

# Bial

Project title:

*Experimenter effects and psi performance using a digital autoganzfeld system*

Grant number:

139/02

Bursary recipient:

*Matthew Smith*

## PROJECT SUMMARY

I proposed to examine the effects of experimenters' attitudes towards psi and experimenter expectancy upon participants' success on a ganzfeld-ESP task. Sixteen experimenters were to be trained to use a digital autoganzfeld system, *DigiGanz*, in order to conduct 8 ganzfeld trials each. Experimenters prior attitudes towards psi were to be measured, and experimenters' expectancy regarding the likely success of the experiment was to be manipulated so that half the experimenters were given a positive expectancy of success and half were given a negative expectancy of success. No previous research had used this approach with the ganzfeld paradigm, nor had any previous research discriminated between the experimenter's a priori attitudes towards psi and his or her more specific expectations about the outcome of the experiment. A sub-sample of ganzfeld testing sessions was to be video recorded to allow experimenter-participant interactions to be content-analysed.

## FINAL REPORT (November 2007)

This report is submitted as a brief final summary of the project that began in late 2003. A progress report was submitted to the Bial Foundation in March 2004 (a copy of which is enclosed). At that time, 13 experimenters had been recruited and 20 trials had been completed. Shortly after submitting the progress report, we recruited and trained a further 3 experimenters, resulting in a total of 16 experimenters as planned.

Each experimenter was required to conduct 8 ganzfeld trials as part of the study. On completion of all 8 trials they would receive a payment of £200. Experimenters and participants were each asked to complete a Participant Information Form (PIF). This form included the Keirsey Temperament Sorter (a 70-item self-report personality measure), along with questions about personal psi experiences, whether they practised some form of mental discipline and their attitudes towards psi phenomena. Experimenters completed a PIF prior to receiving their first training session, and were asked to ensure all participants completed a PIF prior to each ganzfeld trial. A sample PIF is included in Appendix 1.

Experimenter attitudes towards psi were measured using four items included on the Participant Information Form (PIF). These items asked respondents to indicate their agreement on a 7-point scale (where 1 = "strongly disagree" and 7 = "strongly agree") to the statements: "Extra-sensory perception (ESP) is possible", "I have some ESP ability", "It is possible to demonstrate ESP ability in an experimental study", and "I am confident I will do well in the ESP task". The maximum score possible was therefore 28 (indicating strong agreement with all four statements) whilst the minimum score possible was 4 (indicating strong disagreement with all four statements). A median split meant that the eight experimenters with highest scores were classified as having 'high' attitudes towards psi, and the eight lowest scores were classified as having 'low' attitudes towards psi.

All experimenters were trained to use the *DigiGanz* software and were randomly assigned to either the 'positive' expectancy condition or the 'negative' expectancy condition, ensuring an equal split of 'high' and 'low' attitudes towards psi in each condition. Experimenters in the 'positive' condition were told that previous research using the ganzfeld procedure had generally been very successful in obtaining evidence in favour of ESP and were told that previous research using the *DigiGanz* system had similarly been very successful. In contrast, experimenters in the 'negative' expectancy condition were told that previous research using the ganzfeld procedure had been difficult to replicate and were told that previous research using the *DigiGanz* system had yielded chance results, and we expected this trend to continue in the

present study. More details of the training procedure and how this experimental manipulation was incorporated into the training sessions can be found in the March 2004 progress report.

Participants were recruited from a variety of sources. These included friends and acquaintances of experimenters, the student population at Liverpool Hope University, via articles in local newspapers, and via advertisements on the University website which were linked to from various other websites. The majority of participants were from Liverpool and the surrounding area, although we did have a number of participants who travelled from other parts of the UK to take part in the study.

Participants completed a PIF in their own time prior to their scheduled ganzfeld trial (see Appendix 1). On arriving at the University for their ganzfeld trial, and following a briefing by the experimenter, participants also completed a short questionnaire asking about their relationship with their co-participant and their expectations about how well they would perform in the ESP task (a copy of this questionnaire can be found in Appendix 2).

As documented in both original project proposal and in the progress report, the bursary was used primarily to employ a Research Assistant for one year to co-ordinate the project. As this post came to an end in November 2004, data collection was halted at this point. By that time, a total of 114 trials had been conducted out of a planned total of 128 trials (3 experimenters had not completed all 8 of their trials). The project was effectively suspended at this point, and due to other commitments I have only recently had the opportunity to collate the data for statistical analysis. The analyses reported below summarize the main findings from the study.

## RESULTS

The overall hit-rate for the study was 34.2% (39 hits from 114 trials) where 25% would be expected by chance. This means that in 34.2% of trials the receiver gave the highest rating to the target video-clip for that session (compared to three decoy clips). This is in line with the hit-rate reported in previous successful ganzfeld studies (Bem & Honorton, 1994), and is statistically significant (binomial  $p=0.02$ ).

### Experimenter variables and psi scores

The primary planned analyses examined the effects of experimenter expectancy and experimenter attitudes towards psi upon ganzfeld-ESP performance. Experimenter expectancy was determined as either 'positive' or 'negative' according to which condition they had been assigned. As mentioned above, experimenter attitudes towards psi were classified as either 'high' or 'low' according to their level of agreement to four statements regarding the possibility of ESP. Scores on this measure could theoretically range from 4 to 28, with higher scores indicating a more positive attitude to the possibility of ESP. A median split meant that the eight experimenters with highest scores were classified as having 'high' attitudes towards psi, and the eight lowest scores were classified as having 'low' attitudes towards psi.

ESP performance was measured by transforming target ratings for each trial into Z-scores. Table 1 shows the mean Z-scores for all trials split by experimenter attitudes towards psi ('high' or 'low') and experimenter expectancy ('positive' or 'negative').

A 2 x 2 between groups ANOVA revealed that there was no significant main effect of experimenter attitudes towards psi upon Z-scores,  $F(1, 113)=0.32, p=0.58$ . Nor was there a significant main effect of experimenter expectancy,  $F(1,113)=2.35, p=0.13$ . Finally, no significant interaction was found between experimenter attitudes towards psi and experimenter expectancy,  $F(1,113)=0.08, p=0.78$ .

**Table 1:** Hit-rate, mean Z-scores (and standard deviations) for 'high' and 'low' experimenter attitudes towards psi and 'positive' and 'negative' experimenter expectancy.

		Experimenter expectancy	
		Positive	Negative
High			
Experimenter attitudes towards psi	hit-rate	37.5%	30%
	Mean Z-score	0.29	-0.05
	SD	0.91	1.00
	n	24	40
Low			
	hit-rate	37.5%	33%
	Mean Z-score	0.13	-0.11
	SD	0.95	0.93
	n	32	18

### Experimenter variables and participants' confidence of success

The secondary planned analyses examined the effects of experimenter expectancy and experimenter attitudes towards psi upon participants' confidence of success in the ESP task. As above, experimenter expectancy was either 'positive' or 'negative' and experimenter attitudes towards psi were classified as either 'high' or 'low'. Participants' confidence of success in the ESP task was measured by their level of agreement with the statement "I am confident I will do well in the ESP task" on a 7-point scale from 1 = "strongly disagree" to 7 = "strongly agree" immediately prior to their ganzfeld trial. This was included on a questionnaire administered by experimenters after they had explained the nature of the ESP task, and had explained a little about the background of the research, and once participants had decided whether they were going to act as 'sender' or 'receiver'. (Note that this item also appeared on the Participant Information Form that participants had completed prior to the scheduled trial.)

Table 2 shows the mean confidence scores for all participants (senders and receivers) split by experimenter attitudes towards psi ('high' or 'low') and experimenter expectancy ('positive' or 'negative').

A 2 x 2 between groups ANOVA revealed that there was no significant main effect of experimenter attitudes towards psi upon Receivers' confidence scores,  $F(1, 105)=1.64, p=0.20$ , or Senders' confidence scores,  $F(1, 103)=3.09, p=0.08$ , although it was approaching significance for Senders' confidence. Whilst there was also no significant main effect of experimenter expectancy upon Receivers' confidence,  $F(1,105)=0.23, p=0.64$ , there was a significant effect of experimenter expectancy upon Senders' confidence,  $F(1, 103)=7.06, p=0.009$ . Finally, no significant interaction was found between experimenter attitudes towards psi and experimenter expectancy for either Receivers' confidence,  $F(1,105)=0.91, p=0.34$ , or Senders' confidence,  $F(1, 103)=0.89, p=0.35$ .

**Table 2:** Mean sender and receiver confidence scores for 'high' and 'low' experimenter attitudes towards psi and 'positive' and 'negative' experimenter expectancy.

		Experimenter expectancy	
		Positive	Negative
High			
Experimenter attitudes towards psi	Senders' confidence (and SD)	4.04 (1.22)	3.62 (1.18)
	n	23	39
	Receivers' confidence (and SD)	3.50 (1.53)	3.63 (1.13)
	n	24	38
Low			
	Senders' confidence (and SD)	3.84 (0.94)	2.94 (1.60)
	n	25	17
	Receivers' confidence (and SD)	4.12 (1.24)	3.72 (1.74)
	n	26	18

Participants were also asked to indicate their perceptions of their experimenter's expectations of success in the ESP experiment. They were asked to rate their agreement with the statement "The experimenter believes that ESP will be demonstrated in the ESP task" on a 7-point scale from 1 = "strongly disagree" to 7 = "strongly agree". 2 x 2 ANOVAs revealed a significant main effect of experimenter attitudes towards psi upon Sender's ratings,  $F(1, 103)=6.73, p=0.01$ , and a near-significant effect upon Receivers' ratings,  $F(1, 105)=3.12, p=0.08$ . All other effects were non-significant.

### Additional analyses

#### *Participants' attitudes towards psi and previous psi experience*

The possible relationship between participants' attitudes towards psi (especially ESP) and performance on the ESP task was examined as previous research has indicated that people's beliefs about the possibility of ESP can predict ESP performance. Participants were asked to indicate their level of agreement with the statements "Extra-sensory perception (ESP) is possible", "I have some ESP ability", and "It is possible to demonstrate ESP ability in an experimental study" on a 7-point scale from 1 = "strongly disagree" to 7 = "strongly agree". No significant correlations were found between ESP scores (Z-scores) and agreement ratings to any of these three statements.

Previous research has suggested that people who have had ostensibly psychic experiences may perform better on psi tasks than those people who have not had such experiences. 43 Receivers and 32 Senders indicated that they had had previous 'psychic' experience. 43 out of 98 had experience. An independent t-test comparing Z-scores from those trials involving Receivers who had had a psychic experience with Receivers who had not had such an experience did not reveal that this had an impact upon performance on the ESP task,  $t(96)=1.19, p=0.24$ . A similar analysis for Senders also revealed no significant difference,  $t(94)=0.70, p=0.50$ .

# Bial

## *Mental discipline*

In order to assess the possible impact of the practise of a mental discipline (such as meditation or yoga) upon ESP performance, participants were asked to indicate whether or not they practised such a discipline. 97 Receivers and 96 Senders indicated whether or not they practised a mental discipline, of whom 41 Receivers and 33 Senders indicated they had practised such a discipline. An independent t-test comparing Z-scores from those trials involving Receivers practising a mental discipline with Receivers who had not done so did not reveal that this had an impact upon performance on the ESP task,  $t(95)=1.09$ ,  $p=0.28$ . A similar analysis for Senders also revealed no significant difference,  $t(94)=-0.35$ ,  $p=0.73$ .

## *Sender-receiver relationship*

Previous research has indicated that certain sender-receiver pairings may perform better on ESP tasks. In this study, participants were asked to indicate how long they had known their co-participant, how emotionally close they were to each other (using a 7-point scale), and whether they had ever shared an experience that could be described as telepathic. No relationship was found between either the length of time co-participants had known each other (Pearson's  $R=0.05$ ,  $p=0.63$ ), or ratings of emotional closeness (Pearson's  $R=-0.11$ ,  $p=0.27$ ) and ESP scores.

107 pairs of participants indicated whether or not they had shared an ostensibly telepathic experience, of whom 28 pairs indicated they had shared such an experience. An independent t-test comparing Z-scores from those trials involving those sharing an experience with those who had not shared an experience did not reveal that this had an impact upon performance on the ESP task,  $t(105)=0.90$ ,  $p=0.37$ .

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## SUMMARY OF EXPENSES (MARCH 2004-NOVEMBER 2004)

	<i>Budgeted cost (£)</i>	<i>Actual cost (£)</i>
<i>Personnel Costs</i>		
Part-time researcher (4 days per week, March 1 <sup>st</sup> to Nov 1 <sup>st</sup> ):	approx 9,700 (14,500÷12x8)	10,766
Experimenters (13 experimenters paid £200 each for completing 8 trials)	3,200	2,600

Trial Number..... For experimenters only
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**Participant Information Form**

**Anonymity Code:** .....

To produce an anonymity code unique to each participant please take the last two letters of your surname, your year of birth and your house number. For example Mr. Joe Smith who was born in 1978 and lived at 99 Birchtree Terrance would have the anonymity code TH7899.

**Introduction**

Thank you for agreeing to take part in this study into ESP. We are interested in exploring the relationship between ESP, altered states of consciousness, and a number of psychological variables, and so we would like to collect some information about you. Please note that all the information you provide is anonymous and will be kept confidential. Please make sure you answer **all** questions.

**General information**

1. Male  Female
2. Date of Birth: (DD/MM/YY) .....
3. Occupation:  
.....

**Section A:** The following questions relate to your personal preferences and how you generally behave in different situations. Please answer each question by selecting the answer with which you most agree from the two possible answers. There are no right or wrong answers and all your answers are anonymous and confidential, so please answer as honestly as possible. Do not spend too long on any one question.

**Bial**

**1. Which appeals to you more:**

- consistency of thought
- harmonious relationships

**2. Do you more often see:**

- what can only be imagined
- what's right in front of you

**3. Are you more interested in:**

- what is actual
- what is possible

**4. It is worse to be:**

- hard-nosed
- a softy

**5. Is it your way to:**

- pick and choose at some length
- make up your mind quickly

**6. Are you more frequently:**

- a practical sort of person
- a fanciful sort of person

**7. Children often do not:**

- exercise their fantasy enough
- make themselves useful enough

**8. Do you tend to:**

- say right out what's on your mind
- keep your ears open

**9. Is it better to be:**

- merciful
- just

**10. Do you prefer to work:**

- to deadlines
- just whenever

**11. In making up your mind are you more likely to go by:**

- data
- desires

**12. Are you drawn more to:**

- fundamentals
- overtones

**13. Would you say you are more:**

- serious and determined
- easy going

**14. At a party do you:**

- interact with many, even strangers
- interact with a few friends

**15. Waiting in line, do you often:**

- chat with others
- stick to business

**16. Is it worse to:**

- have your head in the clouds
- be in a rut

**17. Are you inclined to be:**

- easy to approach
- somewhat reserved

**18. Are you swayed more by:**

- a touching appeal
- convincing evidence

**19. In hard circumstances, are you sometimes:**

- too sympathetic
- too unsympathetic

**20. Which rules you more:**

- your feelings
- your thoughts

**21. Are you more comfortable:**

- after a decision
- before a decision

**22. Are you more:**

- whimsical than routinized
- routinized than whimsical

**23. At work do you tend to:**

- be sociable with your colleagues
- keep more to yourself

**24. Are you the kind of person who:**

- is rather talkative

**25. Is clutter in the workplace something you:**

- take time to straighten up
- tolerate pretty well

**26. Are you more satisfied having:**

- a finished product
- work in progress

**27. Do you prefer contracts to be:**

- signed, sealed, and delivered
- settled on a handshake

**28. Are you more likely to trust:**

- your experiences
- your conceptions

**29. Are you prone to:**

- nailing things down
- exploring the possibilities

**30. At work is it more natural for you to:**

- point out mistakes
- try to please others

**31. With people are you usually more:**

- gentle than firm
- firm than gentle

**32. When the phone rings, do you:**

- hurry to get to it first
- hope someone else will answer it

**33. Do you see yourself as basically:**

- thin-skinned
- thick-skinned

**34. If you must disappoint someone are you usually:**

- warm and considerate
- frank and straightforward

**35. Are you:**

- more sensible than ideational
- more ideational than sensible



36. Is it preferable mostly to:

- just let things happen naturally
- make sure things are arranged

37. In stories, do you prefer:

- fantasy and heroism
- action and adventure

38. Do you consider yourself:

- a good conversationalist
- a good listener

39. Are you more comfortable in making:

- critical judgments
- value judgments

40. Which seems the greater fault:

- to be too compassionate
- to be too dispassionate

41. Do you tend to choose:

- rather carefully
- somewhat impulsively

42. Do you value in yourself more that you are:

- reasonable
- devoted

43. Do you feel better about:

- keeping your options open
- coming to closure

44. Does interacting with strangers:

- energize you
- tax your reserves

45. Is it easier for you to:

- put others to good use
- identify with others

46. In most situations are you more:

- spontaneous than deliberate
- deliberate than spontaneous

47. When finishing a job, do you like to:

- move on to something else
- tie up all loose ends

48. On the job do you want your activities:

- scheduled
- unscheduled

49. Are you inclined to be more:

- leisurely than hurried
- hurried than leisurely

50. Facts:

- speak for themselves
- illustrate principles

51. Are you more inclined to feel:

- down to earth
- somewhat removed

52. Which is more of a compliment:

- "There's a logical person"
- "There's a sentimental person"

53. Do you prize in yourself:

- a vivid imagination
- a strong hold on reality

54. Do you speak more in:

- particulars than generalities
- generalities than particulars

55. Do you tend to notice:

- disorderliness
- opportunities for change

56. In a heated discussion do you:

- look for common ground
- stick to your guns

57. Common sense is:

- frequently questionable
- usually reliable

58. Which do you wish more for yourself:

- strength of emotion
- strength of will

59. Do you usually want things:

- settled and decided
- just pencilled in

60. Are you inclined to take what is said:

- more figuratively
- more literally

61. Do you think of yourself as a:

- tender-hearted person
- tough-minded person

62. When in charge of others do you tend to be:

- firm and unbending
- forgiving and lenient

63. Are you more:

- introspective than observant
- observant than introspective

64. Are you more often:

- a warm-hearted person
- a cool-headed person

65. In sizing up others, do you tend to be:

- friendly and personal
- objective and impersonal

66. Do you like writers who:

- use metaphors and symbolism
- say what they mean

67. Do you think of yourself as:

- a private person
- an outgoing person

68. Do you tend to be more:

- factual than speculative
- speculative than factual

69. Do you more often prefer:

- tentative preliminary statements
- final unalterable statements

70. Do you find visionaries and theorists:

- rather fascinating
- somewhat annoying

**IMPORTANT:**

**Bial**

**Please ensure you answer all the questions and bring the completed questionnaire with you come to the college.**

**Section B:** The following questions ask about whether you practise any form of mental discipline, any 'psychic' experiences you may have had, and about the relationship between you and your co-participant. Again, note that all responses are anonymous and confidential, so please answer as honestly as possible.

1. Have you ever practised any form of mental discipline (e.g., meditation, yoga)? YES  NO

If yes, please give brief details:

.....  
 .....  
 .....

2. Have you ever had any ostensibly 'psychic' experiences (e.g., telepathy)? YES  NO

If yes, please give brief details:

.....  
 .....  
 .....

**Section C:** In this section you are asked about your thoughts about 'psychic' phenomena (e.g., extra-sensory perception, telepathy), and your expectations about this experiment. Please rate your agreement/disagreement with each of the statements using the following scale. For example, if you 'strongly agree' with statement 1 you should write '7' in the box next to this statement. There are no right or wrong answers; we are interested in **your** opinions. Note that all answers are anonymous and confidential, so please answer as honestly as possible.

<b>strongly disagree</b>	<b>moderately disagree</b>	<b>slightly disagree</b>	<b>neither agree nor disagree</b>	<b>slightly agree</b>	<b>moderately agree</b>	<b>strongly agree</b>
1	2	3	4	5	6	7

*Your rating*

- 1. Extra-sensory perception (ESP) is possible
- 2. I have some ESP ability
- 3. It is possible to demonstrate ESP ability in an experimental study
- 4. I am confident I will do well in the ESP task

**Section A**

1. Which of the following terms best describes your relationship with your co-participant?  
(Please tick only one)

- |              |                          |           |                          |                |                          |        |                          |
|--------------|--------------------------|-----------|--------------------------|----------------|--------------------------|--------|--------------------------|
| partner      | <input type="checkbox"/> | friend    | <input type="checkbox"/> | brother/sister | <input type="checkbox"/> | parent | <input type="checkbox"/> |
| son/daughter | <input type="checkbox"/> | colleague | <input type="checkbox"/> | stranger       | <input type="checkbox"/> |        |                          |

2. How long have you known your co-participant?

- |                        |                          |                             |                          |
|------------------------|--------------------------|-----------------------------|--------------------------|
| more than 10 years     | <input type="checkbox"/> | less than 1 year            | <input type="checkbox"/> |
| between 5 and 10 years | <input type="checkbox"/> | do not know them personally | <input type="checkbox"/> |
| between 1 and 5 years  | <input type="checkbox"/> |                             |                          |

3. Have you and your co-participant ever *shared* an experience you would consider as 'telepathic'? YES  NO   
If yes, please give brief details: .

.....  
 .....  
 .....

4. Please indicate on the scale below how *emotionally close* you consider yourself to be to your co-participant.  
(Circle the number that best represents your response)

- |  |            |   |   |   |   |   |           |
|--|------------|---|---|---|---|---|-----------|
|  | not at all |   |   |   |   |   | extremely |
|  | close      |   |   |   |   |   | close     |
|  | 1          | 2 | 3 | 4 | 5 | 6 | 7         |

**Section B:** In this section you are asked about your thoughts about 'psychic' phenomena (e.g., extra-sensory perception, telepathy), and your expectations about this experiment. Please rate your agreement/disagreement with each of the statements using the following scale. For example, if you 'strongly agree' with statement 1 you should write '7' in the box next to this statement. There are no right or wrong answers; we are interested in your opinions. Note that all answers are anonymous and confidential, so please answer as honestly as possible.

- |                   |                     |                   |                            |                |                  |                |
|-------------------|---------------------|-------------------|----------------------------|----------------|------------------|----------------|
| strongly disagree | moderately disagree | slightly disagree | neither agree nor disagree | slightly agree | moderately agree | strongly agree |
| 1                 | 2                   | 3                 | 4                          | 5              | 6                | 7              |

*Your rating*

- |   |                          |
|---|--------------------------|
| 1. Extra-sensory perception (ESP) is possible   | <input type="checkbox"/> |
| 2. I have some ESP ability  | <input type="checkbox"/> |
| 3. It is possible to demonstrate ESP ability in an experimental study                   | <input type="checkbox"/> |
| 4. I am confident I will do well in the ESP task  | <input type="checkbox"/> |
| 5. The experimenter believes it is likely that ESP will be demonstrated in the ESP task | <input type="checkbox"/> |