SRI International

Final Report—[redacted]
Covering the Period 1 October 1988 to 15 February 1989

March 1989

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

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(U) TABLE OF CONTENTS

LIST OF TABLES iv

LIST OF FIGURES v

I OBJECTIVE 1

II EXECUTIVE SUMMARY 2

III INTRODUCTION 3

IV METHOD OF APPROACH 4

- A. Analysis Domain 4
- B. Database Management System 5
- C. Statistical Methods 7

V RESULTS AND DISCUSSION 11

- A. Overall Results 11
- B. Results for Categories Within the Informational Process 12
- C. Specific Results for Remote Viewing 14

REFERENCES 24

(U) LIST OF TABLES

1. Definitions And Meta-analysis Formalism (U) 9
2. Statistical Results For Major Classes (U) 11
3. Statistical Results For Informational Categories (U) 13

(U) LIST OF FIGURES

1. Categories And Number Of Trials (U) 5

2 Database Schema Design For Meta-analysis (U) 7

I OBJECTIVE (U)

(U) 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.*

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

[redacted]

II EXECUTIVE SUMMARY (U)

[redacted] 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.

[redacted] 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.

[redacted] The main results are summarized below:

- Remote viewing (RV) can provide useful [redacted] information.
- Laboratory and operational 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.

III INTRODUCTION (U)

(U) 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."

(U) 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.

(U) 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.

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

2. (U) Database Design

(U) 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.

(U) 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.

(U) 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.

(U) 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.

(U) 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.

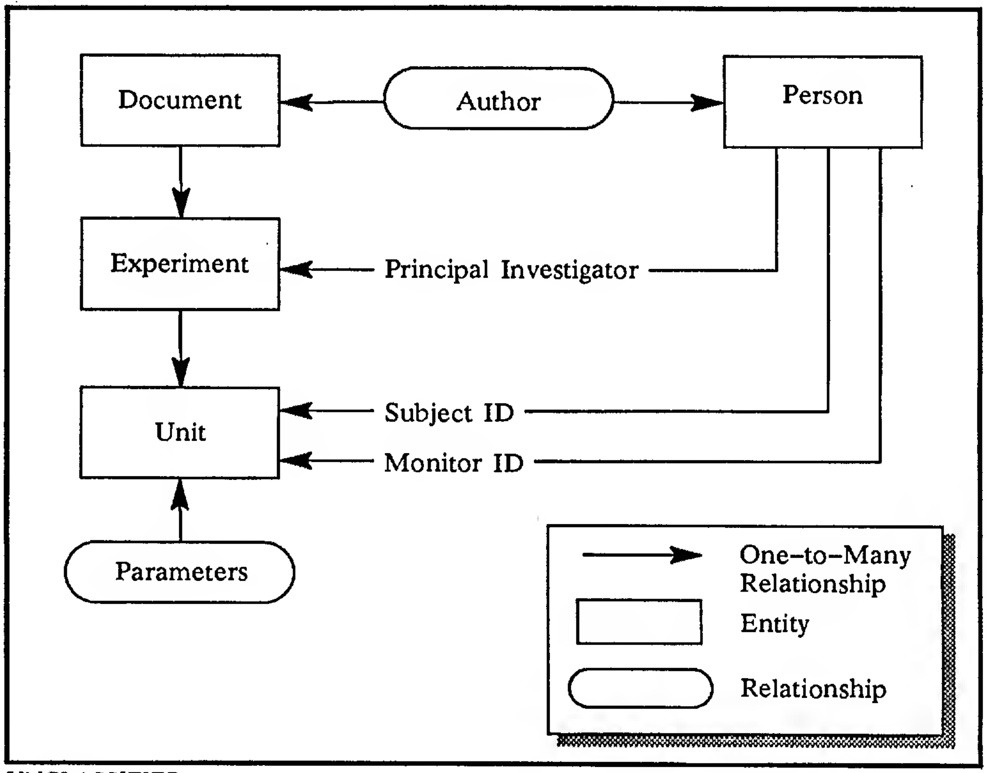

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FIGURE 2 (U) DATABASE SCHEMA DESIGN FOR META-ANALYSIS

(U) 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. (U) Statistical Methods

1. (U) Effect Size Calculations

(U) 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

(U)

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

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

2. **(U) Comparisons Across Classes**

(U) 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?

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

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

(U) To answer question 2, compute

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

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

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

(U) 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

(U) 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

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

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

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

Across Categories

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

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

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

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(U) To answer question 3, compute

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

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.

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

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

Appendix

CODING SHEETS AND INSTRUCTIONS FOR THE META-ANALYSIS

(This Appendix is UNCLASSIFIED)

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:______

Intentional?	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.