

LABORATORY 5

Controls in Experimental Research: Telepathy and Gazing in the Ganzfeld

Purpose

- to introduce the concept of **better-than-chance performance**;
- to give you experience with Magic Eye perception and viewing a **Ganzfeld**;
- to give you more practice with **testing the significance of a proportion**;

Introduction

Parapsychology is the study of such phenomena as extrasensory perception (ESP), telepathy, telekinesis, and precognition. Regardless of their views on these phenomena, psychologists agree that before anyone can get excited about evidence for a parapsychological phenomenon, we must be able to rule out other explanations. Alternative explanations of performance that are of particular concern are *chance guessing*, *unintentional cueing*, *deliberate use of unintended cues*, and *deception*. Thus, the analysis of experiments in parapsychology provides a rigorous test of one's understanding of careful methodology.

This exercise is based on a procedure developed by Charles Honorton and championed by Daryl Bem (e.g., Bem & Honorton, 1994). The procedure assumes that a person's ability to manifest a parapsychological phenomenon, such as telepathy, will be greater if the person is in a state of mental receptiveness. To induce such a state of receptiveness, Honorton had his subjects stare into a *Ganzfeld*, which is a featureless visual field. The experience of being in a Ganzfeld tends to induce particular kinds of disorientation.

Getting Started

Materials

For this exercise, you will need a Ganzfeld inducer (a pair of ping-pong ball halves), a set of 4 Magic Eye displays with 2 test sheets, a random number sheet, and a data recording sheet. During the lab, each team will use 3 sets of Magic Eye displays, one for each person who serves as the receiver.

Organization

Form a team of 3 people. There are 3 roles to play, and every one on the team will play each role. One role is that of a **sender**; this will be the person who is thinking about something (in this case, an image from a Magic Eye card). One role is that of a **receiver**; this will be the person gazing into the Ganzfeld, attempting to receive the thoughts of the person who is trying to send the Magic Eye image. The last role is that of the **experimenter**; this will be the person selecting a card for the sender, testing the subject, and keeping track of the time.

Collecting Data

When your team is assembled, get a packet of materials and determine each person's role for the initial series. When these roles have been decided, the procedure is as follows:

Find a quiet place. The receiver needs to sit comfortably, place half a ping pong ball over each eye, and stare at space through the ping pong ball to achieve a state of mental relaxation. The receiver should be given up to 7 minutes to reach this state. While the receiver is reaching a state of mental relaxation gazing, the sender should practice visualizing the Magic Eye images, and the experimenter should organize the test materials and review the procedure. After about 4 minutes, and then at 1 minute intervals as needed, the experimenter should ask the receiver if mental relaxation has been attained. If the receiver needs more time, then he or she will continue to look through the ping pong balls and signal the experimenter when ready.

Once the receiver indicates a readiness to receive, the experimenter will **randomly** select one of the Magic Eye cards (using a random number table to make the selection) and present it to the sender. At this point, the sender should focus on the Magic Eye card and attempt to visualize the hidden image, signaling the experimenter when the image has been visualized. Once the hidden image is visualized, the sender should view the image for a 2 minute period, timed by the experimenter. This is the transmission period.

At the end of the 2-minute transmission period, the sender puts down the Magic Eye card and rests, while the experimenter administers 3 tests to the receiver.

First, the experimenter asks the receiver to describe any thoughts, images or other mental contents that were present while the receiver was gazing in the Ganzfeld *during the transmission period*. The experimenter records this description on the response sheet under the heading **Phenomenal Experience**.

Second, the experimenter presents the receiver with the 4 Magic Eye cards in the set that was used and asks the receiver to select the card that was viewed by the sender. This is the **Surface Image Test**, and the experimenter records the number of the card selected in the space provided on the response sheet.

Third, the experimenter presents the test sheet depicting 4 hidden images and asks the receiver to select the hidden image that was transmitted by the sender. This is the **Hidden Image Test**, and the experimenter records the number of the image selected in the space provided on the response sheet.

Score the Surface Image Test as correct if the card selected is the card that was used by the sender; score the Hidden Image Test as correct if the image selected is the image that was hidden in the card used by the sender. Correct responses are coded as "1", and errors are coded as "0".

After completing the first session of testing, team members should return their set

of cards to the instructor and obtain a new set, then switch roles and repeat the tasks with the new set of materials. In switching roles, the receiver becomes the experimenter, the experimenter becomes the sender, and the sender becomes the receiver. When the team has completed its second session, team members should return the cards and obtain another new set, then switch roles and repeat the tasks in a third session.

By the conclusion of the lab, all 3 team members will have participated in all 3 roles. When all 3 sessions have been finished, team members should bring their data in to the lab instructor to compile with the data of other teams.

Data Analysis

The purpose of the data analysis is to determine whether the receiver was able to “read the mind” of the sender and obtain information about either the surface image or the hidden image on which the sender was focused. Of course, a critical question is whether any evidence of mind reading is more than just a chance effect. To determine this, the analysis will use the group data.

Step 1. Set up spreadsheet and calculate group accuracy.

Create a spreadsheet with 3 columns, labeled *Team/Member*, *Surface Image*, and *Hidden Image*. In the rows under the *Team/Member* heading, identify the team and individual members. In the rows under the *Surface Image* heading, enter a “1” if the selection of the surface image by that individual was correct and a “0” if the response was incorrect. In the rows under the *Hidden Image* heading, enter a “1” if the selection of the hidden image by that individual was correct and a “0” if the response was incorrect.

Calculate the average score for the *Surface Image* test and the average for the *Hidden Image* test. Remember, the average will go in a cell below the data. Select the cell, then click on the *Function Wizard*, select “Statistical” from the “Function Category” window on the left and “average” from the “Function name” on the right, and click “OK”. In the window that opens to get the average, click on the small red arrow at the right hand side of the box labeled “Number 1”, then select all the cells with data for the surface image test and click the small red arrow in the open box at the top of the spreadsheet.

The formula for the average will look something like

=average(b2:b28)

Step 2. Determine the accuracy level expected by chance.

This is a thought exercise. Estimating the accuracy level expected by chance in this task is a matter of dividing the number of selections made by the number of possible alternatives. How many selections did the receiver make on each test? How many choices were presented from which the selection was made?

Step 3. Compare group accuracy to chance level.

Compare the proportion of correct responses for the Surface Image test to the proportion correct expected by chance, using the z-test for the significance of a proportion (see Bumperstickerology Laboratory). Determine if the difference is statistically significant or not. Do the same comparisons for the proportion of correct responses for the Hidden Image test.

Lab Report

Your report of this lab will consist of:

- 1) a title page;
- 2) a method section, in which you describe how your team conducted the activity;
- 3) a statement of the results, with the statistical tests reported according to APA guidelines for statistical tests; and
- 4) a discussion section, in which you offer your interpretation of your results.

In the discussion, indicate what variables were well-controlled by the procedure and what variables were not well-controlled. In particular, indicate what factors are controlled by using the hidden image as the target for identification through telepathy. Also note what realistic methodological factors might produce a different outcome.

Include a copy of your spreadsheet from the Data Analysis.

References

Bem, Daryl J. & Honorton, Charles. (1994). Does psi exist? Replicable evidence for an anomalous process of information transfer. *Psychological Bulletin*, 115, 4-18.

SCORING FOR GANZFELD

First Session

Sender _____

Receiver _____

Picture Set _____

Card Selected for Sending _____

Phenomenal Experience of Receiver:

Surface Image Test

Alternative Selected _____

Correct? _____

Hidden Image Test

Alternative Selected _____

Correct? _____

Second Session

Sender _____

Receiver _____

Picture Set _____

Card Selected for Sending _____

Phenomenal Experience of Receiver:

Surface Image Test

Alternative Selected _____

Correct? _____

Hidden Image Test

Alternative Selected _____

Correct? _____

Third Session

Sender _____

Receiver _____

Picture Set _____

Card Selected for Sending _____

Phenomenal Experience of Receiver:

Surface Image Test

Alternative Selected _____

Correct? _____

Hidden Image Test

Alternative Selected _____

Correct? _____