

conduct the intervention in a consistent and faithful manner. In other words, the current emphasis on detailed program manuals dovetails with earlier efforts to systematically train paraprofessionals in helping skills. These two developments are relevant for preparing professionals as well as paraprofessionals to implement different types of therapeutic and preventive interventions.

Summary

There is no question that the use of paraprofessionals has increased the quantity and range of services available to the general public. There never has been nor will there ever be a sufficient number of mental health professionals to meet the need and demand for service. Using paraprofessionals therefore increases the number of people who can be helped. In some cases, it would be impossible to offer programs without paraprofessionals. For instance, there are hundreds of suicide prevention and crisis hot lines and call-in centers throughout the country that could not exist without paraprofessional personnel. In addition, many prevention programs now follow a model in which professionals function in a consultative and collaborative relationship with local community residents (i.e., community gatekeepers and paraprofessionals) and it is the latter personnel who are usually responsible for conducting the intervention (Durlak, 1997). In summary, mental health care has been enhanced because paraprofessionals have been used in different ways to extend and expand the range of services customarily offered by professionals.

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PARAPSYCHOLOGY is the branch of psychology that studies a group of phenomena collectively known as *psi*, a term referring to the transfer of information or energy that cannot be explained by known physical or biological mechanisms. Psi phenomena include *extrasensory perception* (ESP), the acquisition of information without mediation by the sensory system(s), and *psychokinesis* (PK), action with mediation by the motor system. ESP, in turn, is manifested by *telepathy* (thought transference), *clairvoyance* (perception of objects that are not present in the sensory field), *precognition* (perception of future events), and *postcognition* (the perception, as opposed to the memory, of past events).

Parapsychology is a branch of psychology because the phenomena it studies are mental (e.g., perceptual) or behavioral in nature. It should be understood at the outset that psi phenomena might well be explained in terms of normal processes. Thus, what appears to be clairvoyance might simply reflect an individual's high degree of sensory acuity; what appears to be telepathy might reflect cues inadvertently transmitted by one person and unconsciously picked up by another; what appears to be precognition might merely be coincidence; and what appears to be psychokinesis might be a product of simple fraud. Most psychologists incline toward these sorts of explanations for ostensibly paranormal phenomena.

Parapsychologists, however, argue that at the very least the phenomena of psi represent anomalies of ex-

perience, thought, and action: statistical deviations from chance that cannot be explained in terms of known processes or established theories. Whereas some parapsychologists believe that psi phenomena might be understood in terms of some hitherto unknown sensory modality or physical force, others believe that psi constitutes evidence for paranormal processes that lie outside the domain of normal science.

Parapsychology has its origins in nineteenth-century spiritualism, as represented by the work of F. W. H. Myers (1843–1901), an English writer. Although Descartes's dualism proposed that the mind is independent of the body, by the nineteenth century, virtually all scientists had adopted some version of materialism, which holds that brain processes constitute the biological substrate of mental life. Spiritualism revived dualism by postulating the existence of soul (or, in secular terms, mind) as a nonphysical entity that survived bodily death, and formed the basis for such fads as the Ouija board, mediums, and seances. In contemporary psychology, spiritualistic concerns with the soul, life after death, channeling, and reincarnation are represented by the field of transpersonal psychology and research on so-called near-death and out-of-body experiences.

In 1882, Myers founded the Society for Psychical Research in London; along with American psychologist William James and others, he also founded the American Society for Psychical Research in 1884. In this context, *psychical* refers to the dualistic notion of a disembodied mind to mental states, such as clairvoyance, which have no basis in physical reality. In the early twentieth century, Stanford, Harvard, and other universities administered funds specifically established to study spiritualistic and psychical phenomena, initiating an era of credulous and skeptical ghost hunting by professionals and amateurs alike.

At Harvard, J. B. Rhine (1895–1980) conducted psychical research with William MacDougall; in 1927, he and his wife, Louisa Rhine, moved with MacDougall to Duke University. The Rhines eventually established the Duke Parapsychology Laboratory and ushered in an era of controlled, quantitative research on psi. Their research on ESP employed a deck of 25 Zener cards, on which were printed one of five symbols: star, circle, cross, square, or wavy line: the volunteer's task was to guess which card was being viewed by the experimenter. When statistical analysis yielded a success rate greater than would be expected by chance, Rhine claimed to have demonstrated ESP. Unfortunately, other laboratories generally failed to replicate these positive results, and research on ESP and PK fell into a decline.

Interest in parapsychology was revived in the 1970s by media attention to Uri Geller, an Israeli magician who claimed to be able to bend spoons by mere thought (though, famously, not in the presence of Johnny

Carson, a television talk-show host who was himself an accomplished stage magician). Additional centers for parapsychological research were established at the Stanford Research Institute (now known as SRI International), Princeton, and other institutions. At SRI, Russell Targ and Harold Putoff conducted a series of experiments on remote viewing, in which the "percipient" described his or her clairvoyant impressions of a randomly chosen geographical site being visited by a target team. Helmut Schmidt, at Boeing Scientific Research Laboratories, tested volunteers' ability to predict the output of a machine that generated random numbers according to emissions from a radioactive source. At Princeton, Robert Jahn examined volunteers' ability to influence the output of a different kind of random number generator based on electronically generated noise. All three researchers reported significant deviations from chance, and thus significant evidence for psi.

A great deal of contemporary parapsychological research employs the Ganzfeld technique, which resembles Rhine's experiments with Zener cards. Ganzfeld, a term derived from Gestalt psychology, refers to a homogeneous sensory field, without any imperfections or boundaries. In the Ganzfeld experiments, participants relax in a reclining chair, translucent shields are placed over their eyes, and white noise is played through earphones. The general idea is that the Ganzfeld should increase psi effects by reducing distraction from the sensory environment. And indeed, Ganzfeld experiments conducted in the late 1970s and early 1980s by the late Charles Honorton (then affiliated with the Psychophysical Research Laboratories in Princeton, New Jersey) and others did appear to yield above-chance levels of psi performance. However, a 1985 review by Ray Hyman, a psychologist and skeptic of paranormal claims, revealed a number of methodological problems with those studies. For example, many of the experiments suffered from inadequate randomization of trials or left open the possibility of contamination through sensory leakage. In 1986, Hyman and Honorton issued a joint communique setting out minimal methodological standards for future Ganzfeld research.

An obvious problem with evaluating research on psi is that most scientific journals prefer to publish studies that yield positive, statistically significant outcomes. Therefore, any review of the published research on psi is likely to exclude many negative studies that remain unpublished. In an attempt to rectify the "file drawer" problem, the *Journal of Parapsychological Research* actively solicits both positive and negative studies. Still, it is somewhat disconcerting that failures to replicate psi effects have sometimes been interpreted as positive evidence for psi: the argument being that the later experiments involved skeptics whose negative attitudes parapsychologically affected the experimental outcomes. Of course, such a "Heads I win, tails you lose" position

renders parapsychological claims scientifically untestable. Interestingly, comprehensive reviews indicate that experiments conducted with participants who believe in psi are more likely to yield positive results than those with participants who are skeptical. However, it is not clear whether this "sheep versus goats" effect reflects individual differences in paranormal ability or merely individual difference in acuity to subtle sensory cues. Claims that psi abilities are enhanced while dreaming or during hypnosis or sensory deprivation are based on very weak evidence.

During the 1980s, U.S. intelligence and military analysts took a national security interest in claims for ESP and PK emanating from the Soviet Union. In 1988, a committee of the National Research Council (NRC), the operating arm of the National Academy of Sciences, examined the literature on psi at the request of the U.S. Army. The NRC committee determined that the remote viewing, random number generation, and Ganzfeld paradigms examined were beset by major methodological problems, particularly inadequate randomization, sensory leakage, and the use of multiple tests for psi that spuriously inflated the probability levels associated with experimental outcomes. As such, the committee concluded that there was no scientific justification for claims about ESP, PK, or their practical significance. This remains the firm view of the scientific establishment.

In response to the NRC committee, Daryl Bem, a psychologist and accomplished stage magician, wrote an article with Honorton defending the Ganzfeld experiments and reviewed a new set of experiments that apparently met most of the standards set out by Hyman and Honorton (Bem & Honorton, 1994, is one of the few instances where parapsychological research has been published in a mainstream psychology journal). In reply, Hyman found some persisting methodological difficulties. In his reanalysis, eliminating these problems reduced performance to chance levels. A rejoinder by Bem (Honorton had died since their joint project began) discounted Hyman's criticism, but the fact remains that there have been no independent replications of the Ganzfeld effect using the improved methodology outside Honorton's laboratory. This leaves open the possibility that, despite Honorton's efforts to the contrary, some subtle bias may have contaminated the studies conducted in his laboratory. In fact, Milton and Wiseman ("Does psi exist?" *Psychological Bulletin*, 1999) reviewed the results of 30 additional Ganzfeld experiments, which also apparently met the Hyman-Honorton standards. This database, which was more extensive than the one reviewed by Bem and Honorton (1994), yielded no evidence of psi.

Even if parapsychological research fails to reveal previously unrecognized sensory modalities, or to challenge established physical laws, the subjective experiences associated with psi are psychologically interest-

ing. Many parapsychologists began their research careers because of some compelling subjective experience of clairvoyance, precognition, or the like, that seemed to escape mundane explanation. Indeed, this was the source of William James's fascination with spiritualism and psychic phenomena; it is interesting to note that James conducted an experimental test with his friend Myers, that whoever died first should attempt to communicate with the survivor. The test failed. James also arranged a replication with his wife, which, apparently, also failed. Nevertheless, James felt that the experience of the paranormal was psychologically interesting and should be studied for what it might reveal about normal mental life.

Psychometric surveys indicate wide individual differences in paranormal experiences. Almost by definition, these subjective experiences occur outside controlled laboratory settings. It seems likely that some of these experiences are artifacts of biases and shortcomings that infect human judgment generally. Thus, we may be more likely to notice, and remember, the rare experience in which we thought about someone just before they called on the telephone, than the many experiences in which this coincidence did not occur. Moreover, it is possible that individual differences in the experience of ESP may be related to a cognitive capacity for absorption in sensory or fantasy experience, a facet of openness to experience, a major dimension of personality. Similarly, individual differences in PK, as reflected in the Ouija board, may be related to a capacity for dissociation, which allows people to engage in behavioral activities outside conscious awareness. Absorption and dissociation probably lie at the heart of near-death and out-of-body experiences, as well. As William James argued a century ago, it is possible to take people's anomalous experiences seriously without necessarily embracing claims about the paranormal origins of these experiences.

But one does not have to be a parapsychologist to study anomalous experience. It is enough simply to be a cognitive, clinical, personality, or social psychologist. The central claim of parapsychology goes beyond experience and encompasses the claim that the anomalous phenomena of psi are not mediated by the sensory or motor systems normally associated with sensation and action. In this respect, parapsychology confronts the scientist with a difficult conundrum. Science will not progress unless the investigator is open to new observations that might challenge established (and cherished) theories. At the same time, however, scientists must approach any startling new claim with an attitude of skepticism; otherwise, society is left vulnerable to the ravages of junk and pathological science. Justice is done to both science and society when startling claims are evaluated according to the most stringent methodological standards. The evidence is not all in,

and it is best to keep an open mind, but when one removes outright fraud, poor methodology, and capitalization on chance, there appears to be little or no psi left to explain.

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John Kihlstrom

PARASOMNIAS. See Enuresis; Nightmares; Night Terrors; Sleepwalking; and Sleepwalking.

PARENT-CHILD RELATIONSHIP. [This entry provides a broad survey of the parent-child relationship. It is chronologically divided into three articles: Childhood; Adolescence; and Adulthood.]

Childhood

The parent-child relationship and parenting practices have received considerable theoretical and empirical attention as important influences on children's development. Through the study of parenting in diverse cultures, Le Vine (1988) advanced the idea that parents around the world share three major goals for their children: (a) the survival goal (providing for the health and safety of their children); (b) the economic goal (ensuring that their children acquire the skills and resources needed to be economically productive adults); and (c) the cultural goal (ensuring that their children acquire the basic cultural values of the group).

The ways in which these goals are met are obvious—through parent-child interaction and the parent-child relationship. This relationship is a bidirectional one, with parents influencing their children as their children influence them (Bell, 1968; Lerner, 1994). Beginning in infancy, parents both socialize and meet the needs of