi in daily life will look a lot more like intuition and luck instead of telepathic dreams or metal bending which could well be extreme or even deviant examples of psi ability. Indeed, I think we must realize that if evolution has been doing its job then our psi ability is likely to blend seamlessly with normal cognitive and motor function, and not stand out or call attention to itself as something radically different.

All this presents quite a challenge to the experimenter. How can one create a test situation that causes a subject to use psi without making it a death-defying contest for survival? How does one create ecologically valid psi experiments without running afoul of human subjects review boards? I do think it is possible to create psi tests that possess sufficient ecological validity for research purposes, but I do not think it will be easy. Ecological validity is, nonetheless, a goal that we shall all have to work towards if we wish to increase the stability and reliability of our experimental findings. We will have to create experiments that give our subjects *real* reason to use psi ability. Simply asking a subject to "use your psi" can no longer be considered sufficient.

I should like to suggest three interrelated areas in which we could start taking steps to deal with psi as a human ability. If we can at least keep the evolutionarily determined nature of psi ability in mind as we deal with these aspects of our research, we may put ourselves in a better position to tap that ability in our experiments. Of course, I do not wish to imply that no one has ever tried to do this before. Certainly many parapsychologists have made inventive and productive attempts to confront this issue, but what is required now are *sustained* efforts to treat psi as a need-serving ability.

The Nature of the Psi Test

This first area that we can work on concerns the intrinsic nature of the psi test. Are there ways in which we can design the psi test so that it really does challenge a subject to use what psi ability he or she may possess? Can we increase the motivation to use psi, paying careful attention to the differences between intrinsic and extrinsic motivation as Robinson (1982) has advised? There is good reason to suspect that many of the needs that psi serves are psychological ones—such as desire for approval, feelings of competence and self-esteem—all of which may appear only obliquely related to survival and reproductive success, but all of which contribute to overall psychological health and physical health. Ultimately one's psychological well-being will have a lot to do with success in reproduction and the rearing of offspring. I suspect that many of our past experiments have accidentally tapped these needs. What we must begin doing is employing these needs more systematically in our experiments.

There have been a variety of attempts to make psi tests appear more like "real life." Among these has been the trend toward free-response picture tests as well as the specific techniques of remote viewing and dream ESP. For the most part, however, these techniques are addressing only the cosmetic aspects of psi ability. They are mimicking the way psi appears in life, but they are not touching the needs that drive psi ability. Granted, each of these techniques has a plausible rationale behind it as a means to facilitate the appearance of psi, but of themselves they do not deal with the subject's need to use psi. They may, incidentally, tap certain intrinsic needs, but of themselves they do not seem designed to trigger any real need to use psi. It is as if these techniques are equivalent to cleaning our microscopes and slides and even boosting the optical resolution, but the techniques themselves do not put anything on the slide to observe.

Examples of experiments that do attempt to tap subject needs can be found in the literature and often they provide tantalizing hints that have not been adequately followed up. Usually these come under the heading of non-intentional psi tests because the subject is unaware that it is a psi task and thus has no deliberate intention to use psi. Johnson (1973) cleverly embedded a psi test in an academic examination with successful results that were replicated by Braud (1975) and Schechter (1977). Stanford and his colleagues used a clever "work release" approach in which suitable responses (presumably involving psi) in one part of an experiment enabled the subject to avoid a long and tedious task and replace it with a short, reasonably pleasant task. The series of

experiments by Stanford and his colleagues (Stanford & Associates, 1976; Stanford & Castello, 1977; Stanford & Rust, 1977; Stanford, Zenhausern, Taylor, & Dwyer, 1975) were not uniformly successful in demonstrating psi effects, but they did represent an important first step.

An approach which I have been using for over a decade has been to embed psi tasks in computer games. In these tests the experimenter is to some extent trying to second guess psi ability by creating a situation in which he hopes the subject's intrinsic motivation to win, feel competent, succeed and receive praise—whatever—will be brought to a sufficient level that the subject's psi ability comes into play. Of course, the technique of embedding psi tasks in games has numerous precursors in the pre-computer era, but there is some question whether the simulated baseball games of Ratte (1960) and other efforts really tapped the necessary motivators.

Although the strong appeal of computer games is obvious, it is equally clear it is not universal. Probably only a small percentage of the population find them appealing and that will largely depend on the type of game involved. Some are intellectually challenging while others require mastery of no small amount of skill—such as piloting a high-speed aircraft. For largely technical reasons (principally the lack of programming resources), parapsychologists have been limited to relatively rudimentary games in which to imbed psi tests. Although psi-games have been available at a number of labs for some years, there has been very little systematic research exploring their efficacy in creating the conditions under which a subject's psi ability might be brought to bear.

Lately, at the Institute for Parapsychology, we have had some modest success with a fairly simple computer game, but one which contains some of the elements that fill gambling resorts and casinos around the world—the lure of Lady Luck, of beating the odds and winning in a game of chance. This is, of course, our computerized dice game called P-OINK (Broughton & Perlstrom, 1985, 1986). By placing this simple game of chance in a competitive setting, i.e., by leading our Duke student volunteers to think they were competing against UNC players, we found that we had a very powerful motivator, at least as far as we could judge from external indicators. What we found in that experiment, however, was something different from what we were expecting. We naively thought that the competitive element would produce simple higher scoring by our subjects, but reality proved to be somewhat more complex. We measured the subject's anxiety level prior to the tests and what emerged was that the competitive game made some of our subjects more anxious than others—not at all a surprising result. But

what did surprise us, although it probably should not have, was that the scores in this game of chance followed the subject's anxiety scores in a negative relationship. The more anxious subjects did poorly and let their simulated opponent win while those who were at ease and relaxed were more likely to get a high score and defeat their opponent. When this effect was neatly replicated in a second experiment it caused us to think a bit. Perhaps some of our subjects were simply uncomfortable with the idea of competing against an unseen opponent so they used their psi ability to "opt out" by throwing the game, while their compatriots who were more at ease with competition used their psi ability to win. Of course, I am just speculating, but it is this kind of speculation that we may have forced upon us if we are to take psi ability seriously.

Among the attempts to design methodologies that give subjects reason to use psi ability, one of the most exciting is currently being used by Braud and his colleagues at the Mind Science Foundation (Braud & Schlitz, 1983). In this series of experiments subjects have attempted to influence the electrodermal activity (skin resistance) of another person. Since this is commonly taken to be a measure of psychological tension, the test can be portrayed as one of "healing" or relaxing someone who may need it. This "psychic healing" approach is deliberately intended to increase subject motivation to use psi and it certainly seems to be effective judging from the reports.

I should not wish to leave the impression that these experimental approaches are exemplars of ecologically valid psi experiments. Far from it; they are merely tentative first steps in a direction that more of our research must take. If present and future psi researchers keep ecological validity in mind as they conceive and design their experiments at least we shall have made a start.

Demand Characteristics

A second area which will require our attention if we are successfully to cope with a true psi ability is what can loosely be described as the "demand characteristics" of the test environment. This aspect of the test will most probably interact with the short-term needs of the subject. Are the laboratory personnel and their manner such that the subject will be made to feel needed and appreciated for his or her efforts? Will the subject's need for approval or desire to feel competent be met by success in the psi test? Is the overall ambiance warm and inviting so that the subject *enjoys* participating, or does the experiment come across as an obligation to be discharged with as little bother as possible?

Clearly this is a matter in which experience has taught parapsychologists a thing or two. Some experimenters and some laboratories take great care with the overall ambiance and treatment of participants—and their results speak for themselves. I need not give examples here, but we are all aware of the disproportionate success that some labs seem to have. Simply throwing our hands up and labeling this "experimenter effect" may obscure a very important fact: these experimenters are probably doing something right! If psi ability is connected with the servicing of psychological needs, then the psychological characteristics of the experimental setting assume a greater importance than we have been giving them lately.

The dynamics of the experimenter-subject interaction and how it effects psi results has long been a subject of discussion and study in parapsychology. Much has been written about the personalities of our successful experimenters. Generally, these discussions and studies tended to focus on how pleasant, friendly, warm or outgoing the experimenter was, all of which are undoubtedly relevant aspects of a successful experimenter's personality. More to the point, however, but somewhat overlooked, would be the degree the which the experimenter can instill a *need* in the subject to use his or her psi ability to accomplish whatever it is that the experimenter wants done. It may be the experimenter's ability to trigger the subject's internal need to use psi that may be the most relevant dimension of the experimenter-subject interaction.

There is an oft-quoted passage from *Extra-Sensory Perception after Sixty Years* (Rhine, Pratt, Stuart, Smith, & Greenwood, 1940) which usually has been given as evidence that the early Duke researchers were aware of the power of experimenter differences. I think parapsychologists have often looked upon this quote for its evidential value, but missed the essential point that Rhine and his colleagues were trying to get across:

> The methodology at this important point may consist in great part of the art of handling people successfully. All of the skills and methods that can be devised by the experimenter for conveying encouragement, inspiring confidence, implanting a realization of the importance of the tests, and arousing and maintaining an ambition to perform well will be decidedly to the point. (Rhine, et. al., 1940, p. 341)

The real message of this quote, I think, is the importance of motivating subjects—giving them reason to use psi in the experiment. Rhine himself remains one of our best examples of an experimenter who could motivate subjects. Many of those who watched him in action could testify to this, seconding, no doubt, Gardner Murphy's observations:

> My mind goes back to the year 1934, in which I first visited Rhine at Duke University and saw the rugged force of the demands he made upon his co-workers and subjects. In the light of his glowing intensity it became possible to understand the accounts given in his book of the way in which he had driven some of his subjects in the demand to get extrasensory phenomena. (Murphy, 1949, p.13)

It would be a rare individual who could recreate Rhine's manner, but I doubt that we need to. Simply examining the demand characteristics and the whole psychological milieu of our experiments in the context of dealing with need-serving psi ability could go a long way to suggesting improvements. Not too long ago Robert Van de Castle was telling students at FRNM's Summer Study Program what it was like to be a subject at the Maimonides Dream Lab where some of our most dramatically successful experiments have taken place. When Van de Castle walked into the lab everything stopped for him and, in his words, "they made me feel like the most important person in the world." Clearly this is more than being nice to subjects and it undoubtedly feeds whatever intrinsic motivation to use psi may be present.

While to a certain degree we can manipulate the demand characteristics of our experiments, the qualities that most impressed Van de Castle are not the kind that we can easily simulate for experimental purposes. They are going to have to be genuine and palpable qualities of the experimenter and the laboratory. As I mentioned above, some labs have paid attention to these factors and have achieved impressive track records with psi results. Oddly enough, though, these labs with their impressive track records tend to earn not our praise and our interest, but our suspicions. It must be experimenter psi, we are inclined to say (if we are being charitable). Must it, though? Have we really studied in depth the alternative psychological explanations?

Our consideration of the demand characteristics of the experimental situation leads to another matter that deserves the experimenter's attention: how can we best match our subjects to the test situation? As I found out with our competitive dice game, the motivator, i.e., the competition, did apparently induce our participants to use psi ability, but in very different ways according to how they reacted to the competitive element. I must admit that we came close to missing this detail, but, to me at least, this proved to be one of the most revealing aspects of those experiments: different subjects reacted differently to the demand characteristics of the experiment. In orthodox psychology this would not be in the least bit surprising, but in parapsychology, I think, we are not always prepared to deal with individual differences effectively.

It is probably time for parapsychologists to start taking what we know of individual differences in psi results seriously at a practical level when designing experiments. Perhaps extroverts respond best in public situations where success in a psi test brings a good deal of attention and social approval, whereas introverts may show psi best when it results in quiet, one-on-one social reinforcement. Perhaps people who thrive on competition will excel in competition will excel in competitive psi tests, but those who dislike competition may perform well in helping or cooperative style psi tests. The truth is that parapsychologists know a lot about individual differences in psi performance, but we seem shy about incorporating this knowledge into our methodology—into the way we design experiments. Most certainly there have been many experiments that have studied or tried to capitalize on individual difference, but the insights gained in these experiments do not seem to cumulate in the next generation's methodology. For example, how often do we routinely screen for extroverted subjects to participate in an experiment designed to test an hypothesis unrelated to extroversion, but in a setting that may be more likely to motivate extroverts to use psi? Granted, it is more work, but it will be a lot more work wasted if there proves to be insufficient evidence of psi to test the hypothesis of interest.

Increasing the yield of our psi experiments is a goal that we are all working toward so it seems obvious that matching our subjects to experimental demand characteristics is a bit of fine-tuning that would repay our efforts handsomely. In this respect I find extremely exciting the work of the Psychophysical Research Laboratories showing that it is possible to develop a profile of the type of person who is likely to succeed in the ganzfield experiments (Honorton, Barker, Varvoglis, Berger, & Schechter, 1986; Honorton & Schechter, 1987). Whether it is the case that these successful subjects represent a class of people who respond best to the treatment, or that several researchers fuss over them and make them the center of attention for two hours, or perhaps simply possess sufficient intrinsic motivation to help out these hard working researchers, is not known yet. But at least it focuses our attention on the fact that different individuals are going to respond differently to our experiments.

Selecting our Subjects

The question of matching our subjects to the test situation leads into the third issue that confronts us if we take psi to be a human ability. That is the matter of how we go about selecting our subjects. One of the important implications of psi being a human ability is that it is likely

to be normally distributed among the population. Of course, the evidence concerning whether psi conforms to a normal distribution or a skewed one comprising a relatively few gifted individuals is a matter of some debate (cf., Millar, 1979), but if psi is like all our other abilities then the distribution would be fairly normal.

Could it be that what we have been taking to be evidence of psi ability is actually wrong evidence? If psi is primarily designed to promote an individual's survival, well-being and reproducibility what should we expect it to look like in life—guessing ESP cards? Bending spoons? Of course not. Properly functioning psi ability should result in well-adjusted, successful, happy individuals. What we have been taking as evidence for the possession of psi abilities may be representative of the extreme reaches of a normal curve. Psi ability that is better than average will probably look like the intuitions and hunches of Dean and Mihalasky's executives (Dean, Mihalasky, Ostrander, & Schroeder, 1974) or like the luck of many of Tanagras' examples (Tanagras, 1967).

This point was driven home to me a couple of years ago when Ed May was sitting in my office and I commented "You're so lucky, Ed, the way you manage to get good subjects." Ed explained that he was just following some advice which Russell Targ gave him some years earlier: "If you want good psi subjects, look for successful people." Ed May's subjects are drawn from amongst other SRI employees, the vast majority of whom were very successful individuals at the peaks of their careers. Needless to say Ed went on to contrast his subject pool with ours: harried college undergraduates in a demanding university trying to cope with everything from academic pressure to finding a career and quite possibly a mate. Whatever psi ability our subjects have, it is likely to be directed towards serving more important needs than those which our ganzfeld or computer games are likely to raise.

Traditionally parapsychologists have been caught upon the horns of a methodological dilemma. On one hand we want our results to be generalizable, so we try to sample randomly from the population. On the other hand, sampling randomly may be yielding random results around a mean that is not far removed from chance. What we really want to be doing, at least at this stage of our research, is sampling from the upper half of the distribution. Researchers studying athletic excellence do not draw their subjects randomly from the population at large so, if we were looking for psychic excellence, we should be targeting selected populations. Just how to do that I am not entirely sure, but I think the first strategy should be to give serious thought to how we would expect an evolved psi ability to appear in the world, and then hazard some reasonable guesses as to what our population should be.

Conclusion

In conclusion, I do not wish to imply that there have not already been attempts to deal with the three issues I have discussed. There have been and there are today very creative methodological treatments of all these issues. What I am arguing now is that a view of psi as a human ability suggests that we should be addressing all of these issues all of the time if we want to maximize the yield of psi in our experiments. We must approach each experiment with a broad consideration of all these issues. It would make little sense to select a population of highly successful business professionals and present them with a trivial and boring psi test. It would make sense, if we must use a trivial and boring psi test, to "sell" that test as being very important to succeed in, as I believe J. B. Rhine was good at, or embed it in a situation that fosters intrinsic motivation to succeed. It would not make sense to embed a psi task in an aggressively competitive computer game—as I did—and then expect all subjects to welcome the competition. If we truly want to see reliability and stability come to our experimental data we must a) begin making informed guesses as to whom we should be testing b) take care that the demand characteristics of the psi test and its surroundings mesh with the subject's presumed needs, or at least do not conflict with them and c) above all, we must test psi ability with tests that have consequences for the subject—tests that give our subjects reason to use their ability.

In the end we may find that psi ability is not terribly different from the ability to run. If a person is crossing a field and sees a snarling dog entering from the other side, that person may reveal a running ability he never thought he had. Similarly a person may derive enormous satisfaction in demonstrating great prowess in running ability which, when coupled with a competitive drive, will enable that person to exhibit running ability of Olympic proportions. But, if a person of any degree of running ability were walking down the street and passed someone on a corner who suddenly said, "Run down five blocks and back again," I doubt the person walking would be inclined to do anything but ignore the one on the corner. We parapsychologists have to make sure that we do not spend our careers standing on the corner.

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DISCUSSION

SCHOUTEN: You said so much that I really have to restrain myself. First, you were talking about psi as an ability. To me an ability is a capacity a person has that he can apply whenever he wishes. Now I think that research in this field that we carried out with psychics has indicated that psychics certainly do not have an ability which they can apply on demand. Psychics can certainly have paranormal impressions, but if you ask them to have them at a specific time I am afraid they are not able to do it. So I think that psi is not an ability in the sense that you can apply it whenever you wish.

The second point that I want to make is that it often happens that parapsychologists have unbelievable, wide-ranging theories and concepts. Fortunately, they sometimes make also very sensible suggestions and I find the same with your contribution. I think that you make very sensible suggestions especially with regards to motivation and how to select subjects. I am not experienced in finding good subjects, so I am really curious to know how others in their room feel about it who have been more successful. As regards your idea that psi would have evolutionary aspects and serve for survival of mankind, I have two problems with it. First, I think it is really not a viable sort of idea. It might be, it might not be, but I am afraid you will never be able to prove it. It is at best a suggestion. Second, there is your idea that psi is need-serving in the sense that with a special individual it would promote individual mental well-being. Perhaps I am a bit cynical, but if I look around in this world I think psi is doing a really bad job if you are right. Third, is that, as far as I can see, it does not fit in with what we know about spontaneous experiences. Spontaneous experiences most often relate to what happens to other people. I think it serves a need in that respect, you are right, but it is more a concern about other people than a concern for the individual himself. To me that seems a bit contradictory to what you are saying.

BROUGHTON: In spontaneous cases it is true, a lot of them relate to other people in the sense that they are announcing something that is happening to another person, but there is an enormous number that

actually directly affect the person, helping to avoid danger. I think if one looks at too many of the apparitional cases these are almost by nature announcement cases: something is happening to somebody. I have just been looking at some of Louisa Rhine's cases. There are an awful lot that are really, directly survival related because they helped somebody avoid a catastrophe.

SCHOUTEN: But statistically they are still in the minority.

BROUGHTON: Even the announcement cases, the ones that tell you about somebody else, can, in fact, be very helpful and very satisfying in ways that are perhaps very important psychologically. I would agree with you to some extent. My use of the word ability is rather fuzzy and rather non-specific in this paper and deliberately so. When I talked about this in my PA Presidential Address, I made it clear at the beginning that I am using the word ability here rather loosely because we could be talking about something that we would also call a faculty. Admittedly, an ability connotes in many ways the application aspect that you spoke of; we should be able to apply it somewhat consciously. It also connotes the idea that we should perhaps be able to train it and improve it. Some areas have seen rather meager results in parapsychology partly because if it is an ability that is trainable or learnable perhaps we do not know how to exercise it yet, we do not know what muscles we should be using. You are perfectly right in pointing out that I am using the word "ability" rather loosely. I would be willing to say that we could label it "faculty" but I just could not quite find the words that fit. As far as the theory goes, I certainly would not designate what I have been talking about as a theory. I like to think of it as a common sense approach. If psi is the product of evolution then all the rest of that follows, that it is need-serving, that it does help us to pass on our genes. Why else would we have it if it did not come that way. I think psi is a product of evolution as opposed to a product of a dualistic philosophy of something like that. Given that it is a product of evolution, then everything else follows. It has got to be functional or we would not have it.

STANFORD: First of all I really appreciated your paper. I am very excited about the prospects that it suggests for research. I do not think that what you suggest in your discussion, Richard, at all indicates that there are not boundary conditions. The PMIR model spells out boundary conditions in some detail. This is why everything is happening lawfully despite the fact that science would deny it. With regards to the matter of the many spontaneous cases where we receive information about other people, the vast majority of these concern people whom we love, who are close to us. This is not outside the framework of the

kind of thing that you are talking about at all. Evolutionary theory, psychobiology emphasizes kinship selection, for example, and if we knew that people whom we love or who were kin to us were in trouble protecting them is a way of potentially perpetuating our own genes. So I think this fits in very well. In your paper you speak of the distribution of psi ability. I would like to suggest that that may be oversimplifying, that there may really be several distributions of personal attributes that are relevant to the performance of psi tasks. A psi task can occur outside the lab, in the real world. Now the number and kinds of variables and personal characteristics involved might depend on the nature of the psi task, so there might not be a gene for some specific psi ability as much as a lot of aspects of psi performance.

BROUGHTON: A lot of ideas just leap into mind as you talk, Rex, as they usually do whenever I am listening to you. I think the matter of boundary conditions raises one of the points that I did want to mention in answer to Dr. Schouten's question of how we might deploy psi ability. One of the things the Dr. Schouten mentioned was that obviously not everybody is using psi to the best advantage. Well, it could be a function of psi being normally distributed. There may be some people who are not deploying psi very effectively. They may be at the lower end of the distribution and employing psi in a kind of perverse way. Your point about the distribution of psi being perhaps subject to overlapping distributions of other abilities is I think, an extremely important one. I think it relates directly to what Dr. Rao has been saying and, indeed, it seems to be a theme at this conference that psi is probably integrated with all of our other abilities. The assumption that Dr. Rao mentioned that we have too often held—that psi is completely independent of everything else that we do—is probably wrong. Psi is probably integrated with every other aspect of our personality and hard as it may be we are going to have to deal with this.

MAY: First off, Richard, I do agree with you in the sense that I too suspect that psi is a normally distributed ability and I favor your approach. I came to this field as a newcomer in the early '70s principally because I saw robust phenomena. I felt that, yes, the statistics were weak, we were not as well trained in those days to understand a meta-analytical perspective. I was fascinated. Something does not have to be real to be a large effect. I am as equally interested in a shaman who can just slightly change his weight on a scale as opposed to someone who has levitated all the way to the ceiling. So I am a little disappointed at the pessimism that I hear about why we have such a small psi effect. I do not believe that we have a small effect. Another comment is that I was surprised to hear you say something that should not have surprised

me, namely that anxiety does not produce good performance. I know in my own case when I am the slightest bit anxious I really screw up, so I was surprised to hear that.

BROUGHTON: I fully admit it. I should have known it best myself because whenever I am under pressure I do abysmally badly, particularly in psi tests, but even in games which I am playing with my daughter. I am just a very highly anxious person, so it should not have surprised me, but it did. I think your disappointment echoes what Chuck was saying, that we should not be beating ourselves over the head with our weak results. In fact our results are a bit more robust than we give them credit for. I did try to make a slight distinction between effect size, in a sense of strong results, and stability of results. This is a personal issue, but I thought about it a lot. In the various labs that I have worked at there is a lot of instability in psi results even though certain labs do come up with very good, very strong psi effects. I trained in Edinburgh, you know, and we could not do much there in terms of psi results. Indeed Edinburgh has a reputation for lack of success. From Edinburgh I went to Utrecht. So in terms of strong effect sizes I have seen both sides of the coin. There are certainly strong effect sizes. I find the meta-analysis work of the last few years some of the most exciting stuff in the field. It makes me proud to be a parapsychologist. At the same time there are labs and there are experimenters who are somehow not included in this stability or reliability and it is to them that this advice is given. I think that ones who are somehow not finding these same robust effects may be simply messing up in some rather obvious ways that we should be thinking about.

HONORTON: Well, I really resonated to much of what you had to say, Richard. Ecological validity certainly is a very important consideration. The whole free-response work and the dream work represents very good examples of an attempt to take psi as it is frequently reported in real life situations and translate that into the laboratory context. PMIR does also. I wonder, though, whether psi is an evolving faculty, something that is emerging, or whether perhaps psi is the victim of evolution in the sense that we know that our physiological senses are designed in large part to eliminate information. Now, if the more interesting theories of a dualistic nature have any validity, the Eccles, Thouless, Wiesner type of formulations, then perhaps psi really does not have anything to do with evolution and the manner in which we attempt to study psi, as communication, as direct influence, as a substitution for senses and muscles, may be an attempt to produce what is really not the primary function of the phenomena. That may involve something like mind/brain liaison rather than communication, for

which our senses and muscles are much more appropriately developed. It may very well be that many of the spontaneous cases that we look at that suggest need relevance are artifacts due to the way parapsychologists and psychic researchers over the last century have tended to be most interested in cases that are evidential rather than the more trivial sorts of things that Rex has collected to illustrate PMIR, for example. If you look for psi like that it frequently seems to operate in a way that may be need related, but may also involve rather trivial aspects that are not terribly survival oriented.

BROUGHTON: I tend myself to be somewhat of a pluralist regarding theoretical interpretations of psi. The evolutionary view that psi is evolving is only one of several views. It could be wrong. But from a practical point of view, for the methodological perspective of this conference, I think an awful lot of our experiments assume that psi ability is something that we have. Therefore we ought to follow it completely through, play the whole scenario out and take it seriously as an ability. If in the end we find that this does not work, that in fact psi, in all the ways we test it, is still ephemeral and that there are reasons to think the Eccles, Thouless, Wiesner sort of approach is in fact a better fit, a better model, then we would be prepared to deal with that. At the moment it is rather difficult to deal with that approach methodologically. Let us just make sure we have covered our experimental bases thoroughly before we start abandoning them.

UTTS: I agree with most of what you said and I really enjoyed your paper. I certainly agree that psi is probably used in everyday life and I think it is a good idea to add tasks to experiments that would encourage people to use psi to get a favorable outcome. But I think we should also keep in mind that one of the most negative experiences you can have is to have your worldview shaken. We saw this in the sheep and goat effect, I think. So in building these tasks into experiments we need to be careful that the outcome is not going to have that negative consequence for the person doing the task. I see this for myself when I go to casinos. I have often wondered why I seem to be so lucky in qualitative tasks and not in quantitative tasks. Then I realize that I spent eight years studying probability and that if probability gets thrown out I am out of a job. So there are more negative consequences. Several people have brought up the point that perhaps psi is a combination of other abilities. People are also talking about it as being normally distributed. I want to point out that the central limit theorem would say that if indeed psi is a sum of several abilities then you would expect it to be normally distributed. Loosely speaking, if you combine a series

of abilities and add them together you get a normal distribution, so that may be what is going on there.

BROUGHTON: I agree with your comments concerning the negative aspects of having one's worldview shattered, and I think Charley Tart has addressed that issue quite a lot. That is what I would consider the demand characteristics of the experimental situation. We cannot willy-nilly bring in subjects and say, "Hey, you are going to do miracles here." Even though the subject does not protest and does not even show much concern, we are dealing with some very strong potential challenges to worldviews. I think all too often we overlook this aspect. I would consider that as one of the demand characteristics of our experimental settings.