Final Report—Task 6.0.1
Covering the Period 1 October 1988 to 15 February 1989

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REVIEW OF THE PSYCHOENERGETIC RESEARCH CONDUCTED AT SRI INTERNATIONAL (1973-1988)

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I OBJECTIVE

The objective of Task 6.0.1 of the FY 1989 Statement of Work (SOW) is to assess, where possible, the experimental results of the research at SRI International since 1973.*

* This report constitutes the deliverable for Statement of Work, Task 6.0.1.

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II EXECUTIVE SUMMARY

We have conducted a review and analysis of the psychoenergetic research conducted at SRI International from 1 October 1973 to 30 September 1988. The database comprises 117 documents with a total of 5,025 pages.

A total of 25,449 trials were conducted under a variety of protocols. Analysis indicates that the odds that our results are not due to simple statistical fluctuations alone are better than 2×10^{20} to 1 (i.e., 2 followed by 20 zeros). Using accepted criteria set forth in the standard behavioral sciences, we conclude that this constitutes convincing, if not conclusive, evidence for the existence of psychoenergetic functioning.

The main results are summarized below:

- Remote viewing (RV) can provide useful information.
- Laboratory remote viewing show the greatest potential for practical applications.
- Experienced viewers are significantly better than the general population.
- Approximately 1% of the general population possess a natural remote viewing ability.
- Remote viewing ability does not degrade over time.
- At this time, there is no quantitative evidence to support a training hypothesis.
- Natural scenes are significantly better than symbols as targets for remote viewing.
- Remote viewing quality is independent of target distance and/or size.
- There is no evidence to support that a psychoenergetic interaction with the physical world exists.
- Electromagnetic shielding is not effective against psychoenergetic acquisition of information.
- A potential central nervous system correlate to remote viewing has recently been identified.

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III INTRODUCTION

Until recently, the task of assessing any general body of published knowledge was formidable. Most of the attempts included review articles that were based primarily upon the informed opinions of the reviewers. It was recognized, however, that in the behavioral sciences specific problems arose that were unique to those disciplines. For example, many of the behavioral results are based on a statistical rejection of a null hypothesis, and, using accepted practices,[1*] a successful outcome is declared if the odds that the result is not due to a chance statistical fluctuation are better than 20 to 1. A major problem for reviewers is created when the behavioral sciences' technical journals refuse to publish results that fail to meet this statistical criterion. For example, if only one-in-20 studies is published, then the literature may appear to provide evidence for a phenomenon, but taken with the 19 unpublished studies for every published one, there is no evidence for a phenomenon. This particular difficulty is called "the file drawer problem."

This and other problems resulting from the diversity and difficulty of the behavioral sciences have been addressed in a new review technique known as meta-analysis.[2-4] Meta-analytical procedures are most useful when a large number of diverse studies is under consideration. Meta-analysis provides techniques to clarify the impact of the file drawer problem and to enable us to combine diverse experiments in a meaningful manner.

The results of SRI's psychoenergetic research encompass a wide variety of experiments and thus can be addressed with these techniques. The analysis of the SRI data, however, is simplified because there is no file drawer problem. All experiments that were conducted have been reported, and thus are included in the analysis.

This report describes the database, the analysis techniques, and the results of 16 years of psychoenergetic research conducted at SRI International.

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* References may be found at the end of this report.

IV METHOD OF APPROACH (U)

A. Analysis Domain

The domain of this meta-analysis includes all government-sponsored intelligence applications and psychoenergetic research conducted at SRI International, or under the auspices of its subcontractors, from 1 October 1973 to 30 September 1988. A priori declared demonstrations or other activities that were not under the control of SRI International were not included in the documentation. All other forms of experimentation were included in SRI International technical reports, unclassified journals, or publications, and thus were part of this analysis. This database comprises 117 documents with a total of 5,025 pages.

By definition, there is no file drawer problem in this analysis; all items that met the above criteria were included regardless of their results. Care was exercised to avoid multiple entries of the same data.

All psychoenergetic phenomena fall broadly into two classes:

(1) Information Processes—those phenomena that involve a passive transfer of information (e.g., remote viewing, search),

(2) Causal Processes—those putative phenomena that involve an anomalous interaction with matter (e.g., remote action).

The psychoenergetic effort has been divided into various categories within these processes. The various categories within this domain are defined as follows:

(1) Forced-Choice—remote viewing where the targets are drawn from a limited (and known) set of potential symbols (e.g., the integers 0, 1).

(2) RV-Lab—remote viewing where the targets are drawn from a large set of potential material (e.g., photographs of natural scenes, natural physical locations), and the experiments are conducted under strict laboratory conditions.

(3) RV-Ops—remote viewing where the targets are drawn from specific targets of interest

(4) Search—remote viewing where the targets are generally known but their location is unknown (e.g., a specific military aircraft is known to have crashed—where is it?).

For the purpose of this analysis, all putative causal-process experiments are considered under the general heading of remote action.

Figure 1 shows a schematic representation of these categories and the total number of individual trials that were conducted within each category.

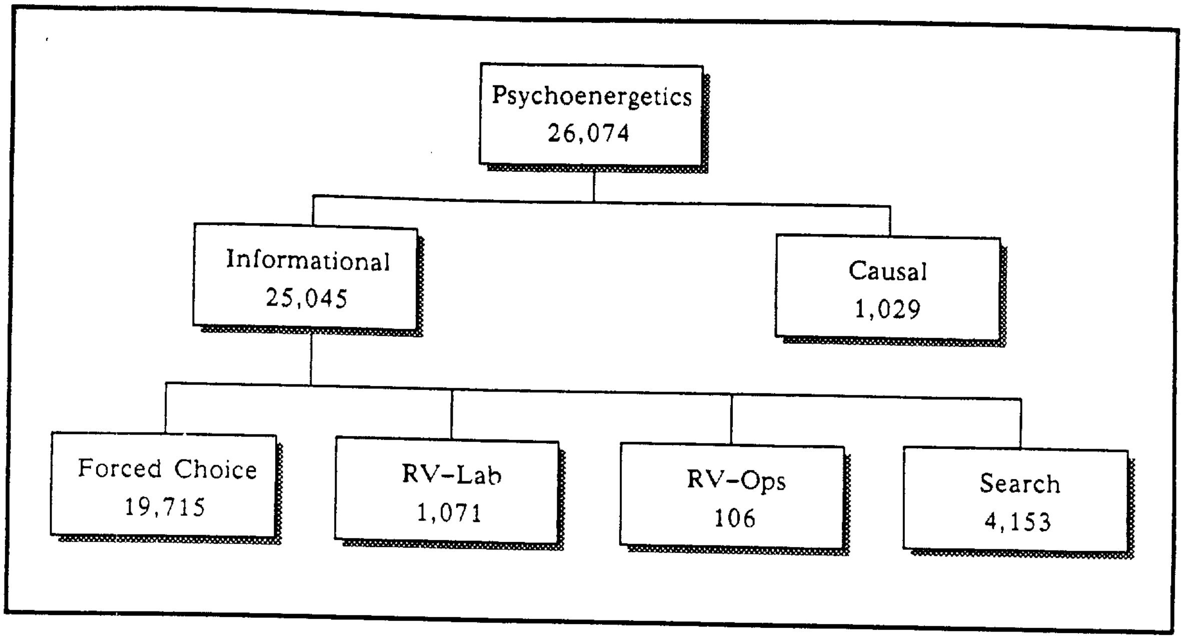

FIGURE 1 CATEGORIES AND NUMBER OF TRIALS

The total number of psychoenergetic trials (26,074) was collected in 154 different experiments involving 227 different subjects.* All the data were entered into a computer database management system (DBMS).

B. Database Management System

1. Database Requirements

One of the main purposes of performing a meta-analysis is to be able to look at data gathered from multiple studies conducted under a wide variety of circumstances. In order to collect and store the data in a meaningful way, one must know what kind of data manipulations will be performed. To evaluate the effect of certain parameters on psychoenergetic functioning, we needed to focus our attention on the conditions of a wide array of potentially important variables. As a result, the database design is primarily determined by the data and provides for the selection of information, by experiment, given parameter specifications.

* The number of subjects does not include the preliminary mass screening participants. The formal screening participants were, however, included in the analysis.

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2. Database Design

The database schema that was used consists of four basic tables (people, documents, experiments, and units), and two basic relationships (author and parameter). See Figure 2 for an illustration of this schema. The units-table contains information about the lowest level of statistical analysis in a given experiment. For example, if 6 viewers participated in 20 trials each, the database would contain 6 unit entries—one for the overall result for each viewer.

Although our database management system is a relational database, our requirements were inherently hierarchical. That is, each of the documents contains several experiments, and each of our experiments contain several trials. In order to minimize the redundancy within the database, we attempted to include all pertinent information as high in the hierarchy as possible. That is, if a parameter or condition applied to an entire experiment, we would record that data at the experiment level. If, on the other hand, the parameter varied across units within a given experiment, we made provision to record those data as a function of unit instead.

The analyses of most of our experiments contain both individual and group statistics. In order to prevent any trial from being "counted" multiple times, we required that all experiments be broken up into the "units" which represent the basic grouping of trials upon which a hypothesis was being tested. Thus, any given trial appears only once in the database yet we can reconstitute the group statistics at a later time.

This approach offers two advantages. First, any arbitrary parameter which does not have an explicit slot in the database can be stored, thus providing flexibility. Second, we can distinguish between "independent variables" and "incidental variables." The former are variables which are intentionally manipulated by the experimenter, and the latter are actually parameters which the experimenter either could not control or treated as insignificant.

Some of the documents detail multiple analyses for a given experiment in order to compare and evaluate standard and new analytic techniques. For this effort, however, we required that only one analysis be recorded for each experiment, since our primary focus was to evaluate the parameters that effect psychoenergetic functioning and not to compare different evaluation techniques. In determining which analysis to enter into the database, we always chose a blind method over a post hoc method. If a choice still remained, we then always chose the technique that had been developed first.

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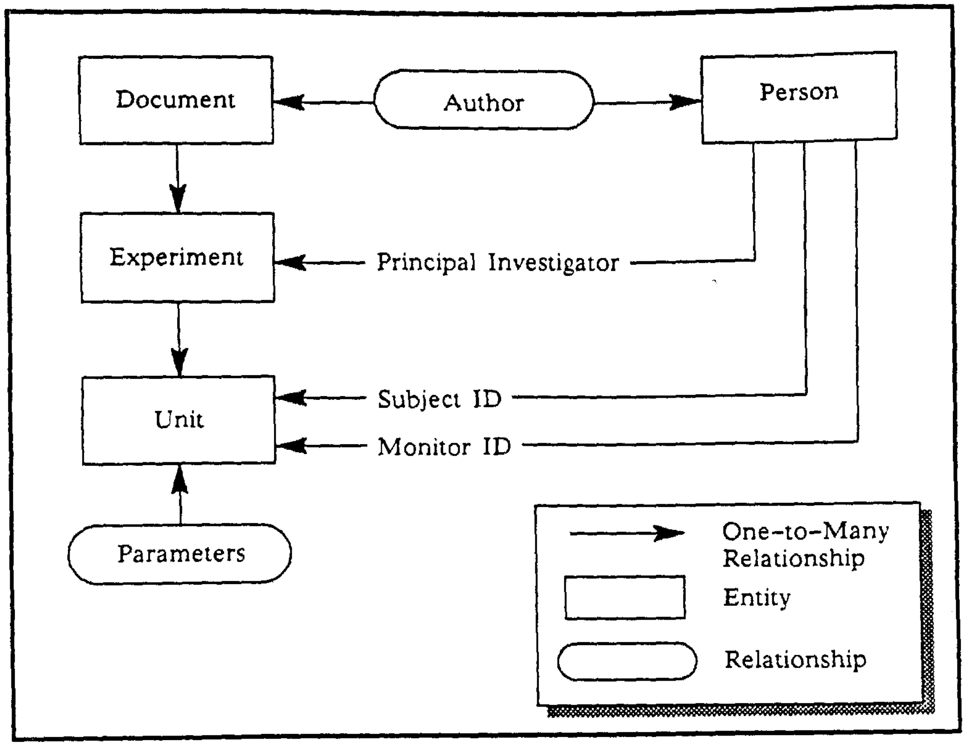

FIGURE 2 DATABASE SCHEMA DESIGN FOR META-ANALYSIS

The Appendix contains examples of the DBMS input sheets that were used to encode psychoenergetic data for the database, and the instructions that were given to analysts. They are included in the Appendix for completeness; there is no further discussion about them in this report.

C. Statistical Methods

1. Effect Size Calculations

Effect sizes were calculated for each experiment or condition using the formula given by Rosenthal:[2]

$$d = \frac{z}{\sqrt{n}},$$

where n is the number of trials and z is the usual normalized output score. If no z score was given for an experiment, but a p value was, the z that would have given that p value was computed and used in the formula. The exception to this procedure was for experiments based on a sum-of-rank statistic. For those, a more appropriate effect size formula was used and is given by

$$d = \frac{S - \frac{(R+1)}{2}}{\sqrt{\frac{R^2 - 1}{12}}},$$

where S is the average rank and R is the number of choices for each rank.

2. Comparisons Across Classes

Experiments can be categorized in accordance with a number of specific variables (e.g., type of feedback, type of target, distance between the viewer and the target). Effect sizes can be examined within a given category and compared across categories. For each categorization, the following questions are of interest:

(1) Question 1: Is there any evidence of psychoenergetic functioning within each of the individual categories?

(2) Question 2: Is the level of psychoenergetic functioning constant across all experiments within a category?

(3) Question 3: Is the level of psychoenergetic functioning constant across categories?

(4) Question 4: If there are differences across categories, what is the relative size of the effect in each category?

Table 1 shows the notation that is used in the formalism that answers these questions.

To answer question 1, compare the average z score in each category with the standard normal tables.

To answer question 2, compute

$$Q_W = \sum_{i=1}^{k} \sum_{j=1}^{m_i} n_{ij}(d_{ij} - d_{i.})^2.$$

If effect sizes are homogeneous *within* categories, the distribution of Q_W will be approximately X^2 with $\nu = (\Sigma m_i - k)$ degrees of freedom. The hypothesis of homogeneity is rejected if Q_W is large compared to the chi-square table entry with ν degrees of freedom. To test for homogeneity within a single category, i, compute

$$Q_{W_i} = \sum_{j=1}^{m_i} n_{ij}(d_{ij} - d_{i.})^2 .$$

Similarly, the distribution of Q_{Wi} will be approximately X^2 with $\nu = (m_i - k)$ degrees of freedom, and can be examined as above.

Table 1

DEFINITIONS AND META-ANALYSIS FORMALISM

Basic Definitions

k = number of categories

m_i = number of experiments in category i; $i = 1, \ldots, k$

d_{ij} = effect size for experiment j in category i; $i = 1, \ldots, k$; $j = 1, \ldots, m_i$

n_{ij} = number of trials in experiment j in category i

z_{ij} = z score for experiment j in category i

Computed Quantities

Within Category i:

$$n_{i.} = \sum_j n_{ij} = \text{number of trials}$$

$$d_{i.} = \frac{\sum_j n_{ij} d_{ij}}{n_{i.}} = \text{average effect size}$$

$$z_{i.} = \frac{\sum_j \sqrt{n_{ij}}\, z_{ij}}{\sqrt{n_{i.}}} = d_{i.} \sqrt{n_{i.}} = \text{average } z \text{ score}$$

Across Categories:

$$n_{..} = \sum_i n_{i.} = \text{total number of trials}$$

$$d_{..} = \frac{\sum_i \sum_j n_{ij} d_{ij}}{n_{..}} = \text{overall average effect size}$$

$$z_{..} = \sqrt{n_{..}}\, d_{..} = \text{overall average } z \text{ score}$$

To answer question 3, compute

$$Q_B = \sum_{i=1}^{k} n_{i.} (d_{i.} - d_{..})^2 .$$

If effect sizes are homogeneous across categories, the distribution of Q_B will be approximately X^2 with $\nu = k-1$ degrees of freedom. Therefore, the hypothesis of homogeneity across categories is rejected if Q_B is large compared to the appropriate entry in the chi-square table with ν degrees of freedom.

Finally, to answer question 4, approximate 95% confidence intervals may be computed for the average effect size within a category using

$$d_{i.} \pm \frac{1.96}{\sqrt{n_{i.}}}.$$

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V RESULTS AND DISCUSSION

The results of the meta-analysis are presented here, where possible, in quantitative analytic terms, and various interpretations are discussed in detail. In addition, items that cannot be analyzed are discussed from a qualitative perspective.

The analysis proceeds in a top-down fashion in accordance with the hierarchy shown in Figure 1.

A. Overall Results

The overall analysis was conducted from three different perspectives:

(1) All of the data, regardless of the purported skill of the subjects,

(2) A subset of the data contributed by an experienced group of viewers, *G1* (i.e., long-term, generally accepted expert viewers—002, 009, 131, 372, 414, and 504)

(3) All of the data except for the group *G1* (i.e., All-G1).

Table 2 shows the number of trials n, total z score, p value, and effect size d for informational and putative causal processes and for the combination of the two.

Table 2

STATISTICAL RESULTS FOR MAJOR CLASSES

Class	Perspective	n	z	p*	d
Psychoenergetics	All	25,449	9.37	3.69 (-21)	0.059
	G1	9,825	6.86	3.46 (-12)	0.069
	All-G1	15,624	6.53	3.46 (-11)	0.052
Informational	All	24,450	9.07	5.83 (-20)	0.058
	G1	9,702	6.69	1.14 (-11)	0.068
	All-G1	14,748	6.25	1.96 (-10)	0.052
Causal	All	999	2.42	6.39 (-03)	0.077
	G1	123	2.06	1.99 (-02)	0.171
	All-G1	876	1.89	2.95 (-02)	0.064

* Powers-of-ten are shown in parentheses.

The number of trials shown in Table 2 differs slightly from those shown in Figure 1. A few trials in each category were analyzed from a post-hoc point of view and therefore have not been included in the formal analysis.

The heterogeneity of effect size within each group for all classes is very large (i.e., the chi-squares for within-groups were large). This is to be expected for such a global analysis and is frequently seen in meta-analyses of psychological data.[5] The sources of the within-group variation include the psychoenergetic skill level of the subjects and fundamental differences between psychoenergetic tasks.

The data, regardless of subjects or process, show strongly significant evidence for psychoenergetic functioning ($p \leq 3.69 \times 10^{-21}$). Both the informational and putative causal processes show significant evidence of psychoenergetic functioning, as well.

Since p values are strongly dependent upon the number of trials, the modern trend in meta-analysis is to consider the trial-independent measure of effect size. From this point of view, the magnitude of the psychoenergetic functioning appears roughly constant for all the data shown in Table 2, and, according to Cohen's criteria for the interpretation of effect size,* corresponds to small effects.[6] The method of calculating *overall* effect size, however, involves a weighted average (see Table 1) and thus may not provide an accurate picture of the size of the psychoenergetic functioning within a given category. To obtain more insight into the nature of the functioning, we must examine the data within each category.

B. Results for Categories Within the Informational Process

Table 3 shows the number of trials, total z score, p value, and effect size for categories within the informational process. The data show strongly significant evidence for psychoenergetic functioning for all categories regardless of subjects. The effect size, however, begins to demonstrate category differences.

The forced-choice effect size ($d = 0.052$) is equivalent to the overall effect size shown in Table 2 ($d = 0.059$). Since the forced-choice category accounts for 77% of the total number of trials, the effect-size averaging technique biases the overall result. For example, the effect size ($d = 0.209$) for the RV-Lab category is significantly larger than for the Forced-Choice case ($X^2 = 22.70$, $\nu = 1$; $p \leq 6.63 \times 10^{-6}$). The RV-Lab effect sizes meet Cohen's criterion for a medium-sized behavioral effect.

* Values of 0.1, 0.3, and 0.5 correspond to small, medium, and large effects, respectively.

Table 3

STATISTICAL RESULTS FOR INFORMATIONAL CATEGORIES

Category	Perspective	n	z	p*	d
Forced-Choice	All	19,675	7.42	6.12 (-14)	0.052
	G1	9,487	5.82	2.92 (-09)	0.060
	All-G1	10,188	4.69	1.39 (-06)	0.046
RV-Lab	All	966	6.49	4.33 (-11)	0.209
	G1	196	5.39	3.49 (-08)	0.385
	All-G1	770	4.55	2.71 (-06)	0.164
RV-Ops	All	9	3.98	3.45 (-05)	1.326
	G1	9	3.98	3.45 (-05)	1.326
	All-G1	—	—	—	—
RV-Search	All	3,790	2.61	4.53 (-03)	0.042
	G1	—	—	—	—
	All-G1	3,790	2.61	4.53 (-03)	0.042

* Powers-of-ten are shown in parentheses.

For the RV-Lab category, the experienced group, *G1*, performs significantly better than the novice, larger group ($X^2 = 7.63$, $\nu = 1$; $p \leq 0.0057$).

As in the overall analysis, the data analyzed in Table 3 show a large heterogeneity of effect size within each category. The heterogeneity of effect size, however, is significantly reduced for the experienced subjects in the RV-Lab category. This reduction may result from a more uniform skill level of the subjects in group *G1*; this is in general agreement with our qualitative assessment of their abilities.

Only 8.5% of the remote viewing operational trials were analyzed as a formal experiment. The effect size for these exceeds Cohen's definition of a large effect. The intelligence requirements of operational remote viewing, however, are less dependent upon the quality of the viewing than they may be on other factors. Excellent remote viewing does not necessarily imply good intelligence information.

Because of the usual sensitivities associated with intelligence data, obtaining evaluations of the operational remote viewing has continued to be difficult.

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In the RV-Search category, 91.3% of the data were collected under laboratory conditions by novice subjects. The remaining trials were conducted under conditions, and analysis is not available. The small effect size (d = 0.042) is commensurate with that found in other laboratories, and may reflect our lack of understanding about how to elicit this form of psychoenergetic functioning.

C. Specific Results for Remote Viewing

In this section we address the specific questions posed in the SOW. In any kind of an investigation where the general results fall under a statistical regime (i.e., z scores less than about 5), no hard definitions exist for definitive conclusions. The problem is confounded in behavioral science because many factors, beyond the particular independent variable in question, may significantly alter the outcome of an experiment. In trying to assess a large body of literature, as more constraints are placed on the outcomes, fewer within-group trials are available for analysis; thus, statistical conclusions become more difficult. This is also true for psychoenergetic research. Yet, it is possible to describe trends, to suggest ways of improving experiments based upon earlier results, and to obtain clear insights into factors that may affect psychoenergetic functioning.

To ensure the most reliable interpretations of results in what follows below, group *G1* has been used for the quantitative discussion. As was shown in Section V.-B, this group possessed the most homogeneous set of data for the RV-Lab category and demonstrated a significant amount of remote viewing ability.

1. Selection/Screening

The selection of individuals who are able to accomplish remote viewing both in an operational setting and in the laboratory is of paramount importance. As is shown in Section V.-B., above, group *G1* provides the best results for both types of remote viewing. Throughout the history of the program at SRI, 6 individuals have been able to demonstrate consistent functioning over a long period of time. This does not mean that, after vigorous searching, only 6 have been found. Rather, given our applications-oriented charter for most of the time period in question, we had little impetus to find other viewers. During fiscal years 1986-1988, it became clear that a greater number of talented viewers was needed for both applications and research.

Prior to FY 1986, little was known about how to select good viewers. There was little systematic research either at SRI or within the field in general, and what was available was inconclusive or contradictory. The effort that began in FY 1986 encompassed a broad approach to the problem. We initiated three different types of quantitative approaches: self-report personality tests, neuropsychological testing, and behavioral testing (i.e., the Personality Assessment System—PAS). In addition, we used one heuristic approach, which simply asked individuals to try remote viewing.

The heuristic approach has been quite successful. The efficiency (i.e., the number of talented viewers found divided by the total number screened) is approximately 1% in the general population (i.e., groups of self-selected volunteers). Based upon the results of a mass screening effort, two individuals have been asked to be regular contributors to the project.

One other heuristic source of good viewers is individuals who have noticed a psychoenergetic ability in their lives. Many viewers in group *G1* came to the project in this manner, and a new viewer, claiming similar experiences, was identified in a recent screening effort. This viewer produced an effect size of 0.440 in 6 remote viewing trials, which contained many striking qualitative correspondences between targets and responses.

Of the quantitative techniques, the neuropsychological approach was not successful at predicting performance. The PAS, however, predicted performance of 9 viewers to a significant degree.

By far, the best way to select viewers as of this writing is to use individuals who either have abilities measured in other laboratories, or who have had strong personal experiences.

One technique not mentioned above holds great promise for the future. Three individuals from group *G1* who participated in a neurophysiological study of correlates with remote viewing produced unusually large central nervous system responses to light stimuli directed at the eyes. More work is needed to determine if this simple test might be the most effective way to screen for individuals with excellent remote viewing ability.

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2. Targeting

Targeting is a general term to describe the method by which a viewer is directed to the intended target. Common techniques that have been employed include the following:

(1) Beacon—an individual at the site of the intended target.

(2) Coordinates—the geographical or military coordinates of the intended target.

(3) Abstract—a word or phrase (e.g.,"target") or other abstract representation of the intended target.

(4) Self—none of the above, the viewer initiates the collection of data.

We examined these techniques in order to determine which provides the best access to a remote target.

For these four targeting techniques, 183 trials were identified—the remainder, 13 trials, were listed as "unknown" targeting. The effect size for viewings initiated by these targeting techniques was 0.401, leading to a p value of 2.92×10^{-8}. Thus, there is significant evidence for remote viewing functioning. The between-groups chi-square is significant ($X^2 = 12.58$, $\nu = 3$; $p \leq 0.0058$), indicating that the effect sizes resulting from these targeting techniques are not drawn from the same population.

It is difficult, however, to attribute the significant differences to targeting techniques alone. In none of the experiments could the targeting technique be used as a valid independent variable, because, in all cases, the viewers and experimenters were not blind to the targeting condition. Thus, it is possible, even likely, that the viewers' scientific or emotional bias toward one technique or another confounds the interpretation. Other factors, such as feedback time and type, or potential physics models of information transfer, also confound the interpretation.

Given these caveats, beacon targeting appears to provide the best and most stable results ($n = 66$, $z = 5.305$, $p \leq 5.65 \times 10^{-8}$, $d = 0.653$).

3. Evaluation and Analysis

The evaluation and analysis of remote viewing data has undergone significant improvement during our 16 years of investigation. Beginning as a simple blind matching by judges, the techniques have been improved by the addition of concept analysis (the paraphrasing of a complex response), discrete descriptor analysis (defining targets and response as the yes/no answers to a predetermined set of descriptors), and fuzzy set descriptors (defining targets and responses as fuzzy sets).

The fuzzy set technique has also been applied to intelligence simulation experiments and found to provide a useful estimate of remote viewing accuracy (the percent of the intended target that was described correctly) and viewer reliability (the percent of the viewer's response that was correct).

For rapid evaluation of laboratory experiments, rank-order judging of targets within preselected (i.e., by fuzzy set techniques) target packets is recommended. For more accurate measures of remote viewing ability, however, the full fuzzy set analysis is suggested. Determining whether the fuzzy set technique can be applied to intelligence situations is a topic for further investigation.

4. Training

Six training efforts were conducted during the time period under consideration; three were qualitative and three were quantitative. There is no overall quantitative evidence that remote viewing can be taught to novice viewers. Of the qualitative efforts, two were conducted with client personnel as viewers, and one was conducted with SRI personnel. All three showed some qualitative evidence, however, that training improves remote viewing skill.

Quantitative experiments were conducted with 18 novice viewers in three separate experiments comprising 481 trials. In the first group, the novices were self-selected on the basis of strong interest and previous personal experiences. None had participated in prior laboratory experiments. The six viewers in this group produced overall significant evidence for remote viewing (n = 169, z = 1.719, $p \leq 0.043$, d = 0.132). None of the viewers, however, individually or collectively demonstrated significant evidence that training helps a viewer to improve.

The second group of 9 viewers was selected because the Personality Assessment System predicted that they would exhibit a wide range of remote viewing ability. Overall, their data did not reach statistical significance (n = 221, z = −0.971, $p \leq 0.834$, d = −0.065). While the best viewer produced an effect size of 0.170, none of the viewers' data reached statistical significance. None of these viewers individually or collectively demonstrated significant evidence that training helps a viewer to improve.

In the third group of 3 novice viewers, one demonstrated significant evidence for improvement (n = 26, z = 3.01, $p \leq 0.0013$, d = 0.590).

While significant evidence for remote viewing has been observed, whether training can improve remote viewing skill has yet to be substantiated quantitatively. It is possible that knowledge has not yet advanced to the point where we know how to train. Since the data from viewers in group *G1* have remained stable over time, we conclude that simple practice does not appear to improve performance.

SRI recommends that investigations into training be continued. In the meantime, good viewers are more easily found than trained.

5. Role of Feedback

Feedback is defined as providing the viewer with information about the intended target after a remote viewing experiment. Very few experiments were devised to test the role of feedback in determining remote viewing quality. In the early phases of the project, the primary objective was to provide as good a result as possible, and since feedback appeared not to hinder remote viewing, most of the early sessions always included it in one form or another.

The strongest evidence about the role of feedback is provided by the FY 1987 tachistoscope experiment. In that study, subliminal or minimal visual feedback was provided to the viewers. Two of the four viewers produced independent evidence for remote viewing ability ($n = 40$; $z = 2.30$, $p \leq 0.012$, $d = 0.363$, and $z = 4.43$, $p \leq 4.78 \times 10^{-6}$, $d = 0.700$, respectively). Neither of these viewers showed any dependency upon the intensity of the visual feedback, including zero intensity (i.e., no feedback at all).

The question of the role of feedback was examined for group *G1*. We examined feedback time (i.e., the time duration after a session before feedback was provided), and feedback type (e.g., site, false site, verbal, visual). We found that there were substantial and significant differences among the various feedback times and among the various feedback types.

To interpret these differences with regard to feedback is difficult. For example, the significant difference between a 1-hour delay compared to a 5-minute delay may result from the fact that most of the 5-minute delay feedback intervals occurred in experiments in which photographs were used as targets. Since the longer delay occurred in experiments that used beacons and natural sites as targets, one interpretation is that the observed differences are attributable to target type rather than feedback interval.

A similar problem arises in the feedback type category. One clear result, however, does emerge. The effect sizes for feedback of natural sites ($d = 0.734$) is significantly larger than for feedback of the incorrect natural site ($d = -0.137$. $X^2 = 4.55$, $\nu = 1$; $p \leq 0.042$). Giving false feedback appears to inhibit remote viewing.

A recent study indicates that feedback in remote viewing experiments is not essential.[7] This result is in qualitative agreement with the findings from our tachistoscope experiment. In forced-choice experiments, however, Honorton found that the role of feedback in the precognition experiments *was* critical.[8]

While the quantitative results are mixed, viewers indicate that feedback is psychologically important. We conclude, therefore, that feedback should be provided whenever possible.

6. Effect of Distance

We examined the effect of distance on the quality of remote viewing. Distances were divided into four ranges: < 1 km, < 50 km, < 5000 km, and > 5000 km. For the group *G1*, there was no effect of distance on the quality of remote viewing ($X^2 = 3.56$, $\nu = 2$; $p \leq 0.167$). It is possible to be definitive about this particular result since all confounding variables tend to increase the chi-square rather than decrease it.

7. Effect of Size of Target

Only one experiment has been conducted that directly addresses this issue. Photographs were reduced to a spot size of approximately 1 mm in diameter. One viewer from group *G1* produced significant results ($n = 6$, $z = 2.10$, $p \leq 0.018$, $d = 0.857$). We are able to conclude that targets 1 mm in diameter do not inhibit remote viewing quality. No data are available on targets of varying sizes.

8. Physiological Correlates to Remote Viewing

In the field in general, the search for physiological correlates has not been successful. Early results indicated that an individual should be moderately relaxed and as free from physiological stress as possible (e.g., headaches, bathroom demands). These results are not surprising in that it is likely that such a "physiological" state would be optimal for any human activity.

SRI has examined neurophysiological correlates to remote viewing in two separate experiments. Specifically, the central nervous system appears to respond to a remote light flash, and thus provides a correlate to remote viewing. For the two experiments, a total of four viewers (all from group *G1*) produced independent significant changes in α-production in correlation with remote light stimuli.[9,10]

SRI recommends that the effort to isolate particular parts of the central nervous system that respond to remote stimuli be continued. The potential for screening and training are significant.

9. Psychological Correlates to Remote Viewing

Psychological correlates to remote viewing have provided weak, but significant, evidence for correlations with some forms of psychological variables. In the early work with the Personality Assessment System, SRI found that many of the group *G1* viewers clustered near each other in PAS space. In later work, the PAS predicted viewer performance to a significant degree. SRI's work with self-report personality tests has not been successful; however, Honorton reports small, but significant correlations with the thinking/feeling dimension in the Myers-Briggs Type Inventory.[11] In general, psychological correlates have been weak and/or unreliable.

10. Shielding and ELF

The main purpose of searching for shielding against psychoenergetic functioning is to provide for a secure environment. I. M. Kogan proposed a model of psychoenergetic information transfer based on extremely low-frequency (ELF) electromagnetic radiation.[12] In that model, Kogan proposed that the brain is, in effect, a 10-Hz oscillator and the body is a crude antenna. Radiation at that frequency would exhibit many of the properties of psychoenergetic functioning known at that time.

Too few data were collected under known shielding conditions to make definitive statements with regard to shielding. Two trials were collected in a 30-dB shielding at 10 Hz. These trials showed significant evidence of remote viewing ($n = 2$, $z = 1.92$, $p \leq 0.027$, $d = 1.358$). In another experiment, when the target material was contained in a SCIF, significant evidence for remote viewing was observed ($n = 6$, $z = 1.91$, $p \leq 0.028$, $d = 0.780$). The trend, however, is clear: electromagnetic shielding does not inhibit psychoenergetic acquisition of target material.

11. Audio Analysis

In a single study involving 6 trials with a single viewer from group *G1*, a significant correlation of remote viewing quality with the audio/linguistic character of the response was found ($n = 6$, $r = 0.995$, $p \leq 0.050$, $d = 0.800$). One purpose for determining within-session correlations with remote viewing quality is to provide for an independent and a priori measure of quality.

SRI recommends that this type of investigation be continued to determine the degree to which the result can be generalized across viewers.

12. Search and Tracking

As was seen in Section V.-B., above, significant evidence for search was found overall (n = 3,790, $z = 2.61$, $p \leq 0.0045$, $d = 0.042$). Most of these trials were collected in experiments using computer techniques. In a few experiments, however, the target material was physical objects in a laboratory setting. The effect sizes from these experiments do not differ significantly from the overall result.

Search has always been a challenge. On a few occasions, operational use of search has proved extremely useful data, but on the average, both the laboratory experiments and operational use have been disappointing. SRI recommends continued effort in search to determine those factors that can enhance a potentially very useful phenomenon.

13. Precognitive Remote Viewing

The first SRI precognition experiment provided significant evidence of the phenomenon ($n = 4$, $z = 1.73$, $p \leq 0.042$, $d = 0.864$).[13] From FY 1975 to FY 1987, precognition was not studied in any systematic manner. During FY 1987, one experiment was conducted using natural sites as targets and one of the group *G1* viewers. The result was not significant ($n = 10$, $z = -0.476$, $p \leq 0.683$, $d = -0.150$). A second experiment using novice viewers was conducted in the same year. This also did not reach a significant level ($n = 55$, $z = 0.070$, $p \leq 0.472$, $d = 0.064$). Therefore, the results of SRI's investigations are mixed. However, in a recent meta-analysis of the precognition forced-choice literature conducted by one of SRI's subcontractors, 50 years of experimentation involving 50,000 subjects showed highly significant evidence for the phenomenon ($n \approx 10^6$, $z = 24.23$, $p \leq 4 \times 10^{-52}$, $d = 0.041$). This result is consistent with the forced-choice real-time studies conducted at SRI ($d = 0.052$).

Taken as a whole, there appears to be compelling evidence for precognition. When precognition is used as the underlying assumption for a heuristic model of psychoenergetic functioning, 15 years of random number generator data fall on the predicted theoretical curve.[14]

14. Analytics (Forced-Choice)

Forced-choice remote viewing (defined in Section IV.-A.) has traditionally provided weak but consistent evidence for a psychoenergetic phenomenon. In the experiments conducted during the Rhine era, over one million trials were conducted with ESP cards (i.e., a one-in-five target system).[15] Strong significances were observed, but effect sizes were of the order of 0.02.

Table 3 shows the results for 19,675 trials collected at SRI since 1973. The effect size is consistent with the early results of Rhine ($d = 0.052$). In fiscal years 1986–1988, one of the viewers from group *G1* was able to increase the effect size by a factor of 10 ($n = 50$, $p \leq 0.00015$, $d = 0.51$), meeting Cohen's definition of a strong effect. While there was significant improvement with this viewer during the three years, the number of formal trials was small, and thus interpretation is difficult.

SRI recommends that a forced-choice investigation be continued to determine if such strong effects can be observed in other viewers.

15. Conducting an RV Experiment

No formal experimentation has been conducted to examine session parameters that enhance remote viewing. SRI does not use any formal induction technique, and the sessions are conducted in a businesslike atmosphere with the viewer and monitor sitting upright and opposite each other across a table. Since the overall effect size ($d = 0.385$) observed for group *G1* meets Cohen's definition of a medium-sized effect, these session conditions do not appear to hinder the phenomenon.

16. Countermeasures

The first step in investigating countermeasures for remote viewing is to examine whether it is possible to shield against psychoenergetic intrusion. As was discussed in Section V.-C.-10, E&M shielding does not appear to be effective.

To provide an effective shield or a useful physical countermeasure, it must be determined whether psychoenergetic phenomena interact with the physical world. In the remote action studies conducted at SRI, most of the studies have not demonstrated any evidence of psychoenergetic interaction with the physical world.

Two exceptions are worthy of discussion. In a study conducted in FY 1979 involving random number generators, the significant results were consistent with the historical database of such experiments. Later, it was shown that these results are not due to a physical interaction, but rather due to precognition.[14]

During FY 1975, a striking anomaly was observed when one of the viewers from group *G1* attempted to influence a shielded magnetometer. The device was perturbed in a significant manner, but no other experiments were conducted that showed similar non-statistical results.

In an experiment designed to replicate claims made in the People's Republic of China, SRI determined the degree to which pulses from a photomultiplier tube correlated with the quality of remote viewing. While strong evidence for remote viewing was seen, no significant correlations with the tube output were observed.

At this time, there is no evidence that psychoenergetic phenomena can be shielded against nor effectively countermeasured.

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Appendix

CODING SHEETS AND INSTRUCTIONS FOR THE META-ANALYSIS

Unit Information

Page: ______
Coder I.D: ______
Date: ______
Form I.D: ______

Unit	Data
Unit Name	Session Viewer Viewer within Condition Trial Experiment O:______
Unit I.D.	
Viewer I.D.	I.D.______ Experienced Novice
Monitor I.D.	
Start Date	
Date Duration	
Start Time	
Time Duration	
Viewer Location	SRI Home:______ Client:______ Field:______ O:______

Inten-tional?	Parameters That Differ	Circle or write in all appropriate conditions
Y N	Target Name	
Y N	Targeting Method	Beacon Abstract Coordinates Prompting Self Unknown O:___
Y N	Target Type	Ops Real Site Photograph Alpha/Numeric Person Objects O:___
Y N	Target Distance (km)	< 1 < 50 < 5000 > 5000 Unknown O:______
Y N	Target Location	Inside Outside Both O:______
Y N	Target: When Selected	Retrocognition Real Time Precognition O:______
Y N	Shielding Type	Unknown E&M Cage/Room Water SCIF O:______
Y N	Feedback Type	None Visual Audio Verbal Intermediate Site Unknown O:______
Y N	Feedback: When	Immediate <5 min <1 hr <1 day >1 day Unknown O:______
Y N	Independent Variable #1	Condition:
Y N	Independent Variable #2	Condition:

Statistics	Data
# of Trials	
Raw Score	
Judgement Score	1 2 3 4
Z-Score	
P-Value	
Effect Size	

Comments:______

Publication Information

Page: 1
Coder I.D: ______
Date: ______
Form I.D: ______

Publication Parameters	Data
Title	
Authors	
SRI Project Number	
Document Number	
Classification	
Total Number of Pages	
Type of Report	Final Mid-year Interim Quarterly Progress Monthly Progress O: ______
Date of Publication	

Rules for Meta-analysis Coding

Organization

1. Use one Publication Information sheet for each publication.
2. Use as few Experiment Information sheets as necessary.
3. A Unit is the smallest level at which the most basic hypothesis (usually psi versus no psi) was tested.
4. Results for a hypothesis that cannot be reconstructed from the basic units should be coded as a separate "experiment". The Type should be listed as O: correlation.
5. For an experiment, staple together all Unit Information sheets with the Experiment Information sheet on top. Clip together all experiment packets from the same publication. Number all of the sheets consecutively within a publication.

General:

1. Circle (or slash) the appropriate choice.
2. Use [ ] around data to indicate a coder guess or calculation.
3. If Other (O:) then specify.

Experiment Parameters, Known Target Parameters and Feedback:

1. Use publication date if Experiment date is unknown.
2. Generally, independent variables are those manipulated by the experimenter. However, this space can also be used for variables that differ unintentionally within an experiment. See Rule #4 under "Unit Information".
3. Example: LANL experiment is coded as follows: Experiment Type: RV-Lab: Principal Hypothesis: CNS responds to remote, external stimuli; Independent Variable: Timing of remote stimuli.
4. Targeting Method: Prompting means a sound or gesture (e.g., Gina's bell).
5. Shielding is for viewer, target, or both.
6. Most feedback is actually multi-mode. Code the primary mode. Visual Feedback: Photograph (e.g., *National Geographic* Magazine). Audio Feedback: Just a sound (e.g., Bell from the teaching machine). Verbal Feedback: Verbal debrief (e.g., You did well. The target was ...). Site Feedback: Physical visit to the target site (e.g., Outbound experiment).

Basic Analysis:

1. Rank R = number of choices for ranking, including target and all decoys.
2. Analysis scale, n = maximum. (e.g., 0 -> 4, n = 4).
3. Judgment means a qualitative estimate (e.g., by-gosh-by-golly); 1 = complete miss, 4 = complete hit.
4. Statistic means z-score or F ratio, etc.

Unit Information:

1. Unit Name is "Session" for a single RV session, but "Trial" for a single forced choice. In forced choice experiments, there are usually several trials in a single session.
2. Unit I.D. is blank most of the time. Use Ops tag when appropriate.
3. Viewer I.D. is according to our most current list. Therefore, if a known viewer was listed under an old I.D., note the person's name so the current I.D. can be entered in the data base.
4. Parameters that differ should be filled in only for those cases where "differs" was circled on the Experiment Sheet. If the variable was intentionally manipulated, circle Y.
5. P-value should be entered as -1 if it is unknown, to avoid confusion with the default missing value code of 0, which could be a legitimate P-value.

Experiment Information

Page: ________
Coder I.D: ________
Date: ________
Form I.D: ________

Sub-experiment or Condition? y ☐ n ☐

Experiment Parameters	Data
Type	RV-Lab RV-Ops Forced-Choice Screening Training Search O: ____
Date	
Pages Within Document	
Principal Investigator	
Number of Subjects	
Principal Hypothesis	
Independent Variable(s) not included below; list categories or describe in space provided.	1. ____ a. ____ b. ____ Differs* 2. ____ a. ____ b. ____ Differs*
Experiment Task	

Known Target Parameters	Data
Target Name	
Targeting Method	Beacon Abstract Coordinates Prompting Self Unknown Differs* O: ____
Type	Ops Real Site Photograph Alpha/Numeric Person Objects Differs* O: ____
Distance (km)	< 1 < 50 < 5000 > 5000 Unknown Differs* O: ____
Location	Inside Outside Both Differs* O: ____
When Selected	Retrocognition Real Time Precognition Differs* O: ____
Shielding Type	Unknown E&M Cage/Room Water SCIF Differs* O: ____

Feedback	Data
Type	None Visual Audio Verbal Intermediate Site Unknown Differs* O: ____
When	Immediate <5 min <1 hr <1 day >1 day Unknown Differs* O: ____

Basic Analysis	Data
How	Blind Post Hoc # of choices
Depndt. Variable	Rating Rank R___ Fuzzy Bit Discr. Bit Concept Hits___ Scale n___ Judgment Match O: ___
Method	Scott's #rows___ FM Sum-of-Ranks Statistic O: ____
By Whom	SRI Client O: ____
Purpose	RV PK Utility Demonstration O: ____

* When "Differs" is circled, information must be entered at the unit level.

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