

Can We Help Just by Good Intentions? A Meta-Analysis of Experiments on Distant Intention Effects

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Abstract

Objectives: In recent years, several clinical trials have assessed effects of distant healing. The basic question raised by these studies is whether a positive distant intention can be related to some outcome in a target person. There is a specific simple experimental setup that tests such a basic assumption. The task is to focus attention and to indicate unwanted mind wandering by a button press while at the same time a second remote person is either supporting this performance or not according to a randomized schedule. A meta-analysis was conducted to assess the overall effect of this experimental approach.

Methods: A systematic literature search yielded 11 eligible studies, with 576 single sessions and almost identical design, that were conducted on three different continents. Study parameters were extracted and combined with a random-effects model.

Results: The model yielded an overall effect size of $d=0.11$ ($p=0.03$). Furthermore, there was a significant difference of the frequency of button presses between studies conducted in Indonesia and the Western hemisphere ($p<0.001$). Two (2) similar experimental setups applying electrodermal activity as dependent variable meta-analyzed earlier showed almost identical effect sizes. This can be considered as mutual validation of the three data sets.

Conclusions: The hypothesis of the positive effect of benevolent intentions is supported by the data presented. It is concluded that especially the intentional aspect common to all three different tasks may be responsible for these unorthodox findings. These findings may have implications for distant healing research and health care as well as for meditation performance.

Introduction

LITTLE INTENTIONAL ACTS such as sending mentally good wishes for recovery to a suffering relative, to keep one's fingers crossed when a good friend faces a difficult examination, or mentally cultivating a positive image of a beloved person while being separated are just a few examples of a wider group of behaviors related to what is often expressed as *distant intentions*.^{1–5} These behaviors can be seen as the basic underlying procedures of more formal practices of distant healing. Recently, several forms of spiritual healing have grown popular within the field of alternative and complementary medicine and were assessed in clinical trials (e.g., as distant healing^{6–8} or as intercessory prayer^{9–11}). However, so far the abovementioned basic assumption of all these clinical approaches (i.e., whether a positive distant intention can be related to the behavior or physiology of the target person) has hardly drawn any scientific attention. Interestingly, there is a

specific type of study, by the name of *attention focusing facilitation experiment (AFFE)*, testing this fundamental assumption.

The first of these experiments was conducted by William Braud and colleagues.¹² In this study, 1 participant had to focus his or her attention on a candle. Whenever s/he noticed that his or her mind was wandering s/he returned with his or her attention to the candle and pressed a button. A second participant, located in a distant and isolated room, acted as "remote helper." That second participant had a monitor that displayed either one of the two experimental conditions (i.e., "Control" or "Help"). During "Help" periods "the helper focused her own attention on a similar object and concurrently maintained an intention for the distant participant to focus well on his or her object and remain free from mental distractions and thus be better equipped to succeed in the attentional task."¹² During control periods the helpers occupied their minds with other matters. Overall, 16 1-minute periods took place and 60 participants showed on average 13.6 button

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presses during control and 12.4 during help periods, respectively. The difference was just significant ($p=0.049$).

This experiment was replicated by several groups. While most of them conducted these experiments within a normal University laboratory setting, one group set out to investigate whether this task would also work in a non-Euro-American culture by conducting several fieldlike experiments in Bali.

Since all of these AFFE studies were a replication of the first one by Braud et al.¹² within a very strict protocol, the current author set out to compile all data in a meta-analysis. The present study objectives were (1) to compute an overall effect size of all AFFE studies that can be identified, (2) to check whether there are significant moderating variables especially regarding the cultural differences between Bali and Europe/United States, and (3) to compare the results of this meta-analysis with the results of meta-analyses of two other similar distant intention experiments.

Materials and Methods

Inclusion criteria

This study restricted analysis to experimental studies applying the AFFE as described by Braud et al.¹² Included were all studies that had completed their data collection by November 2011. Also included were both published and unpublished studies.

Literature search

Studies were identified by scanning the parapsychologic literature since the publication of the first study in 1995 until November 2011. Furthermore, reference lists of identified studies were inspected and principal investigators involved in this research were questioned (i.e., Caroline Watt and Hoyt Edge).

Data extraction

Studies were coded and the following parameters were extracted: publication type (journal, proceedings, not published), number of sessions (N); duration of sessions; number of experimental and control epochs; number of helpers; number of helpees; relationship between helper and helpee; mean number of button presses during experimental (i.e., helping) epochs; number of buttons pressed during control epochs; t -values; and df of the t -test comparing help versus control button presses, and p -values. All data relevant for effect size calculation were double checked.

Effect size

All experimental data stemmed from within-subject designs. All studies provide t -values stemming from a paired-sample t -test comparing scores of the experimental and the control condition. For each study, an effect-size d for the difference between control and experimental condition was calculated by the formula

$$ES(d) = \frac{t}{\sqrt{df}} \text{ with } df = N-1^{13}.$$

This is a d -type effect size that expresses the difference in a metric of standard deviations. For each effect size d_i the according variance is estimated by $\hat{\sigma}_i^2 = \frac{1}{N_i}$ which is the variance

of d_i under the null hypothesis, and is a good approximation for the variance of d_i for small effect sizes.

Statistical model

At first, the database was checked for homogeneity (i.e., whether all between-study variance can be explained by sampling error). This was done the by the Q -statistic.¹⁴ However, this test is often criticized since its statistical power is varying depending on the number of studies, between-study variance, and similarity of study size.¹⁵ For small data sets as in this case, it is known to have only limited power, and some statisticians recommend using a p -value of 0.10 in small samples.¹⁶ An alternative measure of homogeneity is suggested by Higgins and Thompson.¹⁷ Their proposed measure I^2 indicates the proportion of the overall between-study variance, which cannot be accounted for by sampling error. I^2 can be calculated directly from the Q -statistic.¹⁷ Based on the results of the homogeneity analysis, effect sizes can be combined by using either a fixed-effects model or a random-effects model. In both cases, effect sizes were integrated according to the formula provided by Shadish and Haddock.¹⁸

$$\bar{d} = \frac{\sum_{i=1}^k w_i d_i}{\sum_{i=1}^k w_i}$$

The weighting factor w_i was computed from the inverse of the conditional variance v_i of each study. Thus, for the fixed-effects model the weighting factor w_i for each study was N_i . For the random-effects model an additional variance term is added in order to adjust for a hypothesized variation of the true population parameter. This additional variance term was calculated from the amount of variance in the distribution of effect sizes, which couldn't be accounted for by sampling error. This variance term is called "unexplained variance" σ_δ^2 (for details on how to compute this term, see¹⁸). In this case, w_i computes as the inverse of the sum of the estimated and the unexplained variance: $w_i = \frac{1}{\sigma_\delta^2 + v_i}$.

Results

Altogether, 12 studies fulfilled the inclusion criteria^{12,19–22}; four of these experiments out of two reports*[†] are not published yet, and one was only published in a Proceedings volume.[#] It was decided to also include unpublished experiments since the field is relatively small and the authors had confidence that almost all conducted studies will be identified. Table 1 lists all studies including their main characteristics.

*Edge, H., Suryani, L. K., Tiliopoulos, N., Bikker, A., and James, R. Comparing Conscious and Physiological Measurements in a Cognitive DMILS Study in Bali. Bial Grant 116-04. 2008.

†Edge, H., Suryani, L. K., and Morris, R. L. Pursuing Psi in a Non-Euro-American Culture: Behavioral DMILS in Bali. Bial Grant 127/02. 2007.

#Brady, C. and Morris, R. L. Attention Focusing Facilitated Through Remote Mental Interaction: A Replication and Exploration of Parameters. 73-91. 1997. Durham, NC, The Parapsychological Association. The Parapsychological Association 40th Annual Convention. Proceedings of Presented Papers.

TABLE 1. ATTENTION FOCUSING FACILITATION EXPERIMENTS, WITH YEAR OF PUBLICATION (OR YEAR THE EXPERIMENT TOOK PLACE IF UNPUBLISHED)

Study authors	Year	N sessions	t-Value	p	d
Braud et al.	1995	60	2.002	0.05	0.26
Brady & Morris	1997	40	1.775	0.08	0.28
Watt & Brady ^a	2002/1	60			
Watt & Brady	2002/2	60	-0.823	0.41	-0.11
Watt & Baker	2002	80	1.040	0.30	0.12
Watt & Ramakers	2003	36	2.085	0.04	0.35
Edge et al.	2001	35	2.16	0.04	0.37
Edge et al.	2002	53	2.24	0.03	0.31
Edge et al. ^b	2003	40	0.44	0.66	0.07
Edge et al. ^b	2004	69	0.61	0.54	0.07
Edge et al. ^b	2005	60	-1.27	0.21	-0.17
Edge et al. ^b	2006	43	-1.11	0.27	-0.17

p-Values are two-tailed.
^aNot included in meta-analysis.
^bNot published.

The essential experimental features are the same for all these studies. In every study the task was operationalized in keeping the attention on a candle for a helpee and a helper. All sessions consisted of 16 1-minute periods in a randomized sequence of eight control and eight help periods each, only the 2004 and the 2006 study by Hoyt Edge and colleagues applied eight 2-minute periods (4 control and 4 help).

Eligible are only $k=11$ of the 12 studies with overall $N=576$ session as in one of the two studies published in Watt and Brady (2002), an artifact detected by the original investigators prevented the evaluation of the experiment.

The test of homogeneity yielded $Q=15.58$ for the 11 studies. Q is χ^2 distributed with $df=k - 1=10$, resulting in $p=0.11$. With $\sigma_s^2=0.01$, there remains some variance unexplained by sampling error. The computation of I^2 yielded $I^2=0.36$, indicating that 36% of between-study variation cannot be attributed to sampling error. With a conservative significant level of $p=0.10$ for the Q -test and 36% of variance unexplained, the fixed-effects model was therefore not used.

Next, moderating variables to account for the between-study variation were assessed. The effect of publication status (published versus unpublished) and cultural context (Bali versus Western) was tested, but no significant differences were found.

Thus, it was decided to apply a random-effects model. This resulted in an overall weighted mean effect size of $d=0.11$ ($p=0.03$, 95% confidence interval [CI] 0.01–0.22). The results are very close to the fixed-effects model ($d=0.11$, $p=0.01$, 95% CI 0.03–0.19).

Edge, Suryani, and Morris* have already noted that in the Balinese studies, participants showed significantly fewer button presses in both conditions. Table 2 gives an overview on the mean button presses for both conditions in each study.

In order to test the effect of culture on the frequency of button presses independently of the experimental condition, a repeated-measurement analysis of variance was performed with the within-subject factor *condition* (help versus control)

TABLE 2. MEAN BUTTON PRESSES FOR THE CONDITIONS "HELP" AND "NO HELP"

	Culture	Button presses (help)	Button presses (no help)
Braud et al.	Western	12.43	13.6
Brady & Morris	Western	18.45	19.6
Watt & Brady	Western	12.58	12.2
Watt & Baker	Western	10.35	10.76
Watt & Ramakers	Western	12.03	13.47
Edge et al.	Bali	2.06	2.8
Edge et al.	Bali	2.26	2.81
Edge et al.	Bali	2.5	2.6
Edge et al.	Bali	2.91	3.07
Edge et al.	Bali	2.75	2.45
Edge et al.	Bali	3.65	3.26

Both conditions had an overall length of 8 minutes.

and the between-subject factor *culture*. Both factors showed a significant main effect. The frequency of button presses was significantly different depending on the condition ($F=6.21$, $df=1/9$, $p=0.03$) and the culture ($F=68.03$, $df=1/9$, $p<0.001$); the interaction of these two was not significant. In order to illustrate this effect, an average rate of button presses per minute for both cultural settings was calculated. This was 0.35 for experiments in Bali and 1.69 for experiments in the United States or the United Kingdom.

Discussion

A meta-analysis was performed on a set of 11 studies with 576 single sessions on the question of whether the attentional performance of a participant varies in relation to the support by a remote person. The studies themselves were of remarkable similarity in their methodological approach. Thus, all studies can be considered to be direct replications²³ of each other and they form an ideal data-set for a meta-analysis. Nevertheless, the distribution of the effect sizes showed more variation than expected by sampling error. While statistical indices of homogeneity still made a fixed-effects model possible, a more conservative approach was taken by applying a random-effects model. A small ($d=0.11$) but significant effect size was found ($p=0.03$). However, the dismissed fixed-effects model resulted in the same effect size and only a little lower p -value ($p=0.01$).

A clear difference could be seen in the amount of button presses between the studies conducted in Indonesia compared to the ones conducted in the United States and in the United Kingdom. Participants in the Western world pressed the buttons almost five times more often than participants in Indonesia. There are several hypotheses regarding the causes of this striking difference, but they all rely on the basic interpretation of a cultural difference. Balinese and Westerners may differ in their threshold for judging mind wandering, in their level of being embarrassed to concede mind wandering, or even in their capability to maintain the focus.

Overall variation as well as variation due to culture in this sample of effect sizes may be due to several sources. Unfortunately, the sample is too small to have a sufficient statistical power for more extensive moderator analyses.

*Edge, H., Suryani, L. K., and Morris, R. L. Pursuing Psi in a Non-EuroAmerican Culture: Behavioral DMILS in Bali. Bial Grant 127/02. 2007.

Interesting variables in this respect would be, for example, geocosmic indices, such as local sidereal time, reflecting the earth's alignment toward the cosmic background, or fluctuations in the geomagnetic field. Earlier studies regarding anomalous cognition effects have provided some correlational evidence for these measures.^{24,25}

Overall, these results are in some sense remarkable, as they demonstrate a significant effect in a meta-analysis that cannot be explained by any current theoretical conception. On the other hand, one needs to consider that the results have a significant p -level of $p=0.03$. One or two more negative studies could move the p -value over the somewhat arbitrary demarcation line of 0.05 and thus result in a different interpretation.

Here it might be interesting to note that AFFE experiments are part of a larger series of distant intentionality experiments, which are also known by the acronym DMILS (direct mental interaction in living systems).^{26–28} The two most frequently conducted other setups are called *EDA-DMILS* and *Remote Staring*. In an *EDA-DMILS* experiment one participant tries to activate or calm another participant from a distance, and the electrodermal activity (EDA) of the latter one is measured as dependent variable. For the analysis, calming and activation epochs are compared. More than 45 studies of this kind were conducted. In the *Remote Staring* experiments, 1 participant is able to stare at another participant from a distance by means of a CCTV system. Here the dependent variable is also the overall physiologic arousal measured by the EDA of the staree; the control condition are epochs where the starrer is turning his or her attention away.

These two setups are different from AFFE with respect to the dependent variable (physiologic versus behavioral) and also regarding the precise task of the remote person (to activate versus to stare versus to help). On the other hand, they share many features that are, among others: (1) a 2-person effort, (2) a remote person performs an intentional task, (3) the dependent variable is measured on the other person, and (4) operationalization by two types of epochs that are randomized. In 2004, a meta-analysis of all *EDA-DMILS* and *Remote Staring* studies found small but significant effects for both experimental set-ups.²⁹ These can be compared to the findings reported here, and the results of all three meta-analyses can be seen in Table 3.

It is interesting to note that all three meta-analyses share almost the same effect size, around $d=0.11–0.13$. So after performing similar tasks in an almost identical experimental design, the overall results of 62 different studies with 1970 single trials converge to a significant effect size in the area of a tenth of a standard deviation. This correspondence can be seen as a

mutual validation of these three databases and thus serves as a strong underpinning of the meta-analysis reported here.

Furthermore, if one assumes that the effect sizes of the three independent meta-analyses do reflect the same true effect, one can speculate about its nature based on the similarities and differences of the three experimental set-ups. In this sense, the type of dependent variable (physiologic versus behavioral) seems to be of no importance. Also, the specific task seems not to be relevant. This leaves us with two features that might be relevant for this finding. One is the design of these experiments; the other one is the intentional component of the task. Regarding the former, it has to be acknowledged that all trials followed the same basic idea, which is a randomized sequence of experimental and control epochs. Based on a conservative approach, it is necessary to investigate whether such a design can in some way generate an artifact that is responsible for the findings. Indeed, there are some difficulties regarding the randomization sequence of the epochs. In order to avoid natural trends (e.g., tiredness) to create artifacts, the experimental and control epochs have to be distributed evenly over the entire session (for a more detailed discussion see²). However, only in the very first four studies this potential artifact was not recognized and thus not prevented by counterbalancing. Accordingly, these studies were removed from the *EDA-DMILS* meta-analysis (see²⁹). Besides, there may be more problems with this design not yet discovered. This seems to be unlikely, taking into account the number of different investigators and laboratories all over the world, but of course can never be ruled out.

The other hypothesis is that the effect is due to the *intentional* task of the remote person. If the specificity of task (i.e., helping, activating, or staring) is not of importance, we are left with the intentional component toward the remote person. In all these experiments, the active person is intentionally relating to the other person in some prescribed manner. It may be precisely this intentional orientation and relation that is responsible for the findings reported here. If this is true, then positively relating to others from a distance has a small effect.

One can think of several areas where such a distant intention effect is at work. One area is the already mentioned field of (distant) spiritual healing (intercessory prayer, distant healing). The present results support the existence of a basic relationship between positive intentions on one side and a positive outcome on the other. Furthermore, if intention matters even from a distance, this also has implications for health care. While the beneficial effects of a positive attitude in health care and nursing were already addressed,³⁰ one might now also consider that the positive effects of such an attitude are maintained even when a direct interaction is not taking place anymore. A third and different area applies to meditation performance. The task of the experiment to maintain the attention on one object and to return to it, whenever the mind wanders away, is one of the most basic processes practiced in many different types of meditation. Learning to maintain the attention for some time on a focus is a necessary condition for many other meditation techniques (e.g., for mindfulness meditation). Interestingly, many meditators report having more stable attention when meditating in a group compared to practicing alone (also called *Sangha effect*). While this might be explained by a conventional psychologic mechanism, there might also be an additional component through some type of distant intention effect. This is especially true if

TABLE 3. RESULTS FROM THREE META-ANALYSES ON DISTANT INTENTION EFFECTS

Experiment	k	N	d	p	95 % CI
DMILS	36	1015	0.106	0.001	0.043–0.169
Remote Staring	15	379	0.128	0.013	0.027–0.229
AFFE	11	576	0.114	0.029	0.011–0.217

k , number of studies; N , number of sessions; d , mean effect size; p , according p -value; 95% CI, 95% confidence interval of mean effect size; DMILS, direct mental interaction with living systems; AFFE, attention focusing facilitation experiment.

the positive intentions of the meditation are emphasized not only for oneself, but, as is often done, also for others.

Conclusions

If the data reported here are not due to some artifact in the design of distant intention experiments, it may be concluded that under some circumstances persons can intentionally interact or connect from a distance with each other, although this effect may be very limited in size and power. More specific research is needed in order to confirm or refute such an unorthodox claim. Overall, if the data of this study hold true, this might have some implications for the areas of nursing and health care, distant healing, as well as group meditation practice.

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Disclosure Statement

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