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INSTITUTE FOR PARAPSYCHOLOGY GANZFELD-ESP EXPERIMENTS: THE MANUAL SERIES

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Abstract

The Institute of Parapsychology has collected a database of all standard ganzfeld ESP trials using static targets in a manually operated test environment over a period of six years between 1986 and 1992 when the testing facilities were replaced. The database consists of trials from simple replications as well as the ganzfeld-ESP trials from studies examining specific hypotheses. The main purpose of the database is to permit the investigation of relationships between various psychological factors and ESP performance in the ganzfeld.

The database includes 352 trials contributed by 206 participants, as part of eight different series. The overall scoring rate by the direct hit *(p* = .25) method was 27.6%, with an effect size (Rosenthal's p) of .533 *(z* = 1.046) compares well with the PRL data relating to the static targets (27% scoring rate).

Confining the analyses to novice subjects yielded better results, in agreement with earlier PRL findings. There were 182 novices who scored at 29.7% (p = .559) in an equal number of trials. Those novices who had personal psi experiences, scored 31% (p = .574), and those who practiced a mental discipline 32.7% (p = .593). Considering the MBTI score, those who were in the F category scored at 33.7% (p = .604) and those in the P category 36.3% (p = .631). A combination of all these predictors, which has been identified as the PRL success model, isolated a sub-set of 46 participants who scored at 41.3%, p = .679 and *z* = 2.286. Thus, although the overall effect was modest in our database, this subset fully confirms the PRL model and other subsets conform well with recent findings from other laboratories. This model suggests certain criteria that should be taken into account in replications attempts.

Introduction

The Ganzfeld research at the Institute for Parapsychology can be regarded as having gone through three different stages of development over the past decade. The first three years following its inception in 1983 was the initial stage, when a detailed methodology suitable for the conditions at the Institute was evolved through a lengthy development process led by Nancy Zingrone. After a pilot study that tested 50 subjects in two series (Zingrone, Hansen and Perlstrom, 1985), this team planned the first replication experiment for 1986, as part of a larger meta-experiment proposed then by K. R. Rao. However, the team was dissolved due to various staff changes and a new team was formed to conduct the planned experiment. This formed the beginning of the second stage.

H. Kanthamani (H.K.), who was recruited as a member of this new team, took charge the ganzfeld research and since then has carried out many studies along with her various coworkers which has added up to a sizable database. It is this data that is presented in this paper, which includes the work of over six years from 1986-1992, when the ganzfeld system was shut down for installing the autoganzfeld system, which had

been donated by the Psychophysical Research Laboratories (PRL) after having been used in their automated ganzfeld-ESP experiments. The automated experiments comprise the third stage, with a new team carrying out the experiments under the direction of R. S. Broughton. The work is currently in progress.

The database that forms the basis for this report includes all the experiments that were carried out by H.K.'s team, which used the standard ganzfeld procedure and also had the percipient's judging as part of the protocol. Certain parts of this data have been reported periodically at various stages of completion (Munson et al., 1988; Kanthamani, et al., 1989; Broughton et al., 1990; Kanthamani & Khilji, 1991; and Kanthamani & Broughton, 1992). All these were combined along with the available new data to address certain overall hypotheses. The only study that was not included in this pool relates to the ganzfeld experiment with "subliminal sending" (Kanthamani & Palmer, 1993) which did not have the percipient judging, as well as a procedure that was quite dissimilar to the standard method. This report includes all formal ganzfeld sessions during the designated period except for sessions that were done as demonstrations for television programs and sessions that were used as teaching demonstrations during the Institute's Summer Study Program and training sessions to visiting scientists. The purpose of this report is to summarize our findings and compare our database with that of PRL relating to the static targets (Honorton, et al., 1990).

Ganzfeld procedure

The PRL ganzfeld procedure has been extensively described elsewhere (Bem & Honorton, 1994; Honorton, et al., 1990). The procedure at our lab differs from the PRL procedure in a number of ways. Our set-up is not automated, relying on multiple experimenters to perform various functions. We use target picture cards rather than video clips as at PRL. Both GESP and clairvoyance conditions are used in our experiments, whereas the PRL data is all GESP (except four trials which were done as clairvoyance). As in PRL method, we also encouraged our participants to bring their own agent-senders, but whenever that didn't happen lab members were substituted as senders. One study (Series 3, described below) was restricted, however, to only lab senders, as its purpose was to manipulate the GESP and clairvoyance conditions, keeping the participants blind until the feedback time.

Two different sets of test rooms were used in this project. The first set-up has been described in our previous reports (Munson, et al., 1988; and Broughton, et al., 1990). It was moved to a second site in the summer of 1990, which was at the opposite end of the 2nd floor of our building, with certain improvements. The basic arrangement was identical in both situations. The "receiving end" was a pair of rooms, with the percipient located inside a sound-attenuated room, and an adjacent control room housing the equipment. The agent-sender room was either one or two floors down, well away from the ganzfeld room. Separate sound systems were used, with one for presenting the relaxation instructions and white noise, and the other for recording the percipient's responses. The induction tape used was an exact copy of the PRL tape. There were three experimenter roles: Percipient Experimenter (PE), Agent Experimenter (AE), and Data Handler (DH), in addition to two participants—Percipient (P), and agent (A). At times when the lab member was the A, he or she took the role of AE/DH. In every trial there were at least two experimenters.

At the beginning of a session all the concerned people met at the P's room to discuss the whole procedure. The goal was to make the participants feel comfortable and to create a positive expectation in them for the outcome and to wish that it would be a successful trial. PE and AE then prepare P for the ganzfeld by adjusting the reclining chair to P's comfort, affixing securely the ping pong ball halves on P's eyes, and positioning the headphones. Then the red lights are turned on controlling its intensity to P's comfort. We used 40 watt red lamps mounted in portable photoflood stands that could be positioned close to P's face. Similarly, the induction tape sound level was adjusted to each P's requirement. At this time P is left alone in the ganzfeld room by shutting its door, and everyone exits except the PE who remains in the control room.

PE's responsibility includes: monitor P, record P's mentations, elicit further comments from P during the review period, conduct the judging task, and provide the feedback in the end.

The A is escorted to the sending room as soon as the trial begins, and then AE collects the target envelope from the DH and hands it to A prior to the sending period. Unlike in the PRL procedure, in our experiment A does not receive relaxation instructions. This is left to the individual's own choice, with suggestions for sitting quiet, deep breathing, attempting to quiet and calm one's own mind, and so on. Another difference in our procedure is that A has the target picture continuously for the 30-minute sending period, whereas in the autoganzfeld, the target is presented for six 70-second periods over the course of the sending period. In both cases the expectation is that A continues to try to "send" during the entire period. In the first experiment (Series 1), A was able to listen to P's mentation, as was done at PRL, but this was discontinued when many As considered it unhelpful.

The DH's responsibility is to perform the target generation using the computer facility, and to retrieve the corresponding sealed target envelope from a secure location to hand it to the AE. DH also delivers the judging packet, which contains a duplicate set of the four target pictures, prearranged according to their code numbers, to a location outside the PE's room. During the judging period PE collects the judging pack, opens it and presents the percipient with the four possible targets simultaneously. The percipient then rates the four possibilities on a 0-99 scale according to the similarity between the picture and his or her mentation. In some series ranking (1-4) method was also used in addition to the ratings. When the judging is completed and all notes recorded, the agent and AE are called in to reveal the target.

Targets: The target pools were kept in a locked file cabinet away from the test area. Three different pools were used in these studies. The first pool included 32 sets of four pictures each used in earlier studies. The second pool had 100 sets, later dropped to 50, prepared from a large collection of postcard-sized art prints donated to the Institute by Prof. Irvin Child. The four pictures of each set were selected to be as different as possible on various dimensions (for example, color, emotionality, presence of persons, and so on) and were reviewed by three members of the research team. A third pool labeled as the artists' pool was also used in some parts of the experiments, which were also constructed from Child's collection. All pictures existed in exact duplicates so judging was done with a different set than that used by the agent. Each picture was coded and kept in sealed envelopes. Targets were selected by using a random number generating program on the Institute's computer. Prior to 1989 the custom-written program was based on a modified version of the proprietary FORTRAN-77 pseudorandom number and thereafter was based on the UNIX drand48 pseudorandom generator. On rare occasions when the computer was unavailable, prearranged alternative method using dice was employed. Such occasions were seldom. All random selections were done by the DH alone, or by the AE alone when a DH was not being used.

Subjects

The participants were all unpaid volunteers. The majority were students of Duke University who responded to posted notices, ads in the student newspaper, and word-of-mouth invitations. Additional participants included other students, visitors, members Institute's Summer Study Program, and interested staff members.

It was required of all the participants to fill out two questionnaires as part of the data collection. These were a shortened version of the Participant Information Form (PIF) and MBTI - Form F. The normal procedure was for the participants to have completed these prior to their first ganzfeld session. However, there were some exceptions who completed these after their first ganzfeld. Generally an orientation session was held for the novice subjects prior to the actual testing session. Those who couldn't make it were given extra time for the same purpose during their first trial.

Database description

Our database consists of 8 series, each conducted as a separate study. The data collection began in April, 1986, and ended in November, 1992, when the manual ganzfeld was completely shut down. We have MBTI and PIF data available on the majority of participants.

Series 1: This was the first replication attempt at the Institute referred to earlier, planned by Zingrone et al., but carried out by a different team of experimenters (Munson, et al., 1988). It was planned for 30 trials, but an extra was carried out to replace a deleted trial which was done with a news reporter. However, all the 31 trials are included in the database.

Series 2: This was an experiment conducted for comparing GESP and clairvoyance conditions. Two types of "sending" procedures and two types of clairvoyance conditions were included in a preset 40-trial series. In one sending procedure, the agent looked at the target for only five minutes, while the second sending was identical to the regular ganzfeld GESP trial. The two clairvoyance conditions were whether the sealed target envelope was left on a table in the sending room or remained in the target pool undisturbed in the filing cabinet.

Series 3: This was another replication attempt conducted that included three student assistants to serve either as PE or AE. These student assistants were trained and closely supervised by H.K., who was involved in one of the two experimenter roles in all trials but two when another staff member substituted. The rationale for using student assistants was that they might facilitate the involvement of the exclusively student volunteers that were used in the study. Forty trials were planned in which two trials were allowed for each participant. However, only 5 opted for a second trial and the remaining were completed by different participants. All were GESP trials.

Series 4: This was called the "visitors" series, where standard ganzfeld sessions were conducted with one-time visitors, and for all those who wanted to have the ganzfeld experience once before committing themselves to any of the longer projects. The length of the series was kept open to include as many people as we could accommodate. As such in 1987 we had a total of 18 sessions; in 1988, 30 sessions; tapered off to 8 in 1989, and 9 in the remaining two years when greater efforts were being made to recruit subjects for the ongoing specific projects. Thus, a total of 65 trials were completed in this series. It included GESP and clairvoyance trials.

Series 5: Series 5 and 6 were the ganzfeld-dream studies which have been reported earlier. Series 5 was carried out on a single subject, described in detail elsewhere (Kanthamani, et al., 1988). The basic idea was to compare ganzfeld and dream conditions within the same subject by having a common target for both parts of the trial in a clairvoyance mode. The subject brought her dream report from home the next morning after the ganzfeld session, while the target remained at the Institute. This series included 14 trials of ganzfeld and dream sequences, completed in two series, as preliminary (n = 4) and pilot studies *(*n = 10). The ganzfeld part was included in the database.

Series *6:* Series 6 included two subsets representing the two confirmatory studies. The first confirmatory study had 10 unselected subjects (Kanthamani & Khilji, 1990), and the second had 20 (Kanthamani & Broughton, 1992). The two orders of presenting the conditions (ganzfeld and dream) was counterbalanced across the subjects in the first study, but remained constant in the second. Each subject completed two trials, which included both ganzfeld and dream sections. Again, there was a common target between the two parts of the trail. Thus, the 20 ganzfeld sessions of the first confirmatory and 40 sessions of the second were pooled into the current database.

Series 7: This series was set as the "special condition" series, where we explored other ideas of interest to us. One subset was called the "2-tape series," where each subject participated in two trials. In one trail the standard induction tape was used, and in the other a meditation tape with white noise was used. The objective was to test if there would any difference in the outcome due to the type of induction used. It was planned for two series of 10 subjects in each for a total of 40 trials. However, by the time the ganzfeld system was shut down, we had completed just one series.

The second subset was called the "training" series. Here the main idea of training was to gradually introduce the subjects to the various aspects of the ganzfeld procedure over the course of four sessions. The first two sessions were planned to have just a free-response task, without the ganzfeld stimulation, and the next two to be done with full ganzfeld. It was planned for 20 subjects to complete the full sequence, but as it turned out, we had only 17 subjects completing a total of 26 sessions. Thus, from these two subsets, a total of 46 sessions were included in the database. This is composed of both GESP and clairvoyance trials.

Series 8: This was called the "multi-visit" series, basically to accommodate all those interested participants to add as many trials as they could, depending upon their availability. No set number of trials or subjects were planned. We had two subsets here. The first one was 15 unselected subjects who completed a total of 38 sessions. The second subset was with a "special subject." Here a self-proclaimed psychic in the community, who had shown sufficient interest in scientific parapsychology, had agreed to do long series of ganzfeld trials, after an initial trial under Series 4. Accordingly, we had planned a 10-trial series, and if possible to repeat another set of equal length if the subject was still available. As it turned out, a total of 12 trials had been completed before she moved away from the area. Thus, this series had a total of 50 sessions.

"File-drawer" Problem

It may be noted that there is no "file-drawer" problem in this database, as we have included all the relevant trials of the ganzfeld experiments conducted during the stipulated period. The data is considered as comprehensive in this way. Out of 8 series, 5 (Series 1, 2, 3, 5, and 6) had preset length, which was adhered to as closely as possible. Series 7 and 8 were open ended and thus must be interpreted in the light of the usual cautions that apply when subjects are permitted to discontinue participation at will. Series 4 was also open ended for subjects who contributed a single trial, however the total number of trials was determined largely by chance factors. Due to the extended time frame for this series it can be honestly stated that no experimenter was aware of the accumulating results.

Planned Analyses

The main purpose of our database, as indicated earlier, is to address certain general questions that can be derived from the PRL data. For the present paper, however, we are restricting ourselves to the following analyses, reserving the remaining for later. We planned to use direct hits as the main measure of ESP to be consistent with Honorton's method (Honorton, et al., 1990). Direct hits are the first rank hits based on P's judging. We planned to test each series of the database separately, as well as all pooled together for the overall effect We obtained the exact binomial probability for the observed number of hits in each case with $p = .25$ and $q = .75$. From the pooled database, we had also planned to test the success rate of the "first timers" and "experienced subjects" separately; and to test once again the PRL "success model" referred to in an earlier paper (Broughton, et al., 1990). Rosenthal’s proportional index (pi or p) is used as the effect size (Rosenthal and Rubin, 1993).

Results

Overall success rate.

The database totaled 352 sessions contributed by 206 participants. As shown in Table 1, there are in all 97 direct hits, which represents 27.6% scoring rate, with an associated binomial $p = .148$. Although the p value failed to reach significance, the scoring rate of 27.6% is actually slightly higher than the PRL success rate on static targets, reported as 27% in 165 trials ($p = .276$). Their success rate on dynamic was exceedingly high with 37% scoring rate, and a significant difference between dynamic and static targets ($p < .04$).

Table 1

	Number subjects	Number of Trials	Hits	Scoring Rate %	Effect Size p	*Z*
Series 1	31	31	6	19.4	.419	-0.929
Series 2	40	40	12	30.0	.563	0.568
Series 3	35	40	8	20.0	.429	-0.908
Series 4	65	65	24	36.9	.637	2.014
Series 5	1	14	4	28.6	.545	0.054
Series 6	36	66	18	27.3	.529	0.306
Series 7	27	46	12	26.1	.514	0.029
Series 8	16	50	13	26.0	.513	0.028
TOTAL	206	352	97	27.6	.533	1.046

Looking at the eight series separately, 6 have shown positive outcomes, with one independently significant *(p* = .022), the "visitors" series. The overall effect size (Rosenthal's p) of our database is .53, is lower than the PRL effect size of .59 (Bern & Honorton, 1994) which includes both dynamic and static target data.

First-timers versus Experienced Participants

First-timers refers to those who had never been in ganzfeld before and participated for the first time in our experiments. These are equivalent to "novice" series in the PRL data. *Experienced* are those who had already participated in other ganzfeld studies prior to their first session in our experiments. Honorton reported an increased performance on their first-timers in his early studies (Honorton & Schechter, 1987), but not so in their final database (Honorton, et al., 1990). We had observed an increased performance of our first-timers in an earlier report (Broughton, et al., 1990) and wanted to test the same on the whole database. Table 2 gives the results of first-timers, along with their various subgroups.

Out of 206 participants, 182 did the ganzfeld experiments for the first time in our studies. The majority of the participants in Series 4 (the "visitors" series) were first-timers, although they were spread out in the remaining series. These people on their first trial *(n* = 182) obtained 54 direct hits, which is 29.7% (*p* = .087), slightly higher than the overall scoring rate of 27.6%. The remaining 170 trials of all the participants had only chance results (43 hits, 25.3%). It is interesting to note that the 24 subjects who were exposed to the ganzfeld experience prior to their participation in our experiments, had only 2 direct hits (8.3%) on first trial.

PRL Success Model Prediction

PRL data indicates that a majority of their participants reported personal psi experiences and had undergone certain mental disciplines like meditation. Bem & Honorton (1994) note that the successful performance of the first-timers was significantly predicted by these two variables along with high scores on the Feeling and Perception scales of the MBTI. They refer to earlier reports for such evidence (Honorton, 1992; Honorton & Schechter, 1987). The fourth predictor refers to prior lab testing (but not ganzfeld) was also successful, but the three-factor model included much larger data. While we had seen this model work at an earlier point in this data set, we wanted to test this on the complete database, by taking one variable at a time and then pooling them all together. This analyses includes the 28 trials reported earlier.

Out of the 182 first-timers, 145 reported as having some form of psi experiences in their lives. Their scoring rate increased to 31% *(p* = .059) with a corresponding increase in the effect size.

First-timers who practiced a mental discipline were 104 in all, whose scoring rate was higher (32.7%, p = .048), as well as their effect size (.593). The MBTI ratings gave 95 in the F category, and 102 in the P category, with corresponding scoring rates of 33.7% (p = .036) and 36.3% (p = .007). When all these four predictors are combined, we ended up with a sub-set of 46 participants, whose scoring rate was 41.3% (p = .011) and their effect size .679, with a z = 2.286. It should be noted, that the MBTI-P alone predicted to an equally successful level with an effect size of .631 and z = 2.434. The PRL success model is fully confirmed in our database.

Table 2

	Trials (subjects)	Hits	Scoring Rate %	Effect Size p	*Z*
First Timers	182	54	29.7	.559	1.358
Psi Experiences	145	45	31.0	.574	1.561
Mental disciplines	104	34	32.7	.593	1.668
MBTI-F	95	32	33.7	.604	1.797
MBTI-P	102	37	36.3	.631	2.434
Success Model	46	19	41.3	.679	2.286

Discussion

Given the increased interest in ganzfeld-ESP research engendered by the publication of the Bem and Honorton (1994) paper, perhaps the most important question one can ask of these data is, "What has been learned that can guide replication efforts?" To that end, even at this early stage of examining these data several observations can be made.

Static targets were earlier identified as less successful than dynamic targets, and, overall, our database confirms PRL's modest and nonsignificant scoring rate for static targets. PRL's scoring rate was 27% and ours was slightly better at 27.6%. Considering only novice trials, a breakdown not reported by Honorton, et al., our static targets produced a more encouraging rate of 29.7%. It is probably safe to say that static picture targets remain a less than ideal choice for ganzfeld experiments. Since not all potential replicators have access to the equipment for video presentation of targets, it is worth noting that Honorton, et al. (1990) consider the thematically related sequence of pictures found in Viewmaster™ slides as a form of dynamic target.

Of the 8 series, one was independently significant with 36.9% scoring and an effect size of .637. It is worth noting that this subject population consisted primarily of volunteers who were not recruited for specific projects or who wanted to "try out" the experience before committing to additional trials. This suggests that we may have captured a subset of interested, well-motivated participants who, by assuming they would be doing only one trial, may have showed their best performance. Allowing for the pitfalls of easy hindsight, it is probably still fair to say that these subjects and the conditions under which they were tested more closely approximate the situation that existed at PRL than any other series. With these data we are not able to identify this series as being statistically different from others, but we probably should not ignore the suggestion that the manner in which participants are brought in to participate in a ganzfeld experiment may influence the results. The various components of the success model clearly provide some important guidance for future work. The superior performance of the novices suggests the importance of novelty and, perhaps, spontaneity, factors well recognized in psi research. While screening for subjects who completely fit the success model may prove impractical, it seems clear from Table 2 that one can improve one's chances of success substantially by some basic selections among subjects. Most notably, simply selecting MBTI-P subjects, which comprised over half of our novices, provided an impressive and significant scoring rate. Other simple selection criteria may apply better in different situations. For example, in a large (n=100)

ganzfeld study with static targets using novice subjects recruited from university classes, investigators obtained an overall scoring rate exactly at chance (25%), but those subjects who practiced a mental discipline produced a higher scoring rate of 32.1% (Bierman et al., 1993). This scoring rate is almost identical to what we obtained (32.7%) for a similar subpopulation.

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