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IMPROVING PSYCHOKINESIS PERFORMANCE
THEORETICAL AND METHODOLOGICAL NOTES

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In 1966, I proposed (Tart, 1966) that the usual procedure for forced-choice testing in ESP experiments, namely delaying any feedback about individual target identity until after a run was completed or even indefinitely, constituted an extinction paradigm rather than a learning paradigm. Thus the frequently reported decline effect made sense from a learning theory approach: percipients were being systematically extinguished. More positively, the theory proposed that for motivated percipients with some initial ESP talent, the provision of immediate feedback of results on each trial could not only eliminate the decline effect, but could allow learning, so ESP performance could improve with time and come under voluntary control.

In an extensive modeling of internal processes involved in trying to learn to use ESP with immediate feedback (Tart, 1977), I suggested that what a percipient must basically try to do is find some aspect or aspects of his ongoing stream of experience that correlate with successful use of ESP. It is necessary to postulate some kind(s) of discernible experiential qualities associated with successful ESP functioning for learning to be possible, and the generally high success rate associated with confidence calls lends empirical support to this postulate. Discerning such aspects of experience would not, of course, be an easy task. Most people have had no training at trying to observe their ongoing experience, and

numerous ordinary thought processes constitute irrelevant and distracting noise. Further, there is a formidable problem which was discussed in the earliest presentation of the theory (Tart, 1966) in connection with the concept of the 'talent threshold', and amplified in the later modeling of internal processes (Tart, 1977). This is the problem of noise and confusion created by false positives, hits due to chance alone.

In any forced-choice ESP task, where the a priori probability of a hit is p, a proportion p of the trials will yield hits due to chance. Every one of these false positive hits will be associated with some psi-irrelevant aspects of ongoing experience, just as hits due to actual functioning of ESP will hopefully be associated with aspects of ongoing experience that are regularly and lawfully related to the proper functioning of the ESP process. Thus each false positive hit can generate a false hypothesis about some aspect of experience possibly being associated with ESP operation, can falsely reward the percipient, and can generally distract and confuse him or her. False positive hits mean that there is some extinction procedure inherent in any forced-choice tests, despite the provision of immediate feedback.

If a percipient has no demonstrable ESP ability to begin with, all his hits are false positives, associated with irrelevant aspects of experience, so he has nothing to learn. For a percipient with a little psi ability, there is a mixture of genuinely psi-mediated hits and false positive hits. Extinction may be slowed down for a time, insofar as the percipient efficiently makes use of relevant cues from psi-mediated hits to learn some control over his ESP abilities, but the confusion caused by false positive hits may eventually sap his motivation and inhibit learning, with extinction being a final outcome. For a percipient with high ESP abilities, on the other hand, many of his hits will be psi-mediated, giving him the opportunity to form and test useful hypotheses about aspects of his ongoing experience that are correlated with successful use of ESP. Once such genuine correlations are learned, the percipient may then opt to make calls only when his experience shows the characteristics he now knows to be psi-favorable; and/or he may deliberately try to induce such psi-favorable aspects of experience.

The 'talent threshold', as originally postulated, meant some initial level of psi talent brought to the immediate feedback

training sessions that was high enough so the learning process predominated over the extinction process inherent in any forced-choice testing procedure. The talent threshold is not an absolutely fixed level of ESP talent. Higher levels of motivation, e.g., can keep a percipient working at discriminating relevant and irrelevant aspects of experience and possibly learning even if their initial level of talent is somewhat lower than the talent threshold might need to be for percipients in general. Further considerations of this sort are discussed elsewhere (Tart, 1977).

EMPIRICAL SUPPORT FOR THE LEARNING THEORY

My learning theory application will be adequately tested when a reasonable number of initially highly talented percipients have been given immediate feedback training, training that they are motivated to work at for a time. Given the rarity of highly talented percipients, both in my own work and in parapsychological research generally, it may be years before the usefulness or lack of it of the learning theory application has been adequately tested. Thus the theory is in a kind of limbo as regards percipients being able to learn improved ESP ability by immediate feedback training, although it has some empirical support.

The evidence is rather strong, though, that the provision of immediate feedback largely eliminates decline effects in ESP testing. This literature has been reviewed elsewhere (Tart, 1976).

LEARNING TO USE PK

Although my original application of learning theory focused primarily on ESP, almost all aspects of it apply directly to PK. If any potentially discernible aspects of experience are associated with successful use of PK, a PK agent receiving immediate feedback of his or her results should be able to form hypotheses about what these correlations are, test these hypotheses, and eventually show much greater success at PK, either by waiting for the right internal condition to make his tries, and/or by inducing PK-favorable aspects of experience at will.

I mentioned above that the learning application hypothesis has not been adequately tested for ESP learning, partly because percipients have almost always been run without immediate trial-by-trial feedback, partly because of the rarity of talented percipients. At first glance, PK studies might seem to have provided a good data base for testing the learning hypothesis, as immediate feedback has been the norm rather than the exception. In dice studies the agent immediately sees how the dice fall; in electronic random number generator (RNG) PK studies there is usually some sort of continuous feedback display operative. Empirically, however, decline effects are common and incline (learning) effects very rare in published PK research, according to Stanford (1977).

On closer inspection, however, the PK literature to date does not provide an adequate data base for testing the learning theory application. The level of psi talent shown by agents in laboratory PK studies has generally been far too low.

I am in the process of reviewing the PK literature. To date I have computed psi coefficients (the proportion of time psi was presumably operating after the chance baseline hits have been factored out: see Timm, 1973) for the most successful conditions of 33 PK studies involving mechanical PK tests (mostly dice) (note 1). I have used only experimental condition results that were statistically significant ($p<.05$) for the presence of PK hitting beyond baseline expectation (not just for differential effects). I have also computed psi coefficients for 35 similarly successful PK studies on electronic RNG's (note 2). Combining both types, over 90% of these studies show psi coefficients (note 3) less than the 10% that I have empirically estimated as the mean talent threshold for learning to begin in ESP studies (Tart, 1976). Indeed, the vast majority (57%) of psi coefficients shown in the laboratory studies fall in the 1% to 3% range. Thus it is not surprising that declines (extinction) have been quite common in laboratory PK research.

I would have liked to do an analysis comparing psi talent levels in the reported studies with degree of decline or lack of it, but wide variations in completeness of reporting and method of computing decline effects produce too few studies to allow a fruitful analysis.

INSTRUMENTAL CONDITIONING VERSUS AVERSIVE CONDITIONING

The learning theory application I have proposed for increasing psi ability is a form of instrumental or operant conditioning. We take a behavior that exists only in infrequent and poorly developed form (the initial, non-zero level of psi functioning a percipient or PK agent brings to the training), and try to increase and refine it by providing informational feedback. Insofar as the percipient or agent is motivated to succeed, feedback of correctness also constitutes a reward.

Recently Broughton, Millar, and Johnson (1981) introduced a different learning paradigm, aversive conditioning, in an attempt to increase PK ability. Using an electronic RNG PK task, they delivered strong, unpleasant electrical shocks to their four agents when they obtained poor scores. No overall significant indications of PK were found, and even the most liberal interpretation of their results would show no more than tiny possible indications of PK.

Since none of the four would-be agents of the study had ever shown, to my knowledge, psi coefficients approaching the 10% level in previous laboratory psi studies, it is not surprising that no clear PK was found in this study, much less indications of learning. The results are in accord with those predicted from my learning theory application, albeit trivially so.

More importantly, while the authors of this study were familiar with my learning theory application, I do not agree with their extension of it to use of aversive conditioning. In an aversive conditioning paradigm, we begin with a well-developed behavior which we consider undesirable, and we attempt to decrease its frequency of appearance with applying punishment (aversive stimulation) whenever the person shows it. In trying to learn ESP or PK ability, to the contrary, we have an almost totally undeveloped behavior. It is unclear how applying punishment to suppress the behavior of not using psi will allow the subtle learning needed to recognize experiential correlates of psi.

Punishment might increase motivation to learn psi, but, given my extended model of internal processes involved in learning psi (Tart, 1977), I would suspect that the specific fear,

anticipation, and generalized unpleasant arousal occurring in the aversive conditioning situation would greatly increase the 'noise level' of irrelevant mental processes, and so make instrumental learning of increased psi ability extremely difficult. It is hard to search for subtle internal experiences when your mind and body are cringing in anticipation of the next severe shock!

Thus I do not recommend the use of aversive conditioning procedures for enhancing psi.

CONCLUSION

Insofar as there are any potentially discernible experiential correlates of the use of PK, the provision of immediate feedback of results should allow an agent to learn more effective control of his or her PK ability. The same sorts of considerations advanced in connection with using immediate feedback training to enhance ESP ability apply to its use to enhance PK, such as the need for the agent to be motivated to learn enhanced PK and, very importantly, to possess a fairly high level of initial PK ability. This level is roughly estimated, by analogy with ESP results, to correspond to a psi coefficient of about 10%.

I believe much of the impasse in attempts to control and understand PK arises from the same source as the impasse in attempts to control and understand ESP, namely that the manifestations of ESP and PK we usually see in the laboratory are of too small a magnitude to be readily separated from noise. If immediate feedback training leads to strong, reliable manifestations of laboratory PK, then research on understanding and controlling PK will take a quantum leap forward.

NOTES

1. I want to thank Barry Boatman for the library work he carried out for me that underlies this literature survey.

2. I am indebted to Ed May of SRI International for the raw data he used in an extensive study of electronic RNG PK, from which I have extracted the above 35 studies by my success criterion.

3. Psi coefficients are ordinarily expressed as decimals, but I shall use percentages for readability. Thus a psi coefficient at

.10 is called 10%, and indicates psi being used on 10% of the trials that would otherwise show misses by chance alone.

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