Rupert Sheldrake
Biologist & Author

Scientific Papers

Testing for Telepathy in Connection with E-mails[1,2]

Perceptual and Motor Skills, (2005) ***101,*** *771-786, © Perceptual and Motor Skills*
by Rupert Sheldrake and Pamela Smart

Telepathy has been investigated scientifically for more than 100 years, but its existence is still controversial. Some people believe telepathy and other forms of "extrasensory perception" (ESP) or psi are impossible in principle (e.g., Humphrey, 1995).. Hence, they suggest that all the evidence for telepathy must be flawed and should be treated with extreme skepticism. Others regard the question as empirical. Maybe telepathy really occurs, even if the means by which it operates is not yet understood. Its existence or nonexistence is not a matter of belief but of evidence (e.g., Henry, 2005). Meanwhile, many people claim that they themselves have had telepathic experiences, and several surveys have shown that a majority of the population thinks telepathy exists (Gallup & Newport, 1991; Blackmore, 1997; Sheldrake, 2003). Skeptics usually dismiss all personal experience as unreliable. Only experimental evidence counts.

From the 1880s to the 1940s, the most popular experimental method for the study of telepathy and other forms of ESP involved card-guessing tests. During this period, 142 published articles described 3.6 million such trials, with statistically significant, positive hit rates for which the average effect was small, i.e., less than 2% above the level expected by chance (Pratt, Rhine, Smith, Stuart, & Greenwood, 1966).

In the 1960s and 1970s, there was a new approach involving controlled studies of dreams. Could people pick up images telepathically when dreaming in a laboratory, while a "sender" in another room concentrated on a randomly chosen image? In a meta-analysis of the 25 published studies on dream telepathy, covering a total of 450 trials, the overall hit rate was significantly above chance expectation (Radin, 1997).

In parapsychology laboratories since the 1970s, the prevalent method for investigating telepathy has involved a mild form of sensory deprivation, called the Ganzfeld, in which participants sit in a relaxed state in dim red light with halved ping-pong balls over their eyes. In another room, a "sender" concentrates on a picture or video clip, selected at random from a pool of possible targets. After the session is over, the participant is shown four pictures or video clips and asked to pick one which most closely corresponds to impressions he may have received during the test session. By chance, participants would select the target picture roughly one time in four, with a hit rate of 25%. A meta-analysis published in 1985 covering 28 studies showed an overall hit rate of 37% (Honorton, 1985). A published meta-analysis of the same data (Hyman, 1985) again showed that the odds against chance were very high.

Hyman and Honorton together drew up a set of guidelines for further research, which they published in a "joint communiquéé" (Hyman & Honorton, 1986). They recommended rigorous precautions against sensory leakage, extensive security procedures to prevent fraud, full documentation of all experimental procedures and equipment, and complete specifications about what statistical tests were to be used to judge success.

Following these recommendations, a broader range of investigators in several laboratories carried out a new series of computer-controlled automated Ganzfeld experiments over the following years. In a meta-analysis (Bern & Honorton, 1994) of the results from 354 auto-Ganzfeld sessions, the average hit rate was 32% (effect size 0.28, $p < .01$). But in 1999, a meta-analysis of data from 30 auto-Ganzfeld trials showed no significant effect (Milton & Wiseman, 1999). However, Milton and Wiseman excluded from their analysis a recent series of studies from Edinburgh University. When these were included, overall hit rates were again significantly above chance (Milton, 1999). A more recent meta-analysis also yielded significantly above-chance hit rates (Bern, Palmer, & Broughton, 2001).

Unfortunately, the Ganzfeld procedure bears little resemblance to apparent telepathy in everyday life. Also, in most Ganzfeld and other tests on telepathy in parapsychology laboratories, the "senders" and "receivers" were strangers, whereas apparent telepathy in real life generally takes place between people who know each other well (Sheldrake, 2003). We have been exploring a new way of investigating telepathy experimentally that is more "ecological," in the sense that it is closer to common experience and involves "senders" who are friends or family members.

One of the most common kinds of apparent telepathy occurs in connection with telephone calls (Sheldrake, 2000, 2003; Brown & Sheldrake, 2001). Most people claim to have had experiences in which they think of someone for no apparent reason, then that person calls; or they know who is calling when the phone rings before picking it up; or they call someone who says "I was just thinking about you!" Many people have had similar experiences with e-mails (Sheldrake, 2003).

An illusion of telepathy could be created if people remembered when someone called (or e-mailed) soon after they thought about that person but forgot all the times that they thought about someone who did not contact them. Also, an illusion of telepathy could arise if the person had an unconscious expectation that someone he knew well would call or e-mail, based on an implicit knowledge of that person's behaviour. Until recently, there were no scientific investigations of telephone telepathy to test these hypotheses.

Over the last few years we have investigated telephone telepathy experimentally (Sheldrake & Smart 2003a, 2003c). In our tests, a participant received a call during a prearranged period from one of four potential callers.

Participants were asked to choose callers from among their friends or family members. Callers and participants were usually several miles away from each other, and in some cases thousands of miles apart. On a given trial, the participants knew who the potential callers were but did not know which one would be calling. The caller was picked at random by the experimenter. When the telephone rang, the participant guessed who was calling before the other person spoke. The guess was either right or wrong. By chance, participants would have been right about one time in four. For a total of 571 such trials on telephone telepathy, involving 63 participants, the average hit rate was 40%, significantly above the 25% expected by chance. The effect size was 0.35 (Sheldrake & Smart, 2003a).

We then carried out a second series of tests under more rigorous conditions, with the participants videotaped continuously. Their guesses were recorded before they picked up the telephone. In a total of 271 trials, 45% of the guesses were hits (effect size .45) (Sheldrake & Smart, 2003c). In a recent replication at the University of Amsterdam the hit rate was also significantly above chance (Lobach & Bierman, 2004). In a test filmed for a British television show, the hit rate was 50%) (Sheldrake, Godwin, & Rockell, 2004).

In this paper, we describe a series of tests for telepathy in connection with e-mails following similar procedures. Our primary objective was to find out if hit rates were at or above chance levels. Our secondary objective was to investigate whether there was a difference in hit rates with familiar and unfamiliar e-mailers. Surveys have shown that telepathy mainly occurs between family rnembers and close friends. In our experiments on telephone telepathy, hit rates were significantly higher with familiar than with unfamiliar callers (Sheldrake & Smart, 2003a, 2003c).

METHOD

Summary

Each participant had four potential e-mailers. At least two of these were chosen by the participants and were family members or friends. Participants could nominate all four, but if they nominated only three or two people, unfamiliar e-mailers were included in the test to make up a total of four.

Before each trial, the experimenter selected one of these four people at random by the throw of a die and sent that person an e-mail asking him to e-mail the participant at a fixed time, say 10:10 AM. The participant knew that an e-mail would be sent by one of these four people at exactly 10:10. One minute before, at 10:09, he sent an e-mail to the experimenter, guessing who was about to e-mail. When the chosen e-mailer sent the e-mail at 10:10, he also sent a copy (using the "cc" procedure) to the experimenter. As e-mails display the time they were sent as a standard feature, it was easy to establish that the guesses were in fact sent before the e-mails.

In the first series of trials, the participants were not filmed. In the second series, participants were filmed continuously on time-coded videotape to ensure that they were not receiving any other e-mail messages or telephone calls during the trials. The videotapes were scrutinized "blind" by an independent evaluator.

Participanls

We recruited participants through advertisements on a recruitment web site.[3] Our advertisements read: "Do you know who is e-mailing you before you receive it? Good rates of pay for simple fun experiments as part of Rupert Sheldrake's psychic research project. If you would like to take part, reply now!" We were not trying to sample the population randomly, but to find people who might be telepathic in connection with e-mails. A sample biased in favour of possible telepathic ability would provide a stronger test of the null hypothesis.

We sent details of the test procedure to the people who replied, asking them to nominate people to whom they thought they might respond telepathically. We encouraged them to nominate four e-mailers, but accepted participants who could find only two or three people willing to take part. The participants supplied us with their own postal addresses, e-mail addresses, and telephone numbers, as well as those of their e-mailers. We also asked participants to tell us when they would be able to take part in tests and to check that their e-mailers would be free at those times. We paid participants £10 per unfilmed trial and £15 per videotaped trial, regardless of the outcome. When participants nominated only two or three e-mailers, one or both of the authors served as e-mailers to make up the total number of four. The authors were unfamiliar to these participants.

All participants were asked to take part in an initial series of 10 trials. Most people did so, but some were unable to complete the series, most of- ten because it proved too difficult to persuade several people to take part at the same time. We planned in advance to test 50

participants in this first phase. When some participants dropped out, we continued to recruit more until 50 had completed the 10 trials each. We then asked some people who scored at levels above chance to take part in a further series of 10 trials to assess whether their hit rates were consistent.

Of the 50 participants who completed at least 10 trials, 29 were women and 21 men. These tests took place between January, 2002 and August, 2003.

For the second series of tests, we recruited five participants who had scored at levels above chance in the preliminary tests and asked them to take part in a new series of 30 videotaped trials each. Four were women and one was a man, their ages ranged from 16 to 29 years. Their details and their nominated e-mailers were as follows:

Subject 1: male; tested in February- March 2003 in Winchester, England; date of birth March 20, 1982; his three familiar e-mailers were fellow students in Winchester, living in different parts of the city.

Subject 2: female; tested in April-June, 2003, in East Kilbride, Scotland date of birth January 21, 1974; three familiar e-mailers: two were members of her family, living in the same town, and the other was a friend who lived in Washington, Tyne and Wear, about 150 miles away.

Subject 3: female: tested in July, 2003 in Plymouth, England: date of birth May 4, 1983; all four e-mailers were friends; one lived in the same town, Plymouth, the other three in or near London, about 230 miles away.

Subject 4: female; tested in September-October, 2003, in Leicester, England: date of birth August 13, 1982: all three familiar e-mailers were friends living in her native place, Hong Kong, over 6,000 miles from her student lodgings in Leicester.

Subject 5: female; tested in September-October, 2003, in Wolverhampton, Eng!and; date of birth May 14, 1987; two friends were in Tenbury Wells, Worcestershire, about 20 miles from her house in Wolverhampton; another friend was in Sanquhar, Dumfries and Galloway, Scotland, about 220 miles away.

Procedure

Before the series of tests began, the procedure was explained to the participants, and they were notified in advance when each trial would be carried out. The participants were asked to turn on their computers at least 10 minutes before the first trial. There were five trials in a session at 10-min. intervals, for example, at 10:00, 10:10, 10:20, 10:30, and 10:40 AM. One minute before each of these times the participant had to e-mail the experimenter with a guess as to who was about to e-mail. The participants knew that for each trial one of their four potential e-mailers would be selected at random by the throw of a die.

We used high-quality casino dice and a ribbed casino-style dice cup, purchased in Las Vegas, Nevada. Each of the potential callers was assigned a number from 1 to 4 and was selected by the die showing one of these numbers after being thrown. If the die showed 5 or 6, then it was thrown again until a number between 1 and 4 came up. The randomizations were tested statistically as described below. In the first series of trials, which were not filmed, the experimenter threw the die repeatedly before the session began to select the e-mailers for each of the trials. For the second series of trials, which were filmed, the die was thrown immediately before each individual trial.

The participants either used their own computers at home or computers at their place of work or study. They and their e-mailers were asked to ensure that the clocks on their computers were set exactly to the correct time before the experiment began. In cases where e-mail addresses were web-based (as, for example, in hotmail.corn), the "time sent" was derived from a clock on the web site and was therefore already set to the correct time. Most ol the participants and e-mailers in these tests had web-based e-mail addresses.

Seven to eight minutes before each trial, the experimenter sent an e-mail to the randomly selected e-mailer saying that he had been chosen, asking him to think about the participant and then send an e-mail exactly at the specified time, with a copy to the experimenter. The other three potential e-mailers were not notified. They were told in advance that, if they had not heard from the experimenter by five minutes before the trial time, they had not been chosen and should carry on with whatever they were doing and not think about the participant.

The experimenter printed the e-mails from the participants with their guesses and also the copies of the e-mails from the e-mailers to the participants. These hard copies provided a permanent record of the exact times, to the nearest second, at which the e-mails were sent, which made it possible to ascertain the guesses were in fact made before the e-mailers sent their e- mails. Some trials were aborted or were invalid so participants were asked to do extra trials to make up the prespecified number. In Series 1, consisting of 552 unfilmed trials with 50 participants, a total of 40 trials were excluded and replaced with extra trials. In Series 2, consisting of 150 trials with 5 participants, 11 trials were excluded and replaced. None of these exclusions depended on subjective decisions by the experimenters but

rather on the objective record provided by the e-mails as follows. The numbers ot trials excluded in Series I and 2 are indicated in parentheses. (a) The e-mailers sent their e-mails too early, before the participants had made their guesses (Series 1, 18 trials; Series 2, 5 trials). (b) The e-mailers sent their e-mails too late, more than 5 minutes alter the designated time (Series 1, 2 trials; Series 2, 1 trial), (c) The e-mailers received their instructions but did not send their e-mails, usually because their computers crashed (Series 1, 7 trials), (d) The participant failed to make a guess (Series 1, 1 trial), (e) The participants sent their guesses too late after the e-mailers had sent their e-mails (Series 1, 2 trials).

Filming and Analysis of Videotapes

For the filmed experiments, we provided the participants with a Hi-8 camcorder, which they set up in a fixed position so that the participant and the computer were in full view. The participants themselves switched on the video camera at the beginning of the session and switched it off after the trials had been completed. When a cassette was full, they mailed it to the authors. In all cases, the trials were filmed on time-coded videotape, with the date and time burnt into the film.

We asked the participants to cover the screen of their computers with a thick towel, so that the screen was not visible to ensure they were not obtaining information by e-mail or through chat-rooms during the test periods. We also asked them to turn off cell phones and told them that any trials in which they received a phone call or text message would be disqualified.

The participants were asked to say their guess out loud to the camera a minute before the prespecified trial time, so that it was recorded. Only then did they lift the cloth covering the computer screen and send the e-mail with their guess on it. They then waited for the e-mail from the e-mailer, and after they had received it replaced the cloth over the computer screen.

The Hi-8 recordings were transferred to VHS video cassettes and viewed by one of the authors, who noted the guesses made by the subjects, the exact time at which they made their guesses, and the times at which they uncovered and recovered the computer screen. She also noted if and when they went off camera or received telephone calls, in which case the trial was disqualified. This preliminary analysis of the tapes permitted errors in procedure to be detected and trials to be disqualified in time for the subject to do additional trials to make up the prespecified total ot 30. However, this preliminary scoring was not "blind" since the reviewers were the experimenters. All the tapes were subsequently scored "blind" by a person who was not otherwise involved in any of these tests. The agreement with the preliminary analysis by the authors was excellent: all evaluations were in agreement.

Also, guesses spoken out loud to the camera were in agreement in all cases with those communicated to the experimenter by e-mail.

Only for Subject 5 was it necessary to disqualify any trials as a result of the reviewing of the videotapes. In her first three trials, she forgot the instructions and uncovered the computer screen before making her guess to the camera, and on one trial there was a telephone call during the test session. She carried out four extra trials to compensate.

For two participants, some videotapes were lost in the post, so these filmed trials could not be included in the totals because they could not be evaluated blind. But the results of these trials were still available from the e-mail record and are included in parentheses in Table 3.

Statistics

The exact binomial test was used for testing of the null hypothesis that the proportion of correct hits would be at the chance level of 0.25 or 25% (Siegel & Castellan, 1988). Exact 95% confidence limits for the true probability of a correct response were calculated as described by Hahn and Meeker (1991). For the comparison of results with familiar and unfamiliar callers, the Fisher exact test was used (Siegel & Castellan, 1988). Cohen's effect size *d* was calculated according to the formula $d = [p(\text{hits observed}) - 0.25]/\sqrt{(0.25 \times 0.75)}$.

For a participant-by-participant comparison of hit rates with familiar and unfamiliar e-mailers, a randomized test was used. This involved carrying out random permutations of the guesses (Noreen, 1989). The number of e-mails from the different senders remained the same and so did the number of guesses of each e-mailer's name, but the guesses were assigned to the e-mails at random in 30,000 different combinations. This statistical method does not alter the bias in guessing the names of familiar e-mailers. Given this response bias, the method estimates how likely the observed pattern was to have arisen by chance. The results from different participants were combined, using the Stouffer-Hemelrijk method, to obtain an overall estimate of the significance of the difference.

Test for Randomness

Trials were randomized by the throw of a die, and for each trial, each e-mailer was assigned a number from 1 to 4. We tested the randomization by comparing the actual frequency of the numbers 1 to 4 with the expected frequency, using the chi-square test (with 3 *df*). We also compared the actual with the expected number of repetitions, that is, the number of times the same number appeared twice in a row, using the binomial test. The expected number of repetitions was 0.25(n - 1). These statistical tests showed that in all cases the randomizations did not differ significantly from chance expectation.

RESULTS

Series 1: Unfilmed trials

Overall results - .Fifty participants completed the prespecified 10 trials each. Altogether, there was a total of 552 trials, on which there were 235 hits (43%), significantly above the chance expectation of 25% (z = 9.49, p = 2 x 10^{-19}; Cohen d = 0.42). The 95% confidence limits of this hit rate were from 38% to 47%. A detailed table of results is available. [4]

Out of the 50 participants, 43 scored above chance levels and 7 below. By chance, according to the binomial distribution, 24 would be expected to score above chance and 26 below. The difference of the actual results from chance was statistically significant (z = 5.54; p = 2 x 10^{-8}, one-tailed). There were 29 female participants and 21 male. The difference between the average scores for men and women was nonsignificant.

Three of the participants completed a second series of 10 trials, and one completed a third series. In the first series, in 30 trials there were 16 hits (53%, p = 0.001) and in the subsequent 40 trials 24 hits (60%, p = 3 x10^{-6}). These hit rates were not significantly different.

Some participants we recruited did not complete the prespecified series of 10 trials. Usually this was because of the difficulty of persuading their e-mailers to be available at the same time. Some gave up because of change of circumstances, like getting a job. Perhaps some lost interest. For whatever reasons, 48 people did fewer than 10 trials. Together these 48 people completed 195 trials, an average of 4.1 per person. They guessed correctly 67 times (34%), a hit rate significantly above the chance level of 25% (z = 2.94, p = 0.002, d = 0.21).

Familiar and unfamiliar e-mailers - Ten of the 50 participants nominated all four of their e-mailers, 34 nominated three e-mailers, and 6 nominated only two. The overall hit rates were very similar in all three groups (Table 1).

The overall hit rate with familiar e-mailers was higher than that with unfamiliar ones (Table 2). However, these comparisons do not take into account a response bias in favour of familiar e-mailers. This bias would, by chance alone, give rise to differences in hit rates with familiar and unfamiliar people. In an extreme example, if a participant guessed only the names of familiar people and never guessed the names of unfamiliar e-mailers, then the hit rates with the familiar people would be above chance and with unfamiliar people zero. The overall hit rate would be at the chance level of 25% in the absence of telepathy. Some participants showed a response bias in

TABLE I

NUMBER or VARIABLES IN COMPARISON OF TESTS WITH NO UNFAMILIAR E-MAILERS WITH ONE AND WITH TWO UNFAMILIAR E-MAILERS

	Unfamiliar E-mailers		
	None	One	Two
Participants	10	34	6
Trials	100	382	70
Hits	46	159	30
% Hits	46	42	43
z	4.73	7.44	3.31
p	0.000004	1 x 10^{-12}	0.0008
d	0.48	0.39	0.41

favour of familiar people, and as a result the total number of guesses of the names of familiar people exceeded the total number of trials involving familiar people. There were correspondingly fewer guesses of the names of unfamiliar people (see Table 2).

TABLE 2

HIT RATES WITH FAMILIAR AND UNFAMILIAR E-MAILERS IN TESTS WITH ONE AND TWO UNFAMILIAR E-MAILERS

Measure	One unfamiliar (n = 34)		Two unfamiliar (n = 6)	
	Familiar	Unfamiliar	Familiar	Unfamiliar
Trials	272	110	36	34
Guesses	300	82	42	28
Hits	122	37	22	8
Hits % of trials	45	34	61	24
Hits % of guesses	41	45	52	29

A simple way of taking the response bias into account is to express the hit rates on the basis of guesses (Schmidt, Mailer, & Walach, 2003). The greater the response bias in favour of familiar people, the greater the chance of a hit and the lower the chance of a hit with

unfamiliar people. For the 34 participants who had only one unfamiliar e-mailer, 41% of the guesses of familiar names were hits, but so were 45% of the guesses of the names of the unfamiliar e-mailers (Table 2). This difference was nonsignificant.

By contrast, for the six participants with two unfamiliar e-mailers, the hit rates remained higher with familiar than unfamiliar people when expressed on the basis of guesses: 52% compared with 29%. In a randomized permutation analysis, the hit rates with familiar and unfamiliar people were significantly different ($z = 3.37$, $p = 0.0004$, one-tailed test).

Series 2: Videotaped Trials

Overall results of filmed experiments - All five participants in the filmed experiments had already taken part in unfilmed tests on which their hit rates were 50% or more. In 137 filmed trials, there were 64 hits (47%), with 95% confidence limits from 38% to 55% ($z = 5.77$, $p = 3 \times 10^{-8}$, $d = 0.50$).

The videotapes of 13 trials were lost in the post, but the outcomes were still known from the e-mails. When the data from these 13 trials were included, there was a total of 150 trials with 70 hits, again a hit rate of 47%, with 95%. confidence limits from 38% to 55% ($z = 6.03$, $p = 1 \times 10^{-8}$ $d = 0.50$).

Results for individual participants- Four subjects had hit rates significantly above chance, ranging from 43% to 58% (Table 3); one subject (Subject 2) had a hit rate at the chance level. The hit rates with individual e-mailers varied from 17%) to 75%. Details of the responses to individual callers are given in supplementary tables, available on request (Supplementary Tables 5-9).[4]

TABLE 3
NUMBER OF TRIALS AND HITS FROM VIDEOTAPED E-MAIL TELEPATHY TRIALS FOR FIVE SUBJECTS.

E-mailer[3]	Subject 1		Subject 2		Subject 3		Subject 4		Subject 5	
	Trials	Hits	Trials	Hits	Trials	Hits	Trials	Hits	Trials	Hits
F1	9	5	6 (7)	1	9	4	11	7	10 (12)	6 7
F2	5	3	9 (11)	2 3	8	4	4	3	4 (5)	3 4
F3	10	3	5 (8)	2 3	6	2	8	2	5 (6)	3
F4/UF1	6	2	1 (4)	0 1	7	5	7	4	7	4
Total	30	13*	21 (30)	5 8	30	15**	30	16**	26 (30)	16** 18**
% Hits	43		24 (27)		50		53		58 (60)	

Note - Numbers in parenthesis show results including data from trials for which videotapes were lost. Subject 3 had four familiar e-mailers, Fl-F4. The other four subjects had three familiar (F1-F3) e-mailers and one unfamiliar (UF1) e-mailer. * $p < 0.05$), ** $p < 0.01$

Four of the subjects had one unfamiliar e-mailer. The average hit rate with the unfamiliar and the familiar e-mailers was the same, 46%. There was an overall response bias in favour of the unfamiliar e-mailer, and the hit rate expressed on the basis of guesses was 37% with familiar e-mailers and 48% with the unfamiliar e-mailer. However, on a randomized permutation analysis this difference was nonsignificant.

DISCUSSION

Overall Findings

The hit rates in the unfilmed and filmed trials were well above chance. These results were similar to those in tests of telephone telepathy (Sheldrake & Smart, 2003a, 2003c; Sheldrake, *et al.,* 2004). As with telephone telepathy, some participants had higher hit rates than others. These differences are not surprising. People differ in visual acuity, auditory sensitivity, and in many other respects, so differences in telepathic abilities would seem likely. The existence of consistent individual differences is supported by retesting of high-scoring participants. On unfilmed trials all three participants, and in filmed trials four out of five participants (Table 3), again scored above chance.

In all our tests, the e-mailers were in different buildings from the participants and were usually many miles away. Direct sensory communication, unaided by technology, was not feasible. The guesses were made before the e-mailers sent their messages. Hence neither the content of the messages nor the exact times at which they were sent could have affected the guesses. These results might appear to support the existence of telepathy. However, there could be alternative explanations. On the one hand, perhaps the results could be accounted for in terms of cheating. On the other hand, if the results cannot be dismissed on the basis of cheating, then perhaps they could be explained in terms of other forms of psi, rather than telepathy.

In the unfilmed experiments, there are three ways in which cheating could have occurred. First, participants could have received other e-mails from one or more of their e-mailers before they made their guesses, telling them if they had been selected, or they could have received telephone calls or text messages. Second, participants could have had accomplices who received e-mails, text messages, or telephone calls from e-mailers and passed this information on to them. Third, participants could have altered the clocks on their computers, making them a few minutes late. In this way they could have received messages from their e-mailers first and then sent their "guesses." From the time on the e-mails, it would then appear that the guesses had been sent before they received the messages from their e-mailers. But only some e-mail systems depend on the person's own computer clock for the "time sent." In web-based e-mail systems, like hotmail.corn, the time is given by a clock on the server. Most of our participants (and most of their e-mailers) had web-based e-mail addresses, so altering computer clocks could not have accounted for their responses.

We cannot rule out the possibility that some of our participants on the unfilmed trials were cheating, but it seems to us unlikely that most of them would have done so. Participants were recruited independently; they lived all over Britain, and most did not know each other. For cheating to explain our results, the majority of participants would have had to want to deceive us, thought out ways to do so, and taken the trouble to put these methods into practice. It would have been much harder to cheat on the filmed trials than on the unfilmed trials. Hence the average score in filrned trials should have declined, but in fact it was somewhat higher, 47% as opposed to 43%.

Nevertheless, there are still at least two ways in which people could conceivably have cheated when being filmed. First, they could have had an accomplice not visible in the field ol view of the camera. Such an accomplice could have received information through text messages, for example, and given signals to the participant that we could not detect on the videotape. To test this hypothesis in comparable telephone telepathy tests, two experiments were carried out in which not only the participants but also the callers were filmed continuously in the presence of experimenters. The success rates were 47% (Sheldrake & Smart, 2003c) and 50%. (Sheldrake, *et al.,* 2004).

Second, participants could have had cell phones in their pockets or concealed in their clothing set to the "vibrate" mode, through which they could have received secret signals. In our opinion, it is very unlikely that all the successful participants independently thought of this method of cheating and were motivated to put it into practice. They received no extra payment for high scores. In any case, an examination of the actual data makes the vibrating cell phone hypothesis implausible. Consider, for example, the results for Subject 4 (Table 3). Her highest hit rate occurred with F2. I/we assume that F2, when he was selected, sent a secret message by telephoning her to make a hidden cell phone vibrate, we might perhaps be able to account for her scoring three out of four hits when F2 actually rang. But, in fact, she guessed F2's name 10 times altogether, and 7 of these guesses were wrong, In no cases were participants always correct with any given e-mailer (Table 3), and in no case did they only guess that e-mailer's name on trials when that person was e-mailing (as shown in supplementary Tables 5-9[4]). So if any of the participants were cheating, they did so very inefficiently. But some skeptics might argue that this just shows how cunningly they concealed their strategy.

In replications of this work, it would be important to test the vibrating cell phone hypothesis. It is now technologically feasible to do so. Cell phone detectors are commercially available at modest prices and are used in theatres, schools, and examination rooms to sound an alarm when there is a switched-on cell phone in the vicinity. Such detectors could be used to ensure that no cheating through cell phones was possible.

In the absence of "normal" sensory communication, if some people can indeed tell when they are about to receive an e-mail from a particular person, this need not necessarily imply telepathy. Instead, other forms of ESP or psi could be involved. People might have predicted the future state of e-mail receipts by precognition, or they might even have clairvoyantly witnessed the sender's acts without any mind-to-mind exchanges.

These forms of psi could in principle be distinguished from each cither empirically. Whereas telepathy seems to take place primarily with familiar people (Sheldrake, 2003), precognition might be expected to work just as well with any sender. The clairvoyant hypothesis might also predict that there would be no difference between familiar and unfamiliar e-mailers, since no mind-to-mind exchanges are involved.

Comparison of familiar and Unfamiliar Callers

There was a higher success rate with familiar than unfamiliar e-mailers in the unfilmed trials, but some of the participants showed a response bias in that they guessed the names of familiar e-mailers more often than unfamiliar people. When there was only one unfamiliar e-mailer, the hit rates as percentages of guesses were similar with the familiar people and the unfamiliar person, and the difference was nonsignificant. The same was true for filmed trials. However, trials with only one unfamiliar e-mailer provide a weak test of familiar-unfamiliar differences. If participants could somehow feel when familiar e-mailers were thinking about them, then the absence of such a feeling could have helped them to detect when the unfamiliar person was about to e-mail them.

By contrast, in tests with two unfamiliar e-mailers, there was a higher hit rate with familiar than with unfamiliar people, even taking the response bias into account. This difference was statistically significant. In our experiments on telephone telepathy, in most of which there

were two unfamiliar callers, there was also a significantly higher success rate with familiar than unfamiliar people (Sheldrake & Smart, 2003c). These findings favour the telepathy hypothesis as opposed to those about clairvoyance or precognition.

In further research, to compare the hit rates with familiar and unfamiliar senders, it would clearly be better to have two unfamiliar people rather than one.

Effects of Distance

In some of these trials, the callers and participants were hundreds or even thousands of miles apart. For example, Subject 4 had strikingly high hit rates with her friends in Hong Kong, 6,000 miles away (Table 3). These results suggest that telepathic influences are capable of acting at great distances. Telephone telepathy also seemed to occur over thousands of miles (Sheldrake & Smart, 2003a, 2003c). Previous research has shown that apparent telepathy both under spontaneous and experimental conditions does not appear to decline with distance (e.g., Gurney, Myers, & Podmore, 1886; Stevenson, 1970; Braude, 1979; Sheldrake, 1999, 2003). In research with e-mail and telephone telepathy, it would be desirable systematically to test for the effects of distance.

Replication Using, Automated Methods

In spite of the growing body of evidence for psi phenomena, their existence is still controversial. This situation could perhaps change were there a relatively simple way of carrying out replicable experiments, enabling many people to take part in this research, for example, in class or student projects. Tests involving e-mails could provide one such method.

In further research on e-mail telepathy, it would probably be best to use an automated procedure in which a computer selects the senders at random and alerts them to the fact they have been chosen. For such tests, the participant could choose two familiar people to act as senders, and the computer could generate two virtual senders. Of course, participants would not be expected to be telepathic with the computer, but they could conceivably anticipate receiving messages from virtual senders by clairvoyance or precognition.

Specifically to test for clairvoyance, the experimental procedure could be modified so that there were four virtual senders instead of two. In tests for precognition, the computer would select the senders only after the participants had guessed who was about to send a message.

We do not expect that a random sample of the population would have hit rates as high as those in this study. The wording of the advertisement for participants probably attracted people who think of themselves as telepathic, and for our filmed experiments participants with high hit rates in unfilmed tests were selected. A sample recruited at random, including people with little or no previous experience of telepathy, would probably have hit rates closer to chance. Hit rates would probably be lower still if the senders were unfamiliar. To study telepathy experimentally, it is more fruitful to work with participants with above-average abilities and with senders they know well. An internet-based procedure would potentially enable large numbers of people to take part in this research, making it possible to identify people with high hit rates for further testing under rigorous conditions.

RUPERT SHELDRAKE
London

PAMELA SMART
Ramsbottom, Bury

NOTES

1. This work was supported by grants from the Lifebridge Foundation, New York, the Bial Foundation, Portugal, and the Institute of Noetic Sciences, Petaluma, California. We thank those who participated in these tests, Carole Macaulay for her blind evaluation of the video-tapes, Jan van Bolhuis for his help with the statistical analysis, and our anonymous referees for their helpful comments.

2. Address correspondence to Rupert Sheldrake. 20 Willow Road, London N\X'3 ITJ, UK. or e-mail (ars@dircon.co.uk)

3. Called www.hotrecruit.co.uk.

4. See supplementary tables on file as Dociiment APD2005-031 with the Archive for Psychological Data, P.O. Box 7922, Missoula, MT 59807. Remit $15.00 for photocopy to the Archive.

REFERENCES

BEM, D. J., & HONORTON, C. (1994) Does psi exist? Replicable evidence for an anomalous process of information transfer. *Psychological Bulletin* 115, 4-188.

BEM, D. J., PALMER, J., & BROUGHTON, R. (2001) Updating the Ganzfeld database: a victim of its own success? *Journal of Parapsychology,* 65, 207-218.

BLACKMORE, S. (1997) Probability misjudgement and belief in the paranormal. *British Journal of Psychology.* 88, 683-689.

BRAUDE, S. (1979) *ESP and psychokinesis: a philosophical examination.* Philadelphia, PA: Temple Univer. Press.

BROWN, D., & SHELDRAKE, R. (2001.) The anticipation of telephone calls: a survey in California. *Journal of Parapsvchology,* 65,145-

156.
GALLUP, G., & NEWPORT, P. (1991) Belief in paranormal phenomena among American adults. Skeptical Inquirer, 15,137-146.
GURNEY, E., MYERS, F. W. H., & PODMORE, F. (1886) *Phantasms of the living.* London: Kegan Paul, Trench, Trubner.
HAHN, G. J., & MEEKER, W. Q. (1991) *Statistical inlervals: a guide for practltioners.* New York: Wiley.
HENRY, J. (Ed.) (2005). *Parapsychology* London: Routledge.
HONORTON, C.. (1985) Meta-anaivsis of psi Ganzield research: a response to Hvman. *Journal of Parapsychology,* 49, 51-91.
HUMPHREY, N. (1995) *Soul searching: human nature and supernatural belief.* London: Chatto & Windus.
HYMAN, R. (1985) The Ganzfeld psi experiment: a critical appraisal. *Journal of Parapsychology* 49,3-49.
HYMAN, R., & HONORTON, C. (1986) A joint communiqué: the psi Ganzfeld controversy. *Journal of Parapsychology,* 50,351-362.
LOBACH, E, & BIERMAN, D. J. (2004) Who's calling at this hour? Local sidereal time and telephone telepathy, *Proceedings of the Parapsychological Association Annual Convention.* Cary, NC: Parapsychological Association. Pp. 91-97.
MILTON, J. (1999) Should Ganzfeld research continue to be crucial in the search for a replicable psi effect? *Journal of Parapsychology,* 60, 309-333.
MILTON, J., & WISEMAN, R. (1999) Does psi exist? Lack of replication of an anomalous process of information transfer. *Psychological Bulletin,* 125, 387-391.
NOREEN, E. W. (1989) *Computer intensive methods for testing hypotheses.* New York: Wiley.
PRATT, J. G., RHINE, J. B., SMITH, B. M., STUART, G. E., & GREENWOOD, J. A. (1966) *Extrasensory perception after sixty years.* Boston, MA: Bruce Humphries.
RADIN, D. (1997) *The conscious universe: the scientific truth of psychic phenomena.* San Francisco, CA: HarperCollins.
SCHMIDT, S., MÜLLER. S., & WALACH, H. (2003) Letter, *Journal of Parapsychology,* 67, 409-411.
SHELDRAKE, R. (1999) *Dogs that know when their owners are coming home, and other unexplained powers of animals.* New York: Crown.
SHELDRAKE, R. (2000) Telepathic telephone calls: two surveys, *Journal of the Society for Psychical Research*, 64,224-232.
SHELDRAKE, R. (2003) *The sense of being stared at, and other aspects of the extended mind.* New York: Crown.
SHELDRAKE, R., GODWIN, H., & ROCKELL, S. (2004) A filmed experiment on telephone telepathy with the Nolan sisters, *Journal of the Society for Psychical Research,* 68, 168-172.
SHELDRAKE, R., & SMART, P. (2003a) Experimental tests for telephone telepathy, *Journal of the Society for Psychical Research.* 67, 174-199.
SHELDRAKE, R., & SMART, P. (2003b) Letter, *Journal of Parapsycholology,* 6/, 411-414.
SHELDRAKE, R., & SMART, P. (2003c) Videotaped experiments on telephone telepathy, *Journal of Parapsychology,* 67, 147-166.
SIEGEL, S., & CASTELLAN, N. J. (1988) *Nonparametric statistics for the behavioral sciences.* New York: McGraw-Hill.
STEVENSON, I. (1970) *Telepathic impressions.* Charlottesville, VA: Univer. Press of Virginia.

This paper is online at the website of the journal publishers :
http://www.amsciepub.com/doi/abs/10.2466/pms.101.3.771-786

Top of Page