

TWO COGNITIVE DMILS STUDIES IN BALI

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Abstract: Two cognitive DMILS studies were carried out in Bali to pursue the question of whether a controlled experimental test could achieve positive results in a non-industrial culture. The task was to see if one person could help another person be more successful in focus meditation. In the first study, half of the participants were trained in meditation on a lit candle to see if meditation training affected the results. Overall, there were significantly fewer button presses in the Help period as opposed to the Control period, $t(34) = 2.16$, $p < .02$, one-tail, Cohen's $r = 0.35$, power = .55. Since the most successful condition resulted from Helpers trained in meditation and Helpees who were not trained and who said that they were easily distracted, we pursued this set of conditions in Study 2. Again, we achieve significant results in the predicted direction, $t(52) = 2.24$, $p < .02$, one-tail, Cohen's $r = 0.30$, power = .59. These results suggest that experimental parapsychology can be pursued productively in a non-industrial culture if carried out in a culturally sensitive way.

In spite of the great diversity among the world's cultures, every culture reports parapsychological phenomena. Claims of extraordinary events seem to abound in non-industrial cultures, from levitation, to fire-walking, to psychic surgery, and to dramatic instances of telepathy and clairvoyance.

Some of these claims are known to be false, but still have meaning for those involved (e.g. Reichbart, 1978). Practitioners who fake magical powers may still even consult each other, as was noted by Rose (1956) for some Australian healers. Other claims have been placed in doubt; for instance, Wiseman and Haraldsson (1995) investigated ostensible macro-PK in India. Although the swami investigated was not caught in trickery, he was able to produce objects only in informal conditions and not under more formal conditions. Lamont (2004), Lamont and Wiseman (2001), and Wiseman and Lamont (1996) note that tales of the famous Indian Rope trick were

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themselves made up or greatly exaggerated, a reminder that accounts of special events and abilities do not stand on their own as good evidence for their actual occurrence.

However, the question of whether psi phenomena occur extensively or in great strength in other cultures is an important one for a number of reasons. First, we might find alternative conceptualizations of psi, investigating how these events are understood within the specific worldview. Second, we can see which parapsychological claims are cross-cultural. Third, we might learn whether there is consistency among cultures in ways to develop and employ psi; for instance, the placing of a drop of oil on the fingernail of a child in Bali, who then sees an image of a scene where one can, e.g., find a lost object, seems to be a special case of scrying (Kelly and Locke, 1981). Fourth, there is the potential for new models of lab testing to emerge from the study of psi in more accepting cultures. Fifth, we might be able to develop a better understanding of the role of cultural variables in the production of psi, as well as psychological variables. Finally, we might gain insight into the role of ritual practices in the production of psi, especially in ritual-prone cultures. We may find more dramatic and more consistent effects in more supportive cultures and with trained participants who have already been selected for skills and may already have worked through any issues of guilt or fear; and we may be able to foster in other cultures a further development of their own understanding of their traditions and how to investigate them. For an overview of various issues concerning the investigation of psi effects in other cultures, see Angoff and Barth (1974) and Van de Castle (1977).

Unfortunately, there have not been very many attempts to elicit psi in non-industrialized cultures under formal or semiformal circumstances. The authors found only three such studies published in English language parapsychology journals before 1975. In the first one, Ronald and Lyndon Rose (Rose, 1952, 1955, 1956; Rose and Rose, 1951) performed a series of experiments using Australian Aborigines, which was successful. In fact, Lizzie Williams in one of these experiments (Rose and Rose, 1951) achieved the single most significant score published in a parapsychological journal. In this experiment, she made her guesses while tending to an unruly great-grandson, and had been one of the few Aborigines in this study who doubted their ability to produce telepathy. While her score accounted for most of the overall success in the first series, half of the Aborigines who participated in the second series of experiments scored at a significant level independently. In the second study, Robert Van de Castle (1972, 1974) found only marginal success with Cuna Indian students on San Blas Islands, east of Panama, even though he adapted the standard ESP card symbols to objects familiar to the natives. As opposed to these studies, Dorothy Pope (1953) reported no significant ESP in a test in New Guinea conducted by a schoolteacher there. Thus, while Rose (1956) asserts that his work demonstrates “that E. S. P. is probably more widespread among them [Aborigines] than among whites” (p. 227), testing across cultures does not yet support this conclusion. There have been too few such studies and those that have been conducted produced mixed results. Geisler (1984, 1985) has argued that more research should be done in environments more appropriate to the traditions of the cultures and the applications they normally employ. Yet, this approach also yielded mixed results when used by him with various Brazilian religious groups. It is important, therefore, to explore psi much further in different cultures, to get a better understanding of the roles played by supportive cultures in the manifestation of psi.

Bali is a good place to engage in a parapsychological experiment for several reasons. First, it is a culture that has been well researched in general, including studies of Balinese character and customs, art, and trance (Bateson and Mead, 1942; Belo,

1960; Covarrubias, 1972; Edge, 1993, 1994, 1996, 1998; Geertz, 1973; Jensen and Suryani, 1992; Lansing, 1974, 1983; Ramseyer, 1977; Suryani and Jensen, 1993). It has also been fairly well researched in terms of parapsychological phenomena, largely by Edge (1993) but also by others such as Suryani and Jensen (1993) and Thong, Carpenter, and Krippner (1993). Second, it is a culture that thoroughly accepts the existence of paranormal functioning, and research largely in India and Western cultures suggests that this is an important, although marginal, factor in psi production (e.g. Lawrence, 1993; Palmer, 1972). In our yet unpublished research, 78% of the Balinese believe that ESP is certain¹, while only 3% think that it is impossible. Third, Bali is a classic example of a relational culture, one in which the self is defined in terms of its relationship with others (Edge, in press; Lansing, 1974; Markus and Kitayana, 1991).

The present study attempts to be consistent with these factors. Having investigated various aspects of Balinese culture including parapsychological ones over a period of several years, Edge approached Morris regarding which existing experimental paradigms within parapsychology might make the most sense within a Balinese cultural context. After discussion and in consultation with Suryani, they agreed that it made sense to start with what have been referred to as DMILS (Direct Mental Interaction with Living Systems) procedures, specifically a kind of cognitive DMILS procedure as described below.

DMILS experiments have been performed for decades (for overviews, see Braud, 2003; Braud and Schlitz, 1991; Schmidt, 2003; Schlitz and Braud, 1997), and it is an important methodology for process oriented studies. In this protocol, a person tries to affect some physical, psychological, emotional, or cognitive processes in another remote person (although targets have included fish, plants and bacteria, among others). If there appears to be a systematic relationship between (a) one individual's intention to influence another individual's processes, and (b) some indicator of those processes, this has been construed as evidence suggesting a remote interaction of the sort often labeled as psi. For this paper, any such systematic relationship can be regarded as a DMILS effect. In human studies, the connection between the members of the dyad would seem important, and it is this factor that will be explored in this study based on meditation training.

The DMILS paradigm traditionally has been used with animals and with physiological measurements of humans (Braud & Schlitz, 1991; Braud, Schafer, and Andrews, 1993). However, in a later experiment Braud, Schafer, McNeill, and Guerra (1995) extended the paradigm to cognitive systems. They hypothesized that if a person is able to influence a remote, spatially distant living physiological system, then a facilitator could also influence a cognitive system.

Braud et al. (1995) chose the cognitive process of attention focusing meditation as the process to be influenced². A person (Helpee) in one room meditated, focused on a burning candle, while a person (Helper) in another room was designated to facilitate the meditator's focusing meditation. Randomized, counter-balanced Help

¹ We asked if ESP or sixth sense or *betel-tingal* existed.

² William Braud used the open-eyed candle focusing for three reasons. First, he was familiar that that method, which had been used by Van Nuys (Van Nuys, 1971), and one could measure distractions using this method. The second reason is that he thought having both persons (Helpee and Helper) focus attention on the same external "objective" object (the candle) might help to create a kind of "resonance" between them (due to the common focus of attention and intention), and this might increase their interconnection. Finally, focusing attention on burning candles is a familiar form of concentrative meditation with an external focus (Braud, personal communication).

versus Control epochs were used. The experiment achieved significance ($p = .049$, two-tailed, effect size = .25).

Brady and Morris (1997) employed the same experimental design to successfully replicate this finding ($p = <.05$, one-tailed, effect size $r = .27$). Brady and Morris were particularly interested in investigating more deeply the relationship between the pairs in the dyad.

The authors of both studies suggested that meditation training might facilitate psi success, but they did not explore this suggestion, so in these present studies we explored whether meditation training would facilitate psi. This made special sense to Suryani as she routinely taught meditation to Balinese and felt that concentration and its facilitation was a feature of Balinese mental life that would have definite appeal to potential participants.

Four additional studies using the DMILS protocol (Watt and Baker, 2002; Watt and Brady, 2002; Watt and Ramakers, 2003) were conducted after the start of our first study but before the onset of our second study; because they were carried out at the University of Edinburgh, we knew of them and their results earlier. All were aimed at examining experimenter effects and involved manipulations of conditions relevant to this question. The results of the first three were at chance, but the fourth one produced overall significant positive results ($ES=.33$). It employed different experimenters such that the results of those sessions conducted by experimenters with positive attitudes were significantly better than those conducted by those with negative attitudes. As we were already conducting our sessions with experimenters who had very positive attitudes towards psi, we did not alter our design as a result of these more recent studies.

Study 1

Experimental Design

The experimental design followed closely the design of the two previously published experiments. A participant (Helpee) sat cross-legged on a cushion on the carpeted floor in a quiet hotel room focusing on a lighted candle. Whenever the Helpee noticed that their attention had wandered from the focus of meditation, the person registered the lapse by pressing a button that recorded the lapse on a computer. Meanwhile, a Helper was also seated on the floor in a room across the hall. During Influence (Help) periods (eight of the sixteen 1-minute periods), this Helper focused attention on the same kind of lighted candle with the intention to positively influence the Helpee in focusing attention. During the Control periods (the other eight periods), the Helper was asked to think of something else. The Influence and Control periods were randomly assigned within couplets. The randomisation had an ABBA/BAAB counterbalanced schedule, pseudo-randomly sorted 10000 times using the inbuilt Visual Basic algorithm, which was seeded by the PC clock. To check for success in the Helper putatively being able to influence the Helpee, the number of button presses in the Control periods was compared to the number in the Influence period. At the end of the session, both the Helper and the Helpee were asked to fill out two measurements, one a measure of success at focusing attention during the experimental session (Questionnaire 1), and the second a measure of distractibility in everyday life (Questionnaire 2). Questionnaire 1 was always given after the run; at this time everyone was blind as to session outcome so their responses were not biased by knowledge of their performance (see appendix for Questionnaires). Questionnaire 2

was given before the run to most of the participants.

Participants

Forty unpaid volunteers, ages 23-48, participated (16 females, 24 males). Twenty of them were first recruited by Sri Wahyuni, a Resident Intern of Suryani in the Department of Psychiatry at Udayana University; the participants were employed at the *Bali Post*, a newspaper in Denpasar, Bali. They were asked to participate in an experiment involving meditation, not being informed of the exact design of the experiment, but told they would be trained in meditation by Suryani for a three-month period. The other twenty were recruited mainly from the same source and had no previous mediation training, but were told that the experiment involved meditation.

Meditation Training

Suryani started the training with 20 people from the newspaper, *Bali Post*, and two Resident Interns who had time to attend (one of them, A. A. Sri Wahyuni, recruited the meditators, and participated in the experiment when one participant could not). None of these participants (except Wahyuni) had taken part in formal meditation training before, as we wanted the meditators trained in the same method. The training began Oct. 17 and ended Dec. 29, 2001. The experiment commenced a week and a half later. Every Saturday Suryani came to the newspaper office to give a group training session from 12-1 p.m. During the first six weeks, the whole period was used in training on the technique of focusing on a lit candle. After six weeks, the first half of the session was dedicated to training in focusing attention on a burning candle, and during the second half she trained employing her own meditation method of imagery, sensitivity, and self-confidence. For instance, Suryani meditated and sent energy, and she asked them to feel the energy and to sense any change in themselves. Additionally, they were asked to contact people close to them (a friend, or a relative) through meditation and in spirit to meet and discuss things that were of interest to them. They were also trained to send healing energy to their families, as well as to use the candle focus to increase eye contact when speaking to others.

She asked them to practice meditation at home daily, which they reported doing. At the conclusion of the training, in their reports of their experiences, they asked her if she would continue meeting and practicing, because it had been good for them personally and professionally. They reported that they could sleep better and more soundly.

Setting

No appropriate laboratory space was available at the university or the hospital, and noise was a problem in both of those locations. Given the tourist downturn in Indonesia, it was possible to rent three rooms at The Grand Bali Beach Hotel, in Sanur, not far from Denpasar, during January 7-10, 2001³. The participants were picked up by drivers for the experiment and returned to the offices of the *Bali Post* afterwards. This was the first (and only) high-rise hotel built in Bali. It was an impressive venue to the Balinese, as it housed Westerners almost exclusively, and few of them had been as high as the fifth floor, where the experiment was held.

³ The bombing in Bali took place in Kuta Beach, also a resort village, but south-west of Sanur and on the other side of the Nusa Dua peninsula.

Physical Layout.

The three experimental rooms were situated at the end of the fifth floor. The suite, located at the end of the floor facing the beach, was quite large, consisting of a large bedroom, two bathrooms, a kitchen and a large sitting area, in addition to two balconies. The suite was used to greet the participants, explain the experiment, and to house everyone during the experiment. The construction between the rooms was quite good, and the experimenters could not hear any noise between rooms, except when they banged on the walls. Noise from the outside was minimal, as there were few tourists in the hotel.

The two experimenter rooms, each 27 feet long and 13 feet wide, were typical hotel rooms, along the hall just before the suite. The hallway was 9 feet wide. The rooms were separated by two closed doors, and an assistant sat outside in the hallway to make sure there was no inadvertent communication between the participants, as well as to make sure no noise came from other people on the floor. Both participants sat on the floor in a semi-darkened room, with a lit red candle on a 50 cm stand approximately two meters in front of them. They were separated by approximately 57 feet.

Bali Beach Hotel

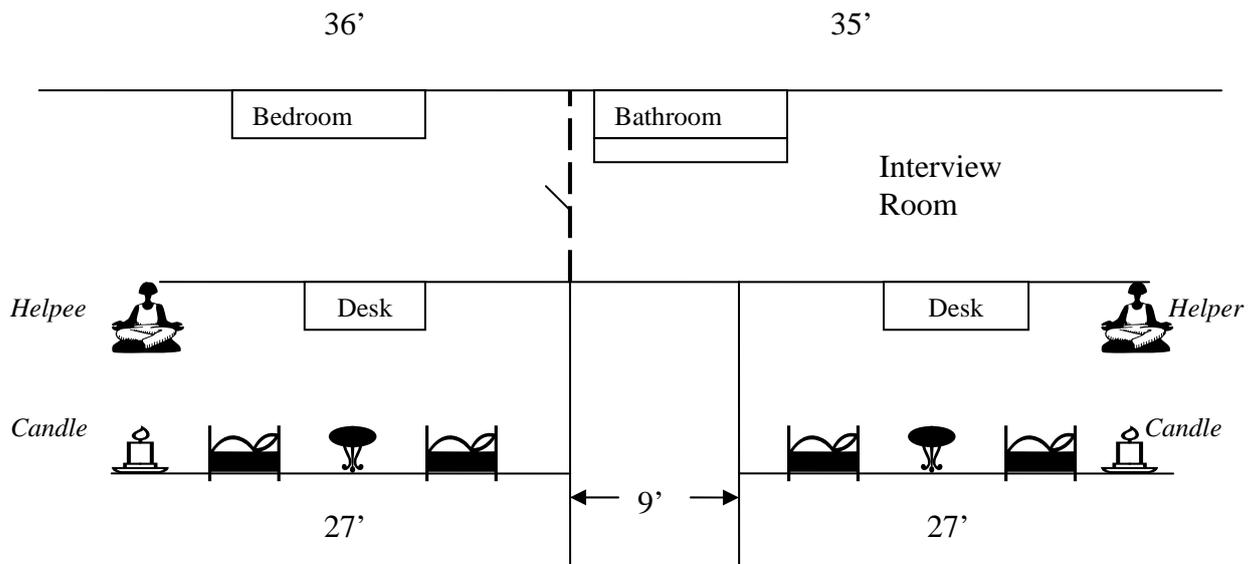


Fig.1 Layout of Rooms used in Experiment 1.

In the Helper's room were a TV monitor and an automated computer system. The software was designed by Dr. Paul Stevens and was an updated version of the program used previously in the Koestler Lab at the University of Edinburgh in the Brady and Morris (1997) study. Couplets of Help/Control periods were randomized as part of a pseudo-randomized algorithm built into the Quick Basic program, insuring an equal number of Help and Control periods (eight pairs each, four of Help-Control and four of Control-Help, to ensure that each condition was spread throughout the session and to allow comparisons within each couplets if desired). There was no tendency for either kind of couplet to be more prevalent at the start or end of a

session. Thus, no biases would be produced if there is a gradual drift in concentration during the course of the session due to fatigue or other factors. After the program was initiated, the “Help” or “Control” was displayed on the laptop computer monitor. Next to the monitor was a sign, translating and explaining the conditions; it read: “Help = *meditasi, membantu teman meditasi,*” (i.e. Meditate, help your meditating friend; “*meditasi*” is the word adopted in Indonesian for “meditation”) and “Control = *tidak meditasi, santai (tidak memikirkan teman meditasi)*” (i.e. do not meditate, relax (do not think about your meditating friend)). At the beginning of each one-minute period, a “beep” was sounded to let the Helper know to look at the monitor to see if it was a Help or a Control period. The program produced automatically a data file on the hard drive, which was copied onto a diskette at the end of each run as a back-up.

Questionnaires

During the meditation training prior to the sessions, the 20 participants kept a record, filling out a form, which they gave to Suryani, concerning their meditation activities, the times they practiced meditation on their own, and the results. All of the meditators practiced routinely at home on their own.

During the experiment, two questionnaires were given to the participants. The first was an estimate of success at focusing attention during the meditation session (a one-item visual analog scale on which the participant marked on a 10 cm line to indicate how well their attention had been maintained on the candle for the overall session, one end saying “not successful at all” and the other end saying “extremely successful”). The second was a 15-item measurement of the degree of difficulty in concentration during everyday activities; both questionnaires were originally created and used by Braud and Shafer, McNeill and Guerra (1995). These measurements were used to explore the question of whether more needy participants, particularly more needy Helpees, would be more successful in being influenced than less needy Helpees, a question also tested in the two previous experiments (Brady and Morris, 1997; Braud et al., 1995). More needy participants were those who scored below the median on the attention success measurement (the first questionnaire) and above the median on the difficulty in concentrating in everyday life (second questionnaire). Thus, the more and less needy scores took into account both their experience during the experiment and in everyday life. ⁴

⁴ We have introduced the idea of Helpees being influenced by Helpers. It is worth mentioning some terminology now. Braud (2003, pp xxvi-xxvii) has indicated that he changed his understanding of the DMILS process over time, going through iterations of calling the paradigm allobiofeedback, transpersonal imagery effect, Bio-PK, distant mental influence, remote mental influence, and, finally deciding on direct mental interactions with living systems. Each of these terms has certain advantages, but, in general, he has gone from a more influence model to an interaction model. We concur that the term “interaction” is more neutral and should be employed. In general, we will talk about psi interactions, not judging where psi occurs.

However, on certain occasions, we will revert to the influence terminology, as we did above. In doing so, we are not abandoning our interaction model and asserting that one way causal influence occurs, but rather pointing out that manipulations are being made that suggest influence on the surface, for two reasons. First, Braud’s study (1990) on protecting human red blood cells at a distance seems more amenable to an influence interpretation, so such an interpretation has support. Second, and more to the point, when one manipulates a variable and this manipulation is successful in producing a different result, the variable is usually interpreted as having influenced the result. In this case, we are manipulating the variable neediness and seeking to see what influence it has on the results.

Procedure

We formed 10 teams of four people. Many of the participants knew each other before the experiment but some of them did not. On each of the teams, two of the people had received the meditation training while two had never had any meditation training. The participants were not told any of the details of the experiment, even the purpose of the experiment, before arriving at the experimental site, but they were told that it concerned meditation and that they should be positive about the success of the experiment.

The four people comprising the team were brought by car from the newspaper office to the site of the experiment, the Grand Bali Beach Hotel, and were brought into a comfortable suite, where they were given snacks and water, and they were told the details of the experiment.

Suryani orally gave instructions (in Indonesian) to all four participants at the beginning of the Session, taken verbatim from Brady and Morris (1997). (See Appendix 3)

Suryani then asked if there were any questions and she answered them. She then took all four participants to both the Helpee and the Helper rooms, and explained the experiment again. (Edge had lighted the candles and made the rooms ready, including pressing the button in the Helpee's room to initiate the computer program.) Afterwards, the first two participants were taken to their rooms, while the other two went back into the suite to fill out Questionnaire 2 and to relax; again, as the participants were seated on the floor to begin the experiment, Suryani successively explained their respective tasks to them and made sure they understood their respective tasks. Edge remained in the Helper's room while Suryani started the Helpee meditating. Then she returned to the Helper's room, and when the Helper was ready, he started the computer and both of the experimenters left the room and closed the door, going back into the Suite.

After 17-18 minutes, Suryani went into the Helpee's room and "talked the person down," going then to the Helper's room. Edge also went to the Helper's room and saved the file to disk and to the hard drive. While Edge went to the Helpee's room and initiated the computer program for the next run by pressing the button, Suryani took the two participants back to the interview room and then asked both the Helper and the Helpee to fill out the two short questionnaires. When this was completed, the participants were told to relax, or, periodically, one of them then participated in the next run.

We had four sessions of four runs the first day, four the second, and two the third, making a total preplanned 10 sessions, with 40 runs.

Each of the four participants (two trained and two untrained) on the team went through two runs in each session. Each session was comprised of the following four runs:

- 1) Trained 1 as Helper
Trained 2 as Helpee – both trained condition
- 2) Untrained 1 as Helper
Untrained 2 as Helpee – both untrained condition
- 3) Untrained 2 as Helper
Trained 1 as Helpee – Helpee only trained condition

- 4) Trained 2 as Helper
Untrained 1 as Helpee – Helper only trained condition

These conditions were counterbalanced among the teams by using a pseudo-random program.

Preplanned Analyses

Three analyses were planned:

1. The primary hypothesis was that the Helpees' distraction scores (frequency of distractions, i.e. # of button presses) would be greater for Control than for Help periods. In other words, it was predicted that the psi interaction would be successful in helping the Helpees' focus mediation, reducing their distractions during the Help periods. Because of the success in the two previous studies, a matched t-test, 1-tailed, was planned, as well as a calculation of the effect size.
2. Two *need related hypotheses* were offered, again in keeping with the previous two studies by Braud et al. (1995), and by Brady and Morris (1997).

The hypotheses were:

- a) The Helpees who were classified as more needy would experience a greater psi interaction score than those classified as less needy, and
 - b) The Helpers who were classified as more needy would contribute a lesser psi interaction score than those classified as needy.
3. There was another planned analysis, but we did not have an hypothesis: We planned to compare the four different conditions (i.e. when both were trained, when neither were trained, when only the Helper was trained, when only the Helpee was trained) to see if one condition was better. Both Braud et al. (1995), and Brady and Morris (1997), had suggested meditation training as a potential method of increasing psi facilitation, but it was unclear in what way meditation training might affect the outcome. For instance, we did not know whether a ceiling effect might be produced because of the meditation training, i.e., whether the training would make the system less stochastic and thus less amenable to psi interaction when the Helpee was trained. On the other hand, we thought that it might be the case that a trained meditator would produce higher psi interaction scores with an untrained Helpee. A third option was that training might help both the Helper and Helpee be more successful.

Results

For each of the forty sessions, the number of button presses (distraction scores) were summed across the eight one-minute Control and the eight one-minute Help periods. Three sessions (7.5% of the sample) were excluded from the analysis because they had zero presses in both periods. As it is commonly done in the other DMILS studies with similar designs (Watt and Baker, 2002; Watt and Ramakers, 2003), these two variables (Control vs. Help) were used to generate the *PIS index*. Therefore, this index gave an indication of psi interaction. It should be noted that the PIS is likely to be a conservative measure as it is not standardised (Schmidt, 2003;

Schmidt et al., 2001), and therefore results using the actual distraction scores were also presented where necessary. Finally, the PIS index was dichotomized at .50 to create a new binary variable called *evidence of psi* (the .50 responses were indexed under the “No” group, i.e. the lack of evidence of psi group). All the above variables were used at different stages in the analysis.

Two cases (5% of total cases) were identified as univariate outliers, because of their extremely high scores in either the Control or the Help periods ($z_{\text{control}} = 4.42$, $z_{\text{help}} = 3.79$, $p < .001$, two-tails). By using the Mahalanobis distance (Tabachnick and Fidell, 2001) as an unbiased measure of the degree a value of a case differed from the average of all cases, we found that the response of one of the above cases in the Control period was also characterized as a multivariate outlier, $\text{chi-sqr}(1) = 19.5$, $p < .001$. Both cases were removed from the dataset leaving 35 valid sessions.

For the analyses that required the use of the *t*-test, the effect size is reported through Cohen's *r* (Cohen, 1988), while for the ANOVA, effect size was measured through partial eta-sqr (Tabachnick and Fidell, 2001). Power is always reported at $\alpha = .05$ and $\beta = .20$.

Planned analyses

1. The primary hypothesis predicted that there would be a direct mental interaction between the Helper on the Helpee, shown through fewer button presses during the Help period as opposed to the Control period. Indeed, the mean of the total button presses in the Control period was 2.80 (SD = 2.13, range = 8), and in the Help period it was 2.06 button presses (SD = 1.61, range = 6). These means were significantly different from each other, indicating that on average there were fewer distractions in the Help period $t(34) = 2.16$, $p < .02$, one-tail, Cohen's $r = 0.35$, power = .55.

2. The second hypothesis was two-fold and concerned those classified as more or less needy based on results from the two questionnaires.

2a. In the first part, it was hypothesized that high need Helpees would experience a greater psi interaction score than the low need ones, since they would be open to be helped by the Helper in focussing their meditation. Due to low observed frequencies, the Fisher-Irwin exact test was used on the cross-tabulated data of evidence of psi (yes/no) vs. needy Helpee (high/low). The result seems to support the hypothesis (exact $p = .013$, one-tail). Further analyses revealed that high need Helpees tended to have significantly higher scores on the PIS index ($M = .68$, $SD = .13$) than the less needy ones ($M = .33$, $SD = .37$), $t(15) = 2.86$, $p < .01$, one-tail, Cohen's $r = .59$, power = .92. This result was almost entirely attributable to the responses in the Control period, $t(15) = 3.12$, $p < .005$, one-tail, Cohen's $r = .63$, power = .99, in which Helpees who were classified as more needy indeed appeared to have experienced a greater psi interaction score ($M = 4.45$, $SD = 1.97$) than those classified as less needy ($M = 1.50$, $SD = 1.64$).⁵

2b. The second part of this hypothesis predicted that Helpers who were classified as more needy would contribute a lesser psi interaction score than those classified as less needy. Following the same logic as above, the Fisher-Irwin exact test

⁵ Because the Q2 sometimes was administered to participants after the first run, the responses on Q2 were checked post-hoc to assess whether they were statistically different between the participants who took the questionnaire before and those who took it after the study. The results of the t-test were highly non-significant for both Helpers ($p = .83$) and Helpees ($p = .61$), indicating that the way the participants thought they performed during the study had no important effect on the way they rated their everyday distractibility levels.

was applied on the cross-tabulated data of evidence of psi vs. needy Helper, but the results did not seem to support this hypothesis (exact $p = .53$, one-tail).

3. The third planned analysis examined the effect of meditation training on the psi scores measured through either the PIS index or the button presses in either the Control or the Help period (see Table 1).

TABLE 1
MEAN (AND STANDARD DEVIATION) OF PARTICIPANTS TRAINED AND UNTRAINED IN MEDITATION IN THE TWO PERIODS AND ON THE PIS INDEX

	Helper		Helpee	
	Trained ($n = 15$)	Untrained ($n = 20$)	Trained ($n = 18$)	Untrained ($n = 17$)
Control period	3 (2.04)	2.65 (2.23)	1.83 (1.51)	3.82 (2.24)
Help period	2 (1.31)	2.10 (1.83)	1.94 (1.70)	2.18 (1.55)
PIS	.63 (.29)	.57 (.32)	.51 (.37)	.67 (.20)

A 2 x2 between subjects ANOVA, with factors Helper vs. Helpee and levels presence vs. absence of meditation training (trained/untrained), did not identify statistically significant main or interaction effects of the factors on the PIS, suggesting that overall meditation training may not substantially affect psi success. That said, the main effect of Helpee was marginally nonsignificant, $F(1, 31) = 3.89$, $p = .058$, partial eta-sqr = .11, power = .48, with untrained Helpees having on average higher PIS scores (see Table 1). Furthermore, a closer inspection of the results revealed that the highest psi interaction appeared between trained ($M = .50$, $SD = .31$) and untrained ($M = .77$, $SD = .18$) Helpees when the Helper was trained. In fact, although this simple effect was marginally nonsignificant, $t(13) = 2.05$, $p = .06$, two-tails, Cohen's $r = .49$, power = .50, the magnitude of the effect suggests the existence of a moderation between these variables at this level.

A clearer picture can be obtained by using the distraction scores (button presses) during the Control and the Help period. A 2 x 2 x (2) mixed factorial ANOVA was run with factors Helper (trained/untrained) vs. Helpee (trained/untrained) vs. period (Control/Help). The results showed the expected main effect of period (reported earlier); no main effect of Helper was observed, while the main effect of Helpee was marginally nonsignificant, $F(1, 31) = 3.71$, $p = .06$, partial eta-sqr = .11, power = .47. There was a strong, statistically significant interaction between period and Helpee, $F(1, 31) = 7.95$, $p < .01$, partial eta-sqr = .20, power = .78. This interaction appeared mainly because during the Control period untrained Helpees tended to have significantly higher distraction scores ($M = 3.82$, $SD = 2.24$) than trained ones ($M = 1.83$, $SD = 1.51$), $t(27.77) = 3.07$, $p < .005$, one-tail, Cohen's $r = .50$, power = .98. Finally, the interaction between Helper and Helpee was marginally nonsignificant, $F(1, 31) = 3.70$, $p = .06$, partial eta-sqr = .20, power = .47. At the simple main effect level it was observed that (a) in the Control period when the Helper was untrained, the untrained Helpee generated significantly higher distraction scores ($M = 4$, $SD = 2.21$) than the trained Helpee ($M = 1.3$, $SD = 1.25$), $t(18) = 3.36$, $p < .005$, two-tails, Cohen's $r = .62$, power = .88; and (b) in the Help period when the

Helper was trained the difference between the distraction scores of the trained Helpee ($M = 2.50$, $SD = 1.31$) and the untrained Helpee ($M = 1.43$, $SD = 1.13$), although not statistically significant, had a relatively high effect size (Cohen's $d = .42$). Overall, the results of the third planned analyses appear to suggest that (a) the Helpee's training (or lack of it) tended to have a somewhat stronger contribution to the psi scores than the Helper's contribution, and (b) the combination of a Helper trained in meditation and an untrained Helpee tended to generate the most clear patterns of behaviour in the desirable direction, i.e. high PIS scores and greater psi interactions.

Discussion

1. As in the two previous studies that aimed to explore the cognitive DMILS paradigm (Brady and Morris, 1997; Braud et al., 1995), the overall psi DMILS effect was supported. There was a significant difference in the distraction scores between the Help and the Control conditions.

There was a strong psi effect in this study. This suggests that the cognitive DMILS paradigm is robust enough to be used in cross-cultural settings, and, in fact, it may be a more useful tool in a culture like Bali where meditative prayer is ubiquitous. During prayer, the Balinese sit cross-legged on the ground and focus their attention, at least for short periods, so the experience, even for a non-trained participant was within the realm of their general experience, even if the specific task of focussing with eyes open on the burning candle was not.

When one compares the effect size of other DMILS studies to this one (Cohen's $r = .35$), this study fares quite well. The effect size in the Braud et al. (1995) study was $.25$ (although this result has been challenged by Schmidt (2004) as being too high), and in the Brady and Morris study it was $.27$. These effect sizes are about the same as found in the 15 electrodermal studies ($.25$) reported in Braud and Schlitz (1991). It is worth asking what factors may have contributed to this success, although we acknowledge that the current study's effect size is not significantly greater than the earlier ones. This experiment was planned not only to see if the DMILS paradigm could be successful in a non-industrial environment, but also to test whether meditation training would increase psi interaction. Since the success might be due to the non-industrial environment, to the specific meditation training, or to certain factors about the Helpers or Helpees, among other hypotheses, we could only eliminate some possibilities. Specifically, it did not look like the meditation training had a significant overall positive effect on the outcome.

It is interesting to note that the mean number of distractions in this data is vastly different from the means in the Brady and Morris study (1997), where the mean number of distractions in the Control period was 19.60, and in the Help period it was 18.45. We had worried that training in meditation might produce a ceiling effect because the participants might be too good at focusing their attention due to the training.

However, this does not seem to explain the much lower means since the untrained Helper/Helpee dyad did not differ significantly in their mean number of distractions from trained pairs. We do not know why we found this result, but it may be that there are cultural reasons. Balinese ritual life is rich, and it requires the Balinese to engage in prayer, as mentioned above, which is a kind of focus-training, so, one might argue that all of the participants should be considered as trained. Yet,

meditation training in the study seems to have affected the outcome, in that the most successful pairs were untrained Helpee and trained Helper.

Also, Barth (1993) has argued, in trying to explain the profusion of black magic on the island, that it can develop in the social situation where the Balinese “struggle to maintain an aura of gaiety and friendliness; where they mute the signs and thus often even the awareness of their own impulses [...] persons will no doubt have a tendency [...] to develop a fear of the consequences of imperfections in their own performance” (p. 264). If this is true, it may be that the Balinese pressed the button only in times of extreme distraction, in spite of the fact that the same instructions were given to them as in the Brady and Morris study. Alternatively, they may just have wanted to please the researchers and those trying to be helpful to them. At any rate, we have no data to indicate that this possibility explains the difference in the much lower mean number of button presses in Bali.

2. Braud et al. (1995) pursued the question of the need-relatedness of psi. The PMIR model (Stanford, 1978) asserts that psi works in stochastic systems in which a need shifts the probability of the system in such a way that the need is fulfilled. To test this hypothesis, they used two questionnaires, one investigated the degree of difficulty the participants had in concentrating during everyday activities. The second questionnaire asked the participants to estimate their success at focusing attention during the meditation (and was given after each run). Both questionnaires were created by Braud et al. (1995). They dichotomized the participants into more needy and less needy (as indicated by self-declared difficulties in maintaining focus in everyday life and in the current experiment) in each questionnaire and correlated them with psi success scores. Both questionnaires correlated positively.

Brady and Morris (1997) also used these questionnaires, but they combined them to get their high need and low need participants (defining neediness in the same way as Braud et al. (1995) had done). They did not find a correlation between the two questionnaires, nor did their results support the need-based hypotheses. However, they noted that they did not give the everyday concentration questionnaires after the trials. A post hoc analysis revealed that success at attention during the experiment was a more reliable indicator of need in relation to the Helpee, while the concentration difficulty in everyday life questionnaire gave a more reliable indicator in terms of the Helper, both in terms of the need, as well as in terms of their ability to help.

As in Brady and Morris (1997), we combined the two questionnaires to arrive at high need and low need scores for participants. Contrary to the lack of correlation in Brady and Morris, we found, as anticipated (based on Braud’s results), that the high need Helpees had a higher psi score than those classified as less needy. This seems to confirm the first part of the need hypothesis, and fits with the PMIR model. However, in a post hoc analysis, we found that a high need Helpee was ten times more likely to be untrained (odds ratio = 10, $p = .06$, two-tails). Thus, there is a confounding of the factors of high need and of being untrained among the Helpees.

The second hypothesis predicted that Helpers who were classified as needier would contribute a lesser psi interaction score than those classified as less needy. However, this hypothesis was not confirmed. Again, we found that those who were high need participants (this time among the Helpers) were also untrained. Taking both of these results into account, it seems that neediness is more of a factor among the Helpees than the Helpers. Thinking in terms of the PMIR model, it would appear that the need for psi facilitation in the reception mode is more pivotal than the need to help someone by using psi.

3. We did not support the hypothesis that training in focus meditation straightforwardly helped facilitate psi interaction overall. However, the highest psi interaction occurred when the Helpee was untrained and the Helper was trained, and the magnitude of the effect suggests a correlation, even if main interaction did not reach statistical significance. This suggested that a study composed of high need, untrained Helpees might produce higher psi interaction scores in a cognitive DMILS study in Bali, particularly when paired with trained Helpers.

Study Two

Experimental Design

Because of indications that trained Helpers and untrained, high need Helpees might facilitate psi success, we set up the experiment accordingly. Thus, this study should be considered a conceptual (not an exact) replication of Study 1. The participants consisted of Helpers, who had been trained in meditation and who were the most successful Helpers in Study 1, as well as untrained Helpees from Study 1 who had scored as high need (above the median). As there were not enough Helpees from this group, we gave Questionnaire 2 (distractibility in everyday life) to a number of volunteers, choosing those persons with scores above the median score on the January tests, until we completed the number of Helpees we needed. Therefore, this study differed from the first one in having all of the Helpers trained in meditation and all of the Helpees untrained and with high need. The task was the same: The Helpers sat cross legged in a hotel room in front of a laptop computer, which displayed every minute (along with a soft beep) either “Help” or “Control,” using the same Indonesian phrases as before. Again, the randomisation had an ABBA/BAAB counterbalanced schedule, pseudo-randomly sorted 10000 times using the inbuilt Visual Basic algorithm, which was seeded by the PC clock. The Helpee also sat cross-legged in a non-adjacent room with a button in her lap and was asked to press the button whenever she noticed her mind wandering from a focus on the burning candle. At the end of the session, both the Helper and Helpee were asked to fill out the same two questionnaires used in Study 1 (if they had taken Questionnaire 2 just prior to the experiment, they were not asked to retake it). Additionally, all participants were interviewed by Suryani about their experience after each trial.

Participants

Thirty unpaid volunteers, ages 23-45, participated (16 Females, 14 males). The fifteen Helpers had participated in Study 1. Seven of the Helpees had participated in Study 1, and eight were new (one of these substituted at the last minute for an untrained Helpee in Study 1 who could not participate).

Setting

Since no laboratory space was available, we again rented rooms in a hotel, this time at the Puri Santrian Hotel, on Sanur Beach not far from the Grand Bali Beach Hotel (site of the first experiment). This hotel is not a high rise, but consists of a series of two story buildings, more appropriate to Balinese culture, and it is more densely planted with vegetation. Participants who were involved in the previous study remarked that this venue was more comfortable for them. As before, most participants

were picked up from their work and brought to their sessions. A few participants came on their own if it was more convenient for them.

Physical Layout

Four rooms were rented on the first floor of the most isolated of the buildings. These were regular hotel rooms (24 feet by 13.5 feet) with a table separating two queen size beds and a bathroom at the far end of the room. The rooms had window air conditioners. The two pairs of the rooms were separated by a six feet wide stairway to the second floor and a walkway going to the back of the building. The two rooms to the extreme ends were used by the experimenters as greeting and interview rooms, while the two rooms in the middle (but without a common wall and separated by a six feet walkway) were used as the rooms for the experiments. There was a sitting porch in front of each room, separated from each other by a six feet tall wall.

Both participants sat cross-legged on a folded blanket on the carpeted floor near the door in a semi-darkened room, with a lit red candle on a 50 cm stand approximately two meters in front of them. The participants were separated by approximately 26 feet (see Fig. 3). The same computer equipment, software and button were used as in Study 1.

Puri Santrian Hotel

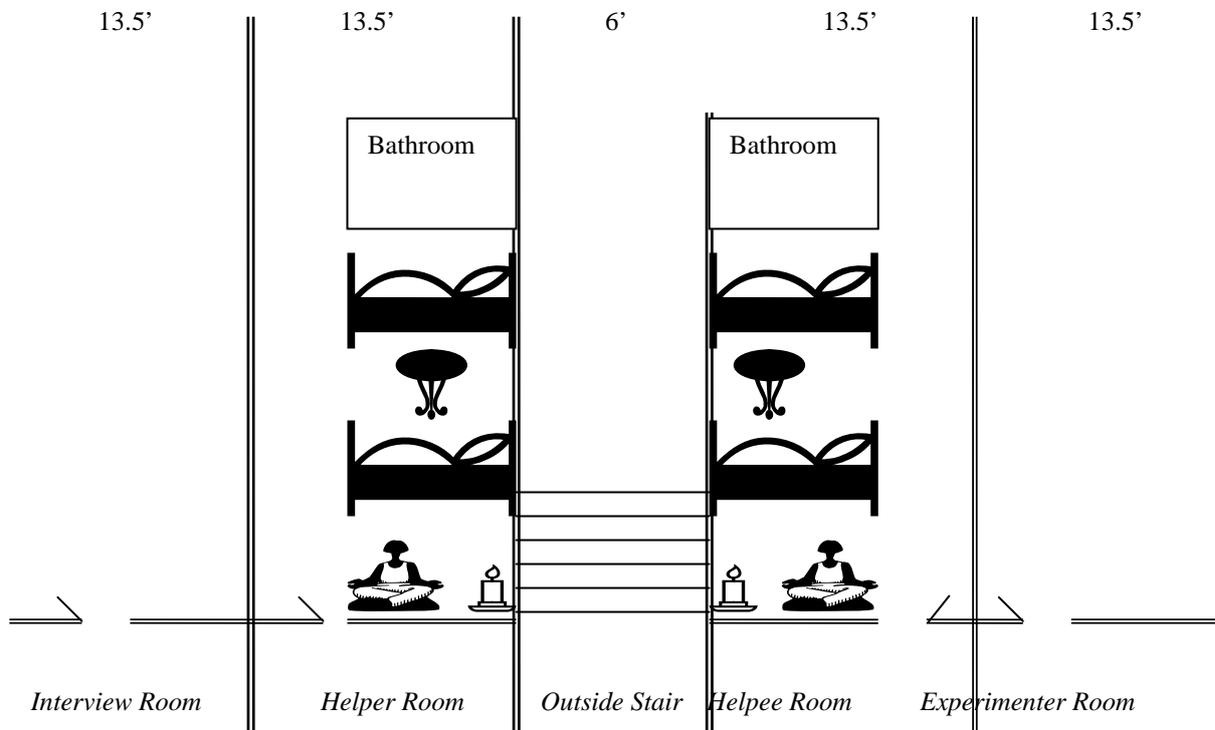


Fig.3 Layout of Rooms used in Experiment 2.

Questionnaires and Interviews

Each of the participants was asked at the conclusion of each run to fill out Questionnaire 1: Estimate at Success of Focusing Attention. Additionally, Suryani

carried out a semi-structured interview in the Interview Room, trying to obtain additional information about their experiences. She asked what strategies they used during the session, what bodily sensations they had, whether or not they became distracted, how much they thought they helped or gotten help from the other person, and what they felt like at the end of the session. The information from the interview was categorized and put in an Excel file and used in exploratory analyses.

Additionally, Questionnaire 2 was given once to each participant at one of three times: Just before the experiment began for the new participants so that we could find high needy subjects, and for the returning participants either just after their first session, or just before their first session if they were waiting for their run to begin.

Procedure

Most of the participants were brought to the site in groups of four, two Helpers and two Helpees. They were greeted by the experimenters and asked to sit in the Interview Room and relax. They were offered snacks and drinks. Suryani explained the experiment to them. In this experiment, as opposed to the one in January where roles were switched, each participant in this experiment was designated a Helper or a Helpee. The group of four was then taken to both experimental rooms, introduced to the layout, and Suryani again explained the task they would engage in. They asked any questions they had, and then they were taken back to the Interview room. The first Helper-Helpee pair was taken to their respective rooms, where they sat on the folded blankets on the carpeted floor, and Suryani made sure the Helper was comfortable and understood the task. She left the Helper with Edge, and then made sure the Helpee was comfortable and understood the task. She then left the Helpee's room, closing the door, and then when the Helper was ready, Edge started the computer and left the room, closing the door behind him. Suryani then returned to the Interview Room and asked the remaining Helper-Helpee pair to fill out Questionnaire 2, if they had not done so already. Edge and Morris⁶ worked in the Experimenter Room.

After 17-18 minutes, Suryani went to the Helpee's room and told them to stop meditating, and she talked them out of meditation where necessary. Then she went into the Helper's room and did the same thing, after which Edge went into the room and saved the data to disk and to the hard drive.

Then, the second Helper-Helpee pair was taken to the experimental rooms and the same procedure was followed. Suryani returned to the Interview Room and asked the first pair to fill out Questionnaire 1; if they had not previously filled out Questionnaire 2, they were asked to do so. In the remaining time, Suryani interviewed both the Helper and Helpee, writing down their answers. At the appropriate time, Suryani and Edge closed down the run for the second pair, and the same procedure was followed. The first pair then participated in their second run, after which they were interviewed again, as the second pair engaged in their second run. It took two and a half days for each of the pairs to run two runs each.

Then, Helpers were assigned new partners (except for the dyads who had been paired in the January sessions and had scored well; they continued together in the second half of the experiment) based on logistical considerations, such as their availability, and each of the new Helper-Helpee pairs participated in two runs during the last two and a half days. The four runs in each session took about an hour and

⁶ Bob Morris, who helped with the experimental design on the two studies, joined us in Bali during Study 2.

forty minutes. Two four-run sessions were carried out each of five mornings; one session was completed each afternoon for five consecutive days. This was a reduction of one session per day from the first study, but the experiment lasted five days as opposed to four days in the first study. Thus, we carried out 60 runs.

Hypotheses and Preplanned Analyses

Based on the previous study, we made several predictions:

The *primary hypothesis* was that there would be a significant difference in the Help and Control conditions, with significantly fewer button presses occurring in the Help condition than in the Control Condition.

We offered two *secondary hypotheses*:

1. Given the use of Questionnaire 2 as a way to pick out high need Helpees, it was important that subjects respond to this questionnaire in a consistent way. Since it purports to point to relatively stable traits, we predicted that there would be test-retest reliability from January to May in the subjects who were in both experiments. Brady and Morris (1997) had cast doubt on this measurement, as it did not serve as a predictor in their study as it had in Braud et al. (1995). Since, however, it seemed to relate to psi success in our first study, we employed it in this study.
2. Since it was suggested in the first study that trained Helpers were better, we reasoned that those who meditated consistently (often) might produce better runs than those who had not meditated consistently, although it was recognized that different Helpees would produce noise in this analysis.

Finally, we had a number of *exploratory questions* based on the interview data. Interviews had not been used in previous DMILS cognitive experiments, so we were not sure what data we would get and how useful it would be. After having categorized the interview data, we were able to ask the following exploratory questions:

1. Is one strategy in the use of imagery better than others? Morris (Morris, Nanko, and Phillips, 1982) has long been interested in investigating whether one strategy is more helpful than others in producing psi. In the interviews, we discerned three categories the participants seemed to use: a general imagery strategy, a strategy of thinking, and a strategy using thinking explicitly in words (where words were heard or thought).
2. Was there any consistency between those people who seemed to help (or be helped)—noted by higher psi scores—and their saying that they helped (or were helped)? In other words, can participants know if they are helping or being helped in the focusing task?
3. If the Helper is, indeed, helping (that is, if the process is understood as a traditionally PK phenomenon), then one would expect that the better the Helper is able to focus (measured by higher Questionnaire 1 scores), the higher the psi score will be. Of course, it needs to be recognized that we do not know the mechanism involved in cognitive DMILS work. Success might not be due to PK at all, but due to an ESP effect by Helpees, responding to Helper's intention as the target. Alternatively, a more interactive process may be at work.
4. Is there a relationship between psi scores and how they felt at the conclusion of the experiment? When the participants gave a response about how they felt, they could be categorized into four groups: refreshed/energized, normal, tired, quiet.

5. Is there a relationship between psi scores and the ability to focus among Helpers, or among Helpees?
6. Each of the Helpers and Helpees had four sessions, two in the same day, and another two on another day. It seems important to see if getting used to the experimental situation had an effect on their performance. So, we asked several questions:
 - a. In the second run in each session, were the psi interaction scores better?
 - b. In the second run in each session, were there fewer button presses?
 - c. In the second set of runs compared to the first set, were the psi interaction scores better?
 - d. In the second set of runs compared to the first set, were there fewer button presses?

Results

The same types of variables and indexes were generated as in Study 1, except for the evidence of psi (dichotomous PIS), which was not necessary in this study. No univariate or multivariate outliers were identified in the dataset. Seven sessions (11.7% of the sample) were excluded from the analysis because they had zero presses in both periods leaving a total of 53 valid sessions.

Primary Hypothesis

As predicted there was a significant difference in the button presses between Help ($M = 2.26$, $SD = 2.02$, range = 8) and Control period ($M = 2.81$, $SD = 2.56$, range = 9), $t(52) = 2.24$, $p < .02$, one-tail, Cohen's $r = .30$, power = .59.

Secondary Hypotheses

1. Questionnaire 2 exhibited both good internal reliability (Cronbach's alpha = .76), and test-retest reliability between January and May in the subjects who were in both experiments, $r = .69$, $N = 21$, $p < .005$, two-tails; $t(20) = 0.62$, *ns*, two-tails, Cohen's $r = .14$, power = .09. Therefore, this looks like an adequate instrument to employ in these studies.

2. Helpers who meditated often had similar PIS scores to those who meditated infrequently (the meditation data were dichotomized). This result can be explained in three ways. First, because there were not many Helpers who marked that they did not consistently meditate, the comparison may not have been robust enough. Second, meditation may not admit of gradations; it may be that initial training was sufficient to be psi effective. Third, it was only suggested by the data in the first study that trained Helpers were pivotal; having a high need Helpee was more important in that study than having trained Helpers. Perhaps, meditation is not very important, or not as important as other factors.

Exploratory Questions

1. There was no statistically significant difference between the different strategies employed by the participants, $F(3, 36) = 0.21$, *ns*, partial eta-sqr = .02, power = .09. We did not intentionally manipulate the use of strategies, and so this result should not be taken to mean that some strategies are not better than others. Further studies with these strategies as manipulated variables would be needed to

reach that conclusion.

Nevertheless, although no significant result came from this study, it is interesting to see which strategies the Balinese employ spontaneously in a DMILS context. For instance, this sample of participants reported using auditory strategies (explicitly using words) more than expected by the experimenters.

2. Concerning the question of whether there was any consistency between those people who seemed to help (or be helped) – noted by higher PIS scores – and their saying that they helped (or were helped), there was no statistical difference in the PIS scores between the people who claimed they helped or were helped a lot and those who claimed they helped or were helped a little (no response and no help were excluded from the analysis, the latter because of its very few cases), $F(1, 64) = 0.68$, *ns*, partial eta-sqr = .01, power = .13. On average, the highest PIS scores (.70) were received when participants claimed they received / gave a lot of help. These results suggest that participants may have had some awareness of helping or being helped but not decisively.

3. Not being distracted during meditation, as measured by the participants' responses to Questionnaire 1, generated on average higher PIS scores ($M = .55$, $SD = .30$). However these were not statistically different from when distracted ($M = .51$, $SD = .18$). There does not appear to be an association between the Helper's focus (Q1 scores) and PIS scores, $r = .06$, $N = 53$, *ns*, two-tails, power = .07.

4. The highest average PIS score was received when after the experiment participants reported being tired (.61). However, there was no statistically significant difference in PIS scores among the various ways the participants felt at the end of the run (excluding those who did not respond), $F(4, 87) = 0.7$, *ns*, partial eta-sqr = .03, power = .22.

5. The effect of ability to focus on PIS scores was as follows:
 Helper (excluding those who did not respond): The “mainly due to themselves focus” gave the highest average PIS score (.56). However, there was no overall statistical difference, $F(2, 37) = 0.21$, *ns*, partial eta-sqr = .01, power = .08. There was, however, a near statistical difference in the Help period $F(2, 37) = 3.04$, $p = .06$, partial eta-sqr = .14, power = .56, where the “about equal focus” gave the highest mean number of button presses ($M = 2.73$, $SD = 1.68$), which was near significantly different ($p = .06$) only from “mainly due to themselves focus” ($M = 1.42$, $SD = 1.41$).
 Helpee (excluding those who did not respond): There were not enough cases in the groups to test for the effect of the ability to focus on PIS scores.

6. In investigating whether getting used to the sessions had a positive effect on performance, we found the following:

a. In the first set of runs of the participants, psi interaction scores were higher in the first run ($M = .61$, $SD = .27$) than in the second run ($M = .41$, $SD = .26$), and this difference was marginally nonsignificant, $t(25) = 1.90$, $p = .07$, two-tails, Cohen's $r = .36$, power = .45. However, the size of the effect suggests that there may be a real difference between the two runs. Although the same pattern was observed in the second set of sessions (first run: $M = .57$, $SD = .25$; second run: $M = .56$, $SD = .34$), this time the result was highly nonsignificant (Cohen's $r = .01$).

b. In the second run in both sessions there were indeed fewer button presses than the first run respectively. However, in neither session this difference reached statistical significance.

c. On average the PIS scores were higher in the second set of runs (first set: $M = .51$, $SD = .28$ vs. second set: $M = .57$, $SD = .29$), but this difference was not statistically significant.

d. Compared to the first sessions, there were relatively fewer button presses in the second session (first set: $M = 5.33$, $SD = 4.39$ vs. second set: $M = 4.81$, $SD = 4.17$), but this difference was nonsignificant.

General Discussion

As in the first study, the results of the primary hypothesis, that there would be fewer button presses in the Help condition than in the Control condition, was substantiated. Thus, it seems that the cognitive DMILS protocol may be one that works well in Bali, and thus it is suggested that this is an experiment that might be useful in other cross-cultural situations. As was argued earlier, Bali has a tradition of meditative prayer, so even if the specific task of focus meditation on a candle is not generally found on the island, nevertheless, it can be argued that the task fits within their general worldview. Other cultures may not honor focusing meditative practices, and thus this might not be an experimental protocol that would work in these cultures.

Interestingly, we received mixed results on the secondary hypotheses. The good news is that the questionnaire developed by Braud et al. (1995) that measured the difficulty in concentrating in everyday life seemed a reliable instrument in terms of test-retest reliability. In Study 1, it seemed to pick out high need Helpees, who would be more easily influenced by Helpers (predicted by theory and supported in the Braud et al. (1995) study, but not in the Watt and Brady (2002). Since we used only high need Helpees in Study 2, the question of whether higher need Helpees, as measured by this questionnaire, facilitates psi is still undecided.

We did not learn much from the exploratory analyses, which were based on the interviews. We got a few results that were statistically significant, or approach significance. However, they can easily be attributed to the result of multiple analyses. This is a disappointing result, as we thought that a careful analysis of the participants' experiences derived through interviews might shed light on strategies that were useful. However, the only conclusion we can reach is that if certain strategies are psi conducive, they must be more fine-grained than we were able to decipher through our interviews, or they may be unique to individuals.

It should also be noted that, especially given the relatively low effect sizes involved in the earlier studies, the current two studies were greatly underpowered, especially for the secondary and exploratory analyses.

The overall project in Bali aimed at seeing whether one could produce psi under controlled conditions in a non-industrial, supportive culture. The most fundamental finding is that we were successful in eliciting psi to a significant degree in both studies. The psi task of helping another focus attention on a lighted candle worked in this culture as it had in Scotland and America, if anything somewhat better than the overall Scottish results but not significantly so. By rerunning the analysis of the distraction scores (button presses in Control vs. Help period) on the combined data from the two Balinese studies our overall effect size was Cohen's $r = .32$, which is highly comparable to previous successful studies. Bali is a culture in which different forms of meditation or prayer is considered normal, and although the DMILS protocol was considered unusual, it was probably no more unsettling for the Balinese than it is for a European or an American. Therefore, we have good reason to believe that further experimental work in Bali employing the DMILS protocol will be successful.

The exploratory study (Study 1) yielded the suggestion that using high need

Helpees, along with Helpers trained in meditation, would facilitate psi production. Thus, we set up the second study as a replication of the first, with modifications introduced to look for an enhanced effect. However, these modifications did not achieve these results. One reason for this result may be that the vagaries of fieldwork, such as the lack of consistent lab space from one study to the next. Whatever the reason, the results from the two studies appear, interestingly, to be independent of each other. In other words, although both studies produced statistically significant results, it was not possible to predict results in the second study based on the first study. Therefore, it is hazardous to make a connection between the significant results and the specifics of the designs in the studies. Further, the interview data, in general, did not yield a great deal of information concerning strategies that were useful to successful dyads.

One of the interesting questions arising from this study is the relatively lower number of button presses made by the Balinese, in spite of giving them the same instructions as Brady and Morris (1997) did. If one looks at the four studies, the average number of button presses in the Help and in the Control periods can be seen in Table 2:

TABLE 2
AVERAGE BUTTON PRESSES IN RECENT DMILS
STUDIES

	Help	Control
Braud et al. (1995)	12.43	13.60
Brady and Morris (1997)	18.45	19.60
Watt and Baker (2002)	10.35	10.76
Watt and Ramakers (2003)	12.03	13.47
Edge et al. study 1	1.89	2.58
Edge et al. study 2	2.0	2.45

There are a number of reasons why such disparity can be found using the same procedure (the exact instructions are not given in the Braud et al. (1995) study, and in the Edge, et al. Study 2, the instructions were not read verbatim to the participants, but they were paraphrased). Experimenter effect could influence the number of button presses, but, more interestingly, cross-cultural differences may have played a significant role. The Balinese are more practiced in prayer than people in Euro-American societies, given the ubiquity of prayer in ritual in Bali, and even if participants had not been trained formally in focus meditation, a meditative attitude may have been inculcated in them, leading them to focus better. Alternatively, the Balinese may be less likely to press the button, due to demand characteristics. Whatever the reason, this is an interesting question that should be studied further.

It is also worth mentioning that in the lone case where an indigenous healer (*Balian*) acted as Helper in Study 2, the Helpee reported that the Helper's effect on him (actually, this was reported independently by two Helpees) started strongly at the start of the run, and it was so strong, that it lasted for the whole session. It produced such dramatically different experiential and behavioral reactions, that it was noteworthy. Of the four runs with this Helper, using two different Helpees, neither of whom knew the Helper was a Balian, only in one run did a Helpee press the button (and pressed it only once in that run). In other words, the Helpees reported that they were affected so quickly and so strongly, and their focus became so strong, that they

were not distracted during the whole run, a remarkable occurrence (this result occurred only these four times totally in the both studies, a total of 100 runs). This result suggests that it is well worth pursuing this DMILS protocol using healers as Helpers, which we plan to explore in the next study.

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Appendix I: Questionnaire 1:
Estimate at Success at Focusing Attention

Please mark along the line to indicate how successful you were in focusing your attention during the meditation session:

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

Not successful
At all

Extremely
Successful

Appendix II

Questionnaire 2

Please indicate to what extent each statement applies to you, or is true for you, by circling the appropriate number. Be sure to answer all the items.

5 indicates very true or strongly characteristic of me

4 indicates moderately true or characteristic of me

3 indicates neither particularly characteristic nor uncharacteristic of me

2 indicates moderately untrue or uncharacteristic of me

1 indicates definitely untrue or strongly uncharacteristic of me

1. I tend to be quite wrapped up and interested in whatever I am doing.

1 2 3 4 5

2. I am the kind of person whose thoughts often wander.

1 2 3 4 5

3. My mind seldom wanders from my work.

1 2 3 4 5

4. I find that I easily lose interest in things that I have to do.

1 2 3 4 5

5. I am not easily distracted.

1 2 3 4 5

6. My ability to concentrate is not impaired by someone talking in another part of the house or room.

1 2 3 4 5

7. No matter how hard I try and concentrate, thoughts unrelated to my work always creep in.

1 2 3 4 5

Appendix 3: Instructions to Helper and Helpee

To the Helpee

The purpose of this session is to look at the effects of joint meditation on your attention focusing abilities. Some people are able to focus their attention readily on one thing while others tend to scan over a number of things. Of course, we all do both of these, focusing and scanning, to some degree but generally a preferred mode develops. In this experiment, I am going to rely on your report of the extent to which you were or were not able to keep your attention focused. I am going to ask you to focus your attention on a candle [a small lighted candle in a pale blue translucent glass holder suspended in a black metal holder]. By focusing, I do not mean analyzing the different parts of the candle, or thinking a series of thoughts about the candle, or associating ideas to the candle, but rather trying to see the candle as it exists in itself, without any connection to other things. Try to exclude all other thoughts or feelings or sounds or bodily sensations. Do not let them distract you but keep them out so that you can focus all your attention, all your awareness on the candle. Try to let the perception of the candle fill your entire mind.

Most people find it fairly difficult to keep their mind empty of thoughts and it is expected that you will experience the intrusion of random thought. I'd like you to signal each time an intrusion occurs by pressing a small hand held button-presser. Some extremely fleeting thought or perception may cross your mind and not be counted as an intrusion so long as you do not get caught up in a stream of thought about it. An intrusion is counted whenever you find that you have got caught up in some thought or other and, by force of will, have to bring yourself back to the task of just focusing on the candle. It is as if you have momentarily forgotten the task or had a slight lapse of consciousness and then suddenly remembered what you were supposed to be doing. It is very important that you report the intrusions as honestly as you can, by pressing a button, without trying to get caught up in trying to look good to me.

For the Helper

The purpose of this session is to look at the effects of joint meditation on attention focusing abilities of a partner in another room. Some people are able to focus their attention readily on one thing while others tend to scan over a number of things. Of course, we all do both of these, focusing and scanning, to some degree but generally a preferred mode develops. The idea is that your focusing will help your partner focus better.

DMILS in Bali

For half the experiment you will be focusing on a similar candle to the one used by your partner as his focus, while you are attempting mentally and at a distance to help your friend pay attention to their candle. For the other half of the experiment you should try to occupy your mind with everyday matters and try not to think about your friend or the experiment a lot. These periods of influence will be one minute long and there will be eight of each. They will also be occurring in random pair sequencing (Control/Help Vs Help/Control). So you may get two help or control periods together. The type of the current period will be indicated to you by means of a monitor display (Help or Control). In addition, there will be an auditory signal (a “beep”) at the beginning of each influence period administered as an extra signal to inform you to look at the monitor to see what the next influence period will be. You will not need to report distractions from the candle; however, if you do become distracted just gently return your focus to the candle. The monitor will let you know that the experiment is over.