MOTOR AUTOMATISMS AS A VEHICLE OF ESP EXPRESSION[1]

By John Palmer

ABSTRACT: To explore the expression of ESP through motor automatisms (hand movements), 40 adult volunteers were tested. The target pool consisted of 100 homographs divided into 20 sets of 5 each. Detectors were seated in front of an alphabet board modeled after the Ouija board. For up to 30 min, they randomly moved the pointer around the board in an effort to find letters that appeared in the target word, recording each letter. An RRC staff member, located in a nonadjacent room, served as sender while listening to a pink-noise tape or a pink-noise tape with superimposed "binaural beats" in the theta and delta frequency ranges. Detectors then blind-rated a set of 5 possible targets for correspondence to the letters they got from the board and from other impressions. Detectors who said they felt an outside force moving their hand over the board (OF) from 1-40% of the time scored significantly above chance and significantly higher than other detectors. A trait measure of dissociation consisting of the Complex Partial Epileptic Signs scale with the Tellegen Absorption Scale partialled out correlated positively and significantly with the OF item. The findings suggest that moderate levels of dissociation are more psi-conducive than extreme levels.

Keywords: motor automatism, dissociation, extrasensory perception, Ouija board, temporal lobe epilepsy, absorption

This study was aimed at exploring ESP in dissociative states. Dissociation was defined as the tendency for actions or thought processes to occur involuntarily and separately from the normal stream of consciousness. The underlying hypothesis was that ordinary conscious mental activity interferes with psi, and if the psi process could be split off from this mental activity it would be more likely to manifest. Trance mediums have often produced relatively strong psi effects, and modern altered-state induction procedures such as hypnosis and the ganzfeld seem to create states that are at least mildly dissociative while arguably enhancing psi performance (Honorton, 1977; Stanford & Stein, 1994).

I previously conducted a series of ESP-dissociation experiments in which participants made ESP responses through a form of motor automatism, random eye fixations on the elements in a matrix of symbols. Before either each run or each trial, a motivational visual stimulus was flashed to participants subliminally. Overall significant results with this procedure, when they occurred, tended to be either psi-missing or tight variance, suggesting a negative reaction to the test (e.g., Palmer & Johnson, 1991). Desiring a measure of autonomous ESP that participants could relate to more easily, I decided to employ a psi task based on the popular Ouija board, for which the automatisms are hand movements.

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Sargent (1977) conducted two experimental series in which groups of volunteers played with a Ouija board in an informal atmosphere, mostly unaware that an ESP test was involved. In both experiments, below-chance scoring was obtained when the sequences of characters that participants selected from the board were structured (e.g., meaningful words) and above chance when they were unstructured. For the present experiment, I chose to employ a free-response procedure rather than the forced-choice procedure used by Sargent. To increase the number of potential associations to the target, I chose as targets simple, one-syllable homographs (words with more than one meaning). Subliminal perception research using words as stimuli suggests that associates to target words often are more pre-potent than the target words themselves (Bornstein & Pittman, 1992), and subliminal perception may involve discrimination mechanisms similar to psi (Schmeidler, 1986).

Both a "state" and a "trait" approach were utilized to assess whether participants with the greatest tendencies toward dissociation would get the highest scores on the alphabet board task. For the state approach, participants were asked whether they had the impression during the session that the pointer was being guided by an outside force. For the trait approach, participants completed the Complex Partial Epileptic Signs (CPES) scale (Persinger & Makarec, 1993), which measures tendencies toward temporal lobe epilepsy (TLE), which is characterized by dissociative behavior, often including motor automatisms such as involuntary chewing motions. The CPES scale correlates very highly with Bernstein and Putnam's (1986) Dissociative Experiences Scale, which is used to measure tendencies toward multiple personality (Persinger & Makarec, 1993). However, I have found that the CPES also correlates highly with the Tellegen Absorption Scale (TAS; Tellegen, 1978), which measures the tendency to become absorbed in one's phenomenological experience. Thus, the TAS was added as a suppressor variable re the CPES. In a previous survey of Ouija board users, the suppressed CPES scores correlated with reports of negative experiences using the board (Palmer, 1999).

Because it is possible that psi information might come through other vehicles than motor automatism, such as visual imagery, participants were asked to make separate ratings for impressions that came directly from the board and other impressions. As such impressions are not sought, they would be more dissociative, and arguably more likely to be psi-mediated, than many of those obtained in standard free-response experiments in which participants try to produce imagery. With respect to such spontaneous imagery, the Ouija board can be seen as a distracter.

Finally, a sender attempted to transmit the target word to the receiver. To induce a psi-conducive altered state of consciousness, the sender listened to an audio tape that contained either pink noise (a component of the ganzfeld procedure for inducing an ASC) or pink noise on which were superimposed binaural beats. These sounds are used by the Monroe

Institute to help induce out-of-body experiences and related altered states of consciousness in people who participate in their professional workshops by "influenc[ing] ongoing brainwave states by providing information to the brain's reticular activating system" (Atwater, personal communication).[2] It was speculated that having the sender as well as the receiver in a dissociated state would enhance the psi effect.

Method

Participants

The sample size was set in advance at 40. Participants consisted primarily of persons who had previously been tested in other experiments at the Institute for Parapsychology, especially a remote viewing screening experiment. Participants were referred to as "detectors."

Targets

A fairly elaborate procedure was used to create the target pool. The initial list of target words consisted of 390 homographs reported by Ferraro and Kellas (1990). These authors presented this list of words to 150 college undergraduates and asked them to indicate whether the word had no, one, or two meanings. The percentage of participants choosing two was the first selection criterion. The second criterion was based on an experiment by Nelson, McEvoy, Walling, and Wheeler (1980), who gave a list of 300 homographs to 46 college undergraduates, asking them to list as many meanings of each word as they could think of in a 50-min period. The responses to each word from all the participants were then compressed by the authors into categories which contained words of similar meaning. The second selection criterion was created by dividing the number of responses in the first or primary category by the total number of responses. For example, 46 different responses were given to the word *bark*, of which 37 made reference to a dog. Thus, the percentage score for bark was 37/46, or 80%. Note that for the first criterion a high percentage means high diversity, whereas for the second criterion a low percentage indicates high diversity.

The original Ferraro and Kellas list was reduced from 390 to 187 by eliminating words that were not included on Nelson et al.'s list. Five eliminated words that had a score higher than 75 on Ferraro and Kellas's list were added back and given a score of 72 on Nelson et al.'s list, which is the mean score of the words on their list. The resulting 192 words were ranked separately on the two sets of scores, with the highest diversity scores given the lowest ranks in each case. The ranks for each word were then

2 I wish to thank Skip Atwater of the Monroe Institute for preparing and sending me the tapes.

summed and the words reranked according to the rank sums. The first 100 words were chosen for the target pool.

The selected words were then ranked for frequency in the English language, using primarily the Kucera and Francis (1967) norms. This ranking was then used to divide the 100 words into 20 sets of five words each, such that the words in each set had maximally similar frequencies. Some reassignments were made to avoid words in the same set having highly similar meanings or too many common letters.

The list of 100 words was stored in a computer, and a pseudo-random algorithm from Quick Basic was used to select a sequence of 100 target words, with replacement. This was more than enough to cover the projected 40 trials and various pilot sessions. The sequence was not exposed, so that the target for each trial was not known to anyone until displayed to the sender during the trial in question.

Alphabet Board

The alphabet board was similar to a Ouija board but purposely had a somewhat different appearance, as I did not want the context of the experiment to bear too strong a resemblance to those in which Ouija boards are customarily used. It consisted of a 16-inch square piece of white paper, with black lettering, that was taped to a heavy glass frame with rubber feet, and covered with laminating to produce a smooth surface. The pointer was the one supplied with the Parker Brothers Ouija board, but it was covered with black felt to blend with the appearance of the board.

The letters of the alphabet are displayed in a square format near the edges of the board. The letters on each of the four sides of the board were arranged such that the numbers of times they appeared, as a group, in the target pool were close to identical. Also, the most common letters appeared near the middle of each row, with the least frequent letters appearing at the ends, or near the corners. Numbers were not included, but the words "yes" and "no" and "maybe" were, in case the detector wanted to ask the board questions. Finally, the word "bye" was available to give detectors a basis for stopping the session at a hopefully optimum time.

Layout

The detector was located in a small (6' x 8') room in the basement of the Institute. In the middle of the room was a table with a chair on each side. On top of the table was the alphabet board, a portable tape recorder, and a note pad and pen. The room was illuminated by a 20-watt red light bulb inside a standing lamp with white shade. The outside window was covered with opaque cardboard and dark drapes.

The sender was located in a 6' x 8½' room on the second floor of the Institute, not directly above the detector's room. She was seated in

a reclining chair facing a TV monitor not used for the project and not connected to a computer. The sender's room was equipped with a pair of headphones connected to a cassette tape recorder located in an adjacent room. The outside window was covered with opaque cardboard, so the room was dark during the sending periods. Adjacent to this room on two different sides was an outer room, which contained an IBM-type microcomputer used to randomize and display target material, and a monitoring room which housed a cassette tape deck used to funnel sound stimuli to the sender during the session.

Description of the procedure and completion of rating scales took place in the Institute's library/conference room located on the first floor.

Materials and Questionnaires

Triangle Psychological Inventory (TPI). The TPI consists of 50 true-false items. Thirty-four of the items constitute the Tellegen Absorption Scale (TAS; Tellegen, 1978) and the remaining 16 items constitute the Complex Partial Epileptic Signs (CPES) scale (Persinger & Makarec, 1993). The items from the two scales are ordered randomly on the TPI. Both the TAS and CPES are components of larger scales that include checks for lying and acquiescent response bias, which allowed their authors to key all the items in the positive (true) direction. This creates the potential for acquiescent response bias when the scales are administered in isolation. To alleviate this problem, I created an alternative version of the TPI in which half the items on each component scale were reworded negatively, and this revised version was used in the present study.

Detector Questionnaire. This questionnaire asked the detectors about their experience during the session. It began with two questions using visual analog scales asking how likely they felt it was that the sender projected her consciousness into the detector's room and successfully communicated the target. The next two questions asked how much of the time detectors tried to move the pointer around the board, in contrast to waiting for it to move on its own, and what percentage of the time, if any, they felt the pointer was being guided by an outside force. The last two questions, which were open-ended, asked the detectors to describe any mental imagery or impressions they had during the session and any anomalous physical effects (e.g., movements, noises) they might have noticed.

ESP Rating Scales. These two scales asked detectors to rate from 0 to 20 each of the five words in the target set according to how well it corresponded to their impressions. The first scale asked for two independent sets of ratings, the first for what came through directly on the board, and the second for any other impressions obtained at any time during the experiment, including those mentioned on the Detection Questionnaire. The second scale asked them to make a single, composite set of ratings. It was stressed to detectors orally that they could weight the two previous sets

of ratings any way they wished to arrive at the composite rating. Detectors who gave the highest rating to more than one target alternative on any of the scales were forced to make a first choice by circling the corresponding rating on the sheet.

Post-Feedback Questionnaire. This questionnaire asked participants to mark any of the following five potential sources of information that caused them to give the target as high a rating as they did, and then to rank the ones marked in order of importance. The sources were movements on the board, other impressions before the session, other impressions during the session, other impressions after the session but before judging, and other impressions during the judging. The questionnaire was not given to eight participants who gave the target a composite rating of 0, because the questions were not meaningful in that situation.

Noise Questionnaire. We had become sensitized to the fact that our testing rooms were susceptible to various outside (nonanomalous) noises that detectors might find distracting. To assess this problem, the last 13 detectors were asked to complete a short questionnaire asking them to describe any such noises they heard during the session and to rate their distractedness on a 5-point scale.

Projection Questionnaire. This questionnaire asked the sender to estimate on visual analog scales the maximum alteration of consciousness she obtained during the session, her success in projecting her consciousness to the detector's room, and her success in communicating the target word to the detector. Finally, it asked her to guess which of the two sound tapes she had listened to.

Audio Tapes. The experimental (binaural beat) tape presented four carrier waves of 100, 200, 250, and 400 Hz that produced binaural beats of 1.5 Hz for the 100 Hz carrier and 4 Hz binaural beats for the other carriers. These correspond to brain waves in the delta and low theta ranges. The beats were superimposed on a background of pink noise. The control tape consisted of the pink noise only. The taped sounds were transmitted to the detector in stereo through headphones.

A sequence of 20 experimental and 20 control tape designations was randomly permutated using the same pseudorandom algorithm used to create the target sequence. The tape sequence was stored in the computer and not revealed until each designation was accessed at the beginning of a test session.

Procedure

Most detectors completed the TPI at home prior to their session. The others completed it at the beginning of the experiment.

I, as experimenter, began by reading to the detector a description of the procedure. For reasons of informed consent, a paragraph was included at the end which noted that some people have had negative experiences using

Ouija boards (to which our alphabet board bears some resemblance) but that the context of this experiment was different from those that ordinarily create problems (e.g., conjuring spirits), that none of our previous participants had a bad experience in the experiment, but that they should feel free to immediately stop the session if they encountered anything negative. All detectors agreed to continue and signed our consent form. None reported a negative experience during the session. The task was presented to the detectors as primarily a test of the sender's ability, so as to reduce their feeling of responsibility for the outcome (cf. Batcheldor, 1984).

I then escorted the detector upstairs to greet the sender in her office. The sender was Institute research associate Cheryl Alexander, who has experience getting herself into an altered state of consciousness. After a brief chat, we went to the sender's room. The sender sat down in the reclining chair and explained to the detector how she would do the sending: her strategy was to project her consciousness to the detector's room and guide the detector's hand to the letters on the board; she also would attempt to transmit the word itself and her associations to it. I then asked the detector to sit briefly on a couch in the hallway, after which the sender shut the door to her room. After the door was shut, I obtained from the computer, located in the outer room adjacent to the sender's room, a letter indicating whether the sender would hear the sound tape with the binaural beats or the control tape. I then cleared the computer screen and left the room, closing the door behind me. I went immediately to the monitoring room, located on the other side of the wall from the sender's room, and placed the appropriate tape inside the cassette tape deck, adjusted the volume, and pressed play. I closed the door behind me as I left the monitoring room. After I vacated the outer room, the sender entered the room and pressed a key on the computer keyboard that caused the target word to appear on the screen. (The word remained on the screen throughout the session.) She then reentered the sender's room, closed the door, turned off the light, put on the headphones, and began to enter an altered state of consciousness.

After I left the outer room, I met the detectors in the hallway and escorted them downstairs to the detector's room. I reviewed the key instructions, including the following points. I demonstrated how to move the pointer around the board. Detectors were told that, if the pointer did not move on its own, to try to move it around randomly and see if they could detect a force guiding it in a particular direction or toward a particular letter or word. They were also told that they should say out loud for the small cassette tape recorder located on the table every letter the pointer identified during the session, as well as any question asked of the board, and the board's reply. It was noted that no one would be listening in. They were told that after I left the room they could take a couple moments to get relaxed and centered and then to press the record button on the tape recorder, which I demonstrated. They were told they could write notes on the notepad to remind them of the board's responses when they

were doing the judging, but they were not to interrupt periods when the board was active to take notes. They were told that the session would last a maximum of 30 min, which would be indicated by the tape running out (at which point a click could be heard from the recorder). They were told they could stop the session before that time, if they wished, by pressing the stop button on the recorder, which I demonstrated. When the session was over, detectors were instructed to call me on the intercom phone resting on the table. Instructions for doing so were listed on the phone. Finally, they were told to wait in the room until I came down to get them.

During the session, I was on the second floor engaged in other activities. When I received the phone call from the detector, I went to the monitoring room, turned off the tape recorder giving sound to the sender, and knocked twice on the wall to confirm that the session had been completed. I then went downstairs to retrieve the detector.

The sender in the meantime removed the headphones, turned on the light in the sender's room, and completed the Projection Questionnaire. She then entered the outer room and pressed a key on the keyboard that caused the number of the target *set* (1–20) to appear on the screen, replacing the target word. She then left the outer room, leaving the door open (as a signal that the target word was no longer on the screen), went to her office, and closed the door.

In the meantime, I escorted the detector up to the library. Detectors first completed the Detection Questionnaire, which I checked to be sure it had been filled out properly. I then went upstairs to the outer room to observe the number of the target set. I then went to my office and retrieved from a desk drawer one of 20 index cards which listed the five target alternatives for the session. I took the card with me back to the library and showed the card to the detector, who then completed the two ESP rating scales. When this was completed, the detector filled out the Noise Questionnaire.

I then went upstairs to retrieve the sender from her office and confirmed the identity of the target word. We went together to the library to reveal the target to the detector. After some discussion about the results, the sender left. If the target had been given a composite rating greater than zero, the detector completed the Post-Experiment Questionnaire. Lastly, detectors were invited to ask any questions they might have about the experiment, which were answered, and thanked for their participation.

Results

All *p* values reported in this section are two-tailed.

Overall ESP Scores

One detector could get no information in the experiment at all and that session was not counted. This detector was replaced by another one at

the end of the experiment. This new detector was given a new target word but the tape condition was the same as for the one replaced. This meant that the tape designation was, strictly speaking, not blind for this session, but the sender did not recall the designation for the aborted subject and in fact estimated on the Projection Questionnaire that the tapes for the two sessions were different.

There were three ESP measures: scores based on information that came through the board, scores based on information that came through other vehicles, and combined or total scores. The latter were defined as the primary scores for all analyses in the experiment. Combined ratings were not obtained for the first two subjects. Estimates were created for them by taking the averages of their ratings for the "board" and "other" scales for each of the five target alternatives.

For total scores, when detectors gave the same highest rating to more than one word, they were "forced" to circle one of them as their first choice. This was not required for the "board" and "other" ratings, and for these scales, ties were resolved by awarding a partial hit, defined as 1 divided by the number of tied high ratings.

The mean number of hits for the total score ($N = 40$) was 10, with $MCE = 8$. This is associated with a corrected $z = 0.59$, which is in the positive direction but nonsignificant ($p = .55$). The associated effect size ($z / N^{1/2}$) is .09. There were four instances where every word in the set was given a rating of 0 (three on the "board" scale and one on the "other" scale), indicating that no information came through this vehicle. These scores were treated as missing. The mean number of hits for the "board" scale ($N = 37$) was 6.50 ($MCE = 7.4$), and the mean number of hits for the "other" scale ($N = 39$) was 8.75 ($MCE = 7.8$). Both values are nonsignificant.

As a secondary measure of overall ESP, z scores were created for each scale by subtracting from the rating given to the target word the mean rating for all 5 words and dividing by the standard deviation of all 5 words. The mean z score for the total scale was 0.16, t (39) = 1.09, $p = .120$ (nonsignificant). The mean z score for the "board" scale was 0.12 and for the "other" scale 0.06, both nonsignificant.

I had originally intended to have a second set of ESP measures based on independent judging of the oral records detectors made of their board responses during the sessions. However, when the tapes were transcribed it was discovered that in a great many cases the utterances were so faint that they could not be detected. Instead of analyzing clearly unreliable data, I decided to forego the independent z scores.

Dissociation

The "state" measure of dissociation was the item on the Detector Questionnaire asking whether the detector felt at any time during the session that an outside force was guiding his or her hand. I wanted to

break responses on this item into groups of at least 10. Inspection of the distribution of scores revealed that this could best be accomplished by creating the following three groups: felt outside force 0% of the time (n = 15), 1%–40% (n = 11), 41%–100% (n = 15). The aborted participant was included in analyses not involving ESP scores, raising N to 41.

As expected, the outside force question (OF) was significantly related to the "trait" measure of dissociation, the CPES scale, using the nonparametric Kruskal-Wallis test, $K\text{-}W$ = 8.99, p = .011. As illustrated in Figure 1, the relationship is essentially linear, although the linearity is contributed primarily by the difference between the 1–40% group and the 41%-100% group. Expressed as a correlation, the relationship between these two variables is also significant, r_s (39) = .43, p = .006. It is noteworthy that the correlation between OF and the suppressor variable, TAS, was much lower, r_s (39) = .15, p = .34, despite the fact that, as expected, the CPES scale and TAS were highly correlated with each other, r_s (39) = .77. When the CPES scale and the TAS were entered into a multiple regression performed on a Spearman correlation matrix and with OF as the dependent variable, the (partial) correlation between CPES and OF was elevated to .76, t (38) = 3.44, p = 001. In fact, the suppressor effect of the TAS is almost significant, t (38) = -1.96, p = .058.

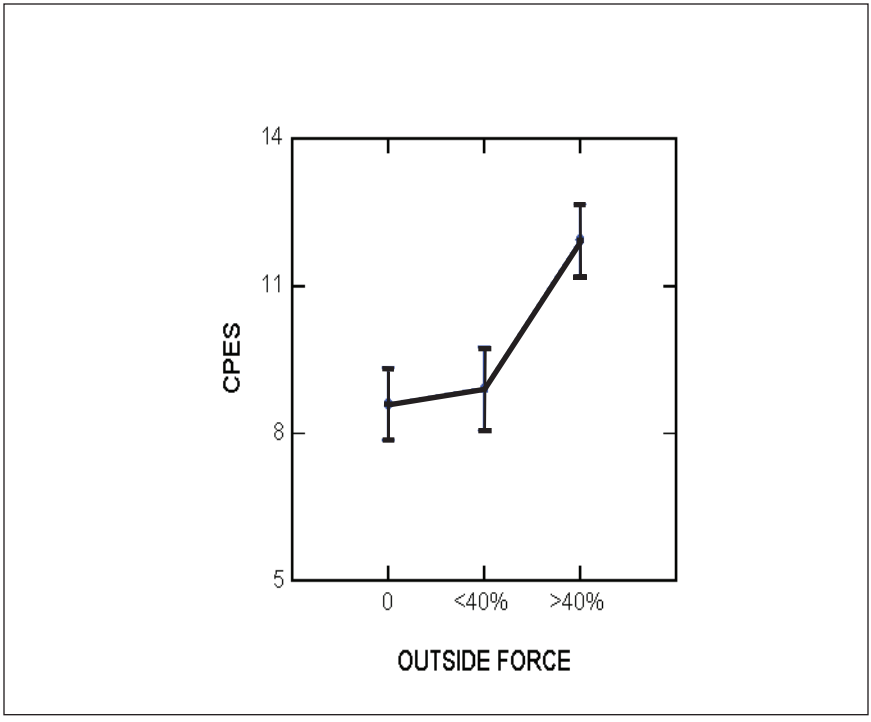

Figure 1. CPES in relation to percentage of time hand seen as being moved by an outside force

The relationship between the total ESP scores and OF is significant, *K-W* = 6.84, $p = .033$. However, as illustrated in Figure 2, the relationship is curvilinear, with the hitting concentrated in the 1–40% group. The mean *z* score of the 11 detectors in this group is .818, which is highly significant, $z = 4.22$, $p = 2.4 \times 10^{-5}$. This high significance is not due to one or two ultra-high *z* scores. Because of the way they are calculated, the highest *z* score in the experiment was only 1.79. The results for the "both" and "other" *z* scores were quite similar to those for the total *z* scores.

The total *z* scores did not correlate significantly with either the CPES scale, $r_s(38) = -.03$, or the TAS, $r_s(38) = -.12$. Correlations between these two predictors and the "board" and "other" *z* scores were comparable and nonsignificant.

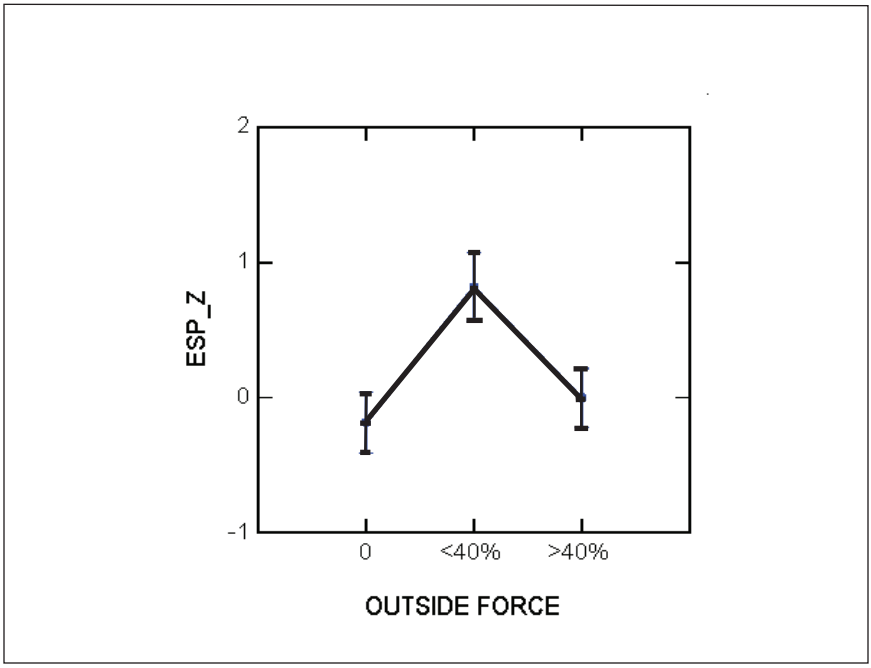

Figure 2. ESP *z* scores in relation to percent time hand seen as being moved by outside force

Binaural Beat Tapes

The beats are difficult to detect and there was some hope that the sender would not be able to tell the two tapes apart. If this were the case, it could be claimed that she was blind to the manipulation, and expectancy could thus be ruled out as an alternative explanation of any differences the tapes made in the results. The sender was able to correctly identify the tape she was listening to on 26 of the 40 trials (65%), which approaches

significance, χ^2 (1, N = 40) = 3.60, p = .058. However, this only means that she could tell the two tapes apart with some degree of success. She claimed that she was not able to identify which of the two tapes included the binaural beats, and she claimed that she made no effort to do so. Thus, I would say that the blinds were equivocally successful.

The two tapes did not differ in their effect on the sender's perceived entrance into an altered state of consciousness. On the 10-point continuous scale, the mean was 7.49 with the binaural beat tape and 7.62 with the control tape, Mann-Whitney U = 186, p = .705. There also was no effect of the tapes on how successfully she felt she had projected her consciousness into the detector's room (M_b = 5.13, M_c = 5.35), U = 185, p = .69, or how successfully she felt she had communicated the target word to the detector (M_b = 6.71, M_c = 6.56), U = 214, p = .71.

There were only two noteworthy relationships between detector variables and the tapes. There was a suggestive tendency for the "board" ESP z scores to be higher when the sender was listening to the binaural beat tape (N = 20, M_b = .324, z = 1.87, p = .06) than when she was listening to the control tape (N = 17, M_c = -.118), U = 227, p = .08. However, when the sender was listening to the binaural beat tape, the detectors felt it was *less* likely that she had "projected herself into the test room during the session" (M_b = 4.48) than when she was listening to the control tape (M_c = 6.94), U = 288.5, p = .04.

Other Variables

There were no significant relationships between the ESP z scores and sex of the subject or any of the items on the Detector, Noise, Post-Feedback, or Projection Questionnaires not addressed above.

Discussion

The matrix of correlations between the CPES scale, the TAS, and the OF question on the Detector Questionnaire could hardly have fit my expectations more closely. These results support the theoretical rationale that the variance the CPES scale does *not* share with the TAS is a good measure of dissociative tendencies and, more to the point, a good predictor of dissociative responses on a task like the alphabet board. These results provide support for the construct validity of both the trait and state measures. They also argue against a response bias interpretation, because someone who wanted to "appear mystical or psychic" would most likely try to get a high score on the TAS as well as the CPES scale. Moreover, the items on the two scales are difficult to distinguish from each other just by looking at them.

In light of the psi-missing and tight variance effects I customarily found with the eye fixation test, it was refreshing to see that the hit rate

of .25 with the alphabet board was at least above chance (.20). However, the value was not significant, and thus the alphabet board was not as psi-conducive as originally hoped. Although the effect size of .093 is comparable to the .096 found for the standard, post-PRL ganzfeld experiments (Bem, Palmer, & Broughton, 2001), an *N* of 40 is not large enough to produce a reliable measure of *ES*. In my opinion, only effect sizes from significant results should be interpreted in isolation.

The number of significant relationships between ESP and predictor variables was small but concentrated on the predictors of greatest theoretical interest. Foremost among these was the question about proportion of time the detector felt his or her hand was being moved by an outside force (OF). This variable indeed related significantly to the ESP *z* scores, but not in the manner expected. Instead of a positive linear relationship between these variables, a curvilinear relationship was found, with the highest scoring among those who experienced OF for 1 to 40% of the session. My first inclination was to suspect that the experience of these detectors might have been more veridical than those who experienced the OF more consistently, because one might expect true ASCs of this type to be very intermittent. This interpretation, in addition to being ad hoc and speculative, is inconsistent with the fact that the validity measure for the OF question, the CPES scale, predicted OF most strongly for high-frequency (>40%) experiencers (see Figure 2). The <40% group differed hardly at all on the CPES scale from those who never experienced the OF during the session. The mean *z* score for the <40% group is quite high (.818), but like any isolated finding it needs to be replicated. If the relationship is real, it would appear that too much dissociation might be counterproductive to ESP.

Having the sender listen to the binaural beat tape did seem to facilitate psi-hitting on the part of the detector, but only to a suggestively significantly degree ($p = .08$) and only on ESP scores based exclusively on the results of spontaneous hand movements. In other words, the effect is quite weak and its validity questionable. Nonetheless, it is enough to encourage continued exploration of the influence of binaural beat stimuli on a variety of psi tasks. Insofar as this influence was real in the present experiment, it supports an active role for the sender in the communication process, bringing it in line with what is often assumed to be the process in DMILS research. There are a variety of types of binaural beats that could be used, and the one selected for this study may not be the most effective. Because the background sound is similar to that used in the ganzfeld, binaural beat tapes would fit particularly well in ganzfeld protocols.

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Abstracts in Other Languages

Spanish

AUTOMATISMOS MOTRICES COMO
VEHÍCULO DE EXPRESIÓN DE LA PES

RESUMEN: Para explorar la expresión de la PES a través de automatismos motrices (movimientos de la mano), evalué a 40 voluntarios adultos. Los estímulos consistieron en 100 homógrafos divididos en 20 series de 5 cada uno. Los detectores estaban sentados delante de un tablero alfabético siguiendo el modelo de una tabla ouija. Durante un máximo de 30 minutos movieron el puntero al azar por el tablero con el propósito de encontrar las letras de una palabra determinada, haciendo un registro de cada letra. Un miembro del personal del RRC, ubicado en un cuarto no adyacente, fungió como agente mientras escuchaba una cinta con sonido rosa o una cinta con sonido rosa y "ritmos binaurales" superpuestos en los rangos de frecuencias theta y delta. Los detectores bajo condiciones de máscara evaluaron un grupo de cinco objetivos posibles en cuanto a la correspondencia con las letras que recibieron de la tabla y con otras impresiones. Los detectores que mencionaron sentir que una fuerza movía sus manos sobre el tablero (FE) puntuaron de 1-40% significativamente por encima del azar y significativamente más alto que otros detectores. Una medida rasgo de disociación consistente en la escala Complex Partial Epileptic Signs (Signos de Epilepsia Parcial Compleja) con la Escala de Absorción de Tellegen controlada correlacionó positiva y significativamente con el FE. Los resultados sugieren que los niveles moderados de disociación son más favorables a psi que los niveles extremos.

French

LES AUTOMATISMES MOTEURS EN TANT QUE
VEHICULE DE L'EXPRESSION DE L'ESP

RESUME : Pour explorer l'expression de l'ESP à travers les automatismes moteurs (mouvements de la main), 40 participants adultes furent testés. La base de cibles contenait 100 homographes divisés en 20 lots de 5 chacun. Des participants « détecteurs » étaient disposés en face d'un tableau alphabétique modelé d'après la planche du Oui-ja. Dans des périodes allant jusqu'à 30 minutes, ils devaient déplacer aléatoirement le pointeur sur la planche afin de trouver les lettres qui allaient apparaître dans le mot cible, chaque lettre étant enregistrée. Un membre de l'équipe du RRC, situé dans une pièce non-adjacente, servait d'émetteur alors qu'il écoutait une cassette avec du bruit rose ou une cassette avec du bruit rose sur laquelle étaient surimposés des « battements binauraux » dans des gammes

de fréquences thêta ou delta. Les détecteurs devaient ensuite coter en aveugle un lot de cinq cibles possibles pour leurs correspondances avec les lettres obtenues grâce à la planche et sur la base d'autres impressions. Les détecteurs affirmant avoir senti une force extérieure guidant leur main sur planche (OF pour Outside Force) dans 1 à 40 % du temps avaient des scores significativement supérieurs à la chance et significativement supérieurs à ceux des autres détecteurs. Une mesure du trait de la dissociation réalisée avec l'échelle Complex Partial Epileptic Signs de l'échelle d'absorption de Tellegen se corrélat partiellement de façon positive et significative avec l'item OF. Les résultats suggèrent que des niveaux modérés de dissociation sont plus propices au psi que des niveaux extrêmes.

German

MOTORISCHE AUTOMATISMEN ALS
VERMITTLER VON ASW-INHALTEN

ZUSAMMENFASSUNG: Zur Untersuchung der Frage, inwiefern sich ASW-Inhalte durch motorische Automatismen (Handbewegungen) vermitteln lassen, wurden 40 erwachsene Freiwillige getestet. Der Pool an Zielobjekten bestand aus 100 Homographen, die in 20 Gruppen zu je 5 aufgeteilt waren. Die Detektoren sassen vor einem alphabetischen Brett, das einem Ouijabrett nachgebildet war. 30 Minuten lang bewegten sie den Zeiger zufällig auf dem Brett in der Absicht, diejenigen Buchstaben ausfindig zu machen, aus denen das Zielwort bestand, wobei jeder Buchstabe protokolliert wurde. Ein Mitglied des RRC, das sich in einem entfernten Raum befand, fungierte als Sender, während es einem Band mit rosa Rauschen oder einem Band mit rosa Rauschen mit überlagerten „binauralen Rhythmen" in den Theta- und Delta-Frequenzbereichen zuhörte. Die Detektoren mussten dann eine Gruppe von 5 möglichen Zielobjekten in ihrer Übereinstimmung mit den Buchstaben, die sie vom Brett und aufgrund anderer Eindrücke erhielten, blind zuordnen. Die Detektoren, die angegeben hatten, sie würden eine äußere Kraft spüren, die ihre Hand über das Brett (ÜB) im Bereich von 1-40% der Zeit bewegte, schnitten überzufällig und signifikant besser ab als andere Detektoren. Eine Traitmessung der Dissoziation, die aus der Complex Partial Epileptic Signs-Skala mit ausparzellierter Tellegen Absorption-Skala bestand, korrelierte positiv und signifikant mit dem ÜB-Item. Die Ergebnisse legen nahe, dass eine moderate Dissoziationsneigung psi-förderlicher ist als extreme Ausprägungen.