

---

## Technical Paper No. 2

---

# A Parapsychological Investigation of the *I Ching*: Seeking Psi in an Ancient Chinese System of Divination

LANCE STORM

---

**ABSTRACT:** The Chinese book of divination, the *I Ching*, has been used in two studies that featured an unorthodox use of the system (L. Storm & M. A. Thalbourne, 1998-1999, 2001a). Both studies ( $N_1 = 93$ ;  $N_2 = 107$ ), tested participants on 2 paranormal tasks using 3 coins: (a) generation of a hexagram (a six-line symbol with associated reading or ‘fortune’), and (b) generation of changing lines (gained by throwing 3-of-a-kind using 3 coins). The hexagram hit-rates (i.e., ‘hitting’) in both studies were significantly above chance, but the number of changing lines in both studies was not. In Storm and Thalbourne’s (1998-1999) initial study, a number of significant parapsychological correlations were found, but in Storm and Thalbourne’s (2001a) second study none of these correlations replicated. In a re-analysis of the data (see Storm & Thalbourne, 2001b), the 2 samples were pooled to form a larger sample ( $N_{1+2} = 200$ ). There was a return to significance in all but one correlation. Psychological correlations of transliminality with each of four 16PF factors replicated. The present article describes a third *I Ching* study using University of Adelaide psychology II students ( $N_3 = 43$ ) who took part in a practical in their psychology course. There were no significant paranormal findings, but 5 psychological correlations replicated for a third time. Pooling the new data with the earlier larger sample ( $N_{1+2} = 200$ ) and subsequent re-analysis of that data ( $N_{1+2+3} = 243$ ) showed a return to significant results in virtually all tests.

---

Various systems of fortune- or future-telling, such as tarot, runes, astrology, and the *I Ching*, may be interpreted as systems that can involve a paranormal component during their operation. The paranormal component is suggested because ostensibly useful and relevant ‘knowledge’ about, or for, the user (e.g., advice for the future) is produced by these systems—knowledge that is assumed by many users not to be produced by

chance. However, strictly speaking these systems, including the *I Ching*, should be regarded as forms of *divination* whereby, rather than forecasts as such, the user seeks sanction from a putative divine source for appropriate or possible actions. Nevertheless, from a *psychological* perspective, the unconscious processes of the user that may be taking place in these systems must also be considered. It is, after all, a moot point whether “divine” influence may only be *unconscious* influence, since by the law of parsimony all unconscious processes may be the subject of ourselves rather than of any outside source. Thus, for example, the *I Ching* system may involve a paranormal process directly related to the individual as opposed to, say, a supernatural process related to, say, a divine entity.

### *Previous Research using the I Ching*

Formally, to consult the ‘oracle’ of the *I Ching*, one must generate one of 64 hexagrams, which involves: (i) posing a meaningful (sensible) question to the *I Ching*, and (ii) throwing three coins, six times, to generate the hexagram and its corresponding reading. (Each throw of the coins produces one of the six ‘yin’ or ‘yang’ lines, so that, throw by throw, the hexagram is built from the bottom up.) The coins may show three-of-a-kind on some occasions, and these throws produce so-called changing lines, which generate a second hexagram with an associated extra reading.

The *I Ching* has been used previously in parapsychological experimentation (e.g., Rubin & Honorton, 1971, 1972; Thalbourne, 1994; Thalbourne, Delin, Barlow, & Steen, 1992-1993). Storm and Thalbourne (1998-1999; 2001a, 2001b) have also experimented with the *I Ching* using samples of participants recruited mostly from Adelaide University. Participants were required to select 16 out of 64 descriptor-pairs each of which corresponded to a hexagram symbol. They then threw three coins, six times, to generate a so-called outcome hexagram. The task was twofold: (a) to match the outcome hexagram with one of the 16 descriptor-pair selections (i.e., get a ‘hit’), and (b) generate as many changing-lines as possible. In both studies, the hexagram hit-rates (i.e., ‘hitting’), expressed as the effect size  $\pi$ , were significantly above chance, but the number of changing lines in both studies was not.

To establish whether certain personality types were more successful than others at generating predesignated hexagrams and changing lines, Storm and Thalbourne also looked for relationships of the two psi tasks with (a) factors on the personality test, the 16PF (Cattell, Eber, & Tatsuoka, 1970), and (b) transliminality, the “hypothesised tendency for psychological material to cross (*trans*) thresholds (*limines*) into or out of consciousness” (Thalbourne & Houran, 2000, p. 853). Regarding

transliminality, Storm and Thalbourne hypothesised that paranormal information might, in highly transliminal individuals, cross the “threshold” into consciousness.

Regarding the 16PF, Storm and Thalbourne (1998–1999) found significant correlations between the following:

1. Hexagram hitting and six 16PF factors: Factors F (Liveliness), H (Social Boldness), Q<sub>2</sub> (Self-Reliance), Q<sub>4</sub> (Tension), EX (Extraversion), and IN (Independence). All correlations were positive except Q<sub>2</sub> and Q<sub>4</sub>.
2. Number of changing lines and five factors: Factor A (Warmth), C (Emotional Stability), M (Abstractedness), Q<sub>2</sub> (Self-Reliance), and EX (Extraversion). All correlations were negative except Factors M and Q<sub>2</sub>.
3. Transliminality and five factors: Factor A (Warmth), G (Rule-Consciousness), M (Abstractedness), TM (Tough-Mindedness), and SC (Self-Control). All correlations were negative except Factors A and M.

Regarding transliminality, Storm and Thalbourne (1998-1999), found a significant correlation between hitting and transliminality, and a weak but marginally significant correlation between transliminality and changing lines. They conjectured that transliminality might be related to paranormal belief and ostensible paranormal ability, as previously suggested by Thalbourne and Delin (1994, p. 24; see also Storm & Thalbourne, 1998-1999, p. 113).

In a methodologically improved second study, Storm and Thalbourne (2001a) attempted to replicate their initial significant findings. Hitting was again significantly above chance. Also, number of changing lines correlated with answers to the ‘sheep’ (i.e., belief) question: “Do you think it is possible for at least some people to exhibit paranormal effects in this experiment?”

Although none of the predicted parapsychological correlations with transliminality or the 16PF variables replicated, four of the original five significant correlations between transliminality and factors on the 16PF did replicate.

### *Storm and Thalbourne’s Methodology in the I Ching Experiment*

Storm and Thalbourne described their own *I Ching* experiment as “unorthodox” (Storm & Thalbourne, 1998-1999, p. 106). Their protocol necessarily ‘leveled the playing field’ for all participants by subjecting them

all to one and the same question for the *I Ching*, thereby eliminating the need for the formation of a personal question. As regards the lack of orthodoxy, it can be argued that, psychologically, many emotional and cognitive states exist in the form of unasked *I Ching*-type questions, thus bringing the Storm and Thalbourne protocol closer to the standard method (see specifically Storm & Thalbourne, 1998-1999, p. 107, for the rationale behind this protocol). Essentially, the aims of previous experimenters were to see if the *I Ching* process could generate a hexagram reading that the participant would find pertinent to his/her 'needs', or could be taken as an answer to a question impersonally 'asked' of the *I Ching* 'oracle'—a question that was 'put out to an external source', as it were. Thus, experiments by other researchers were primarily *proof*-oriented—most researchers (excluding Rubin & Honorton, 1971, 1972, who administered a belief in ESP scale) tried to prove the efficacy of the *I Ching* without suggesting a mechanism.

The Storm and Thalbourne experiments were more nearly *process*-oriented. By way of their unorthodox protocol, Storm and Thalbourne tried to uncover the *nature* of the process underlying the generation of *I Ching* hexagrams. If there was an anomalous mechanism underpinning the *I Ching* process, the responsible experimenter should endeavour to find evidence of a source for this process: significant effects may have been *demonstrated* in other researchers' *I Ching* experiments, but if it could be shown that mental and/or emotional factors of the *I Ching* users were clearly implicated in that process, it would be more likely that the individual rather than say the experimenter was causally involved in the process.

The study reported in the present paper is an attempt to replicate Storm and Thalbourne's (1998-1999, 2001a, 2001b) previous significant findings. Thalbourne's (2000) hypothesis that a "pro attitude" (an attitude that is favourably directed towards an outcome) must be present in the participant for psychopractic (i.e., psi) effects to take place was also tested for the first time with a scale designed especially for the task.

### *Parapsychological Hypotheses*

The parapsychological and psychological hypotheses posed in this study are based on prior findings (see Storm & Thalbourne, 2001b). The following parapsychological hypotheses were proposed. (The tests used are given in parentheses with each hypothesis. All tests are one-tailed).

1. Hexagram hitting, when expressed as a proportion of hits, is at a rate greater than mean chance expectation (i.e.,  $MCE$ ;  $P_{MCE} = .25$ ; binomial test).

2. There is a positive relationship between transliminality and hexagram hitting (Pearson's  $r$ ).
3. There is a positive relationship between transliminality and number of changing lines (Pearson's  $r$ ).
4. Hexagram hitting correlates positively with Factor F (Liveliness), Factor H (Social Boldness), Factor EX (Extraversion), and Factor IN (Independence) and negatively with Factor Q<sub>4</sub> (Tension) of the 16PF (Pearson's  $r$ ).
5. Number of changing lines correlates positively with answers to Question 2: "Do you think it is possible for at least some people to exhibit paranormal effects in this experiment, by predicting the outcome hexagram, or influencing the fall of coins so that the outcome hexagram matches 1 of their 16 choices?" (Pearson's  $r$ ).
6. There is a positive relationship between hexagram hitting and scores on the pro attitude scale (Pearson's  $r$ ).

### *Psychological Hypotheses*

The following psychological hypotheses were proposed (all tests are one-tailed):

7. Transliminality correlates positively with answers to Question 2 (the "sheep" or "believer" question) (Pearson's  $r$ ).
8. Transliminality correlates positively with answers to Question 3 (the "super-sheep" question): "Do you believe in your own abilities to exhibit paranormal effects in this experiment, by predicting the outcome hexagram, or influencing the fall of coins so that the outcome hexagram matches one of your sixteen choices?" (Pearson's  $r$ ).
9. Transliminality correlates positively with Factor A (Warmth) and Factor M (Abstractedness) and negatively with Factor G (Rule-Consciousness), Factor TM (Tough-Mindedness), and Factor SC (Self-Control) of the 16PF (Pearson's  $r$ ).

In this study, the only 16PF factors tested were those that yielded significant results in Storm and Thalbourne's (1998–1999) initial highly-fruitful study.

METHOD

*Participants*

Forty-three participants were recruited for this experiment. All were Psychology II students at the University of Adelaide. The total sample consisted of 81% females. Ages ranged from 18 to 40 years, with a mean of 21 years ( $SD = 4.89$ ).

*Measures*

Four measures were used in this experiment

1. The *I Ching* hexagram descriptor form, which in the experiment included a question about previous use of the *I Ching* and two questions about belief in the *I Ching* process (the wording of these are given in Hypotheses 7 and 8 but are given again below). The measure also contains 64 two-word descriptors representing each of the 64 hexagrams (see Appendix A).
2. The Transliminality Scale (Form B), which contains 29 items taken from various scales, 14% of which refer to paranormal phenomena (Thalbourne, 1998). The participant answers “true” or “false” to each item, and the total number of “true” answers out of 29 is his or her transliminality score.
3. Cattell’s 16PF, designed to measure the primary components of personality, including five global factors (Russell & Karol, 1994).
4. Storm’s “pro attitude scale” (given below).

*Apparatus*

Nine sets of materials were used in the experiment: (a) an information sheet; (b) a consent form; (c) an *I Ching* hexagram file, containing an introductory page, a how-to-score page, and the 64 hexagram readings (1 reading per page, totaling 64 pages [Wing, 1982], with the changing line readings on the back of each page [Wing, 1979]); (d) three coins (Australian 10-cent pieces—75% copper, 25% nickel), a coin cup (for shaking the coins), and a felt-lined box (as a receptacle for the falling coins); (e) a score record sheet for recording coin throws; (f) a “how to generate an *I Ching* hexagram” sheet which are instructions to the

experimenter on how to convert the outcomes of the coin tosses to “yin” and “yang” lines, and whether they were so-called changing lines; (g) an “eight by eight ( $8 \times 8$ ) trigram matrix” for calculating hexagrams; (h) a debriefing sheet for “hitters”; and (i) a debriefing sheet for “missers.”

### *Procedure*

At three experimental sessions ( $n_1 = 20$ ,  $n_2 = 7$ ,  $n_3 = 16$ ), participants first read the information sheet and then signed a consent form. They then completed the *I Ching* Hexagram Descriptor Form, which first asks four questions.

1. Have you ever used the *I Ching* before?
2. Do you think it is possible for at least some people to exhibit paranormal effects in this experiment, by predicting the outcome hexagram or influencing the fall of coins so that the outcome hexagram matches 1 of their 16 choices?
3. Do you believe in your own abilities to exhibit paranormal effects in this experiment, by predicting the outcome hexagram or influencing the fall of coins so that the outcome hexagram matches 1 of your 16 choices?
4. On a scale of 1 to 7, how much do you want to score a hit as a result of your coin-throws?

**(I'm not interested at all)   1   2   3   4   5   6   7   (It's very important to me)**

Participants then chose 16 two-word descriptors that they felt to be relevant to their feelings “Lately, or right now, I feel . . .” These choices were not ranked. Under the watchful eye of the experimenter and a witness (an adjacent student), each participant threw three coins six times, recording the number of heads and tails of each throw on the score record sheet, from the bottom up, according to the conventions of the *I Ching*.

Each of the six “heads-and-tails” counts was converted to its respective hexagram line, as shown on the how-to-score page of the hexagram file (see *Figure 1*). A second hexagram was also generated if changing lines were produced from throws of three of a kind. Hexagrams were decoded by the experimenter, using the  $8 \times 8$  trigram matrix: The bottom three lines and the top three lines each form trigrams, which are collated with each other with the aid of the trigram matrix to form the hexagram.

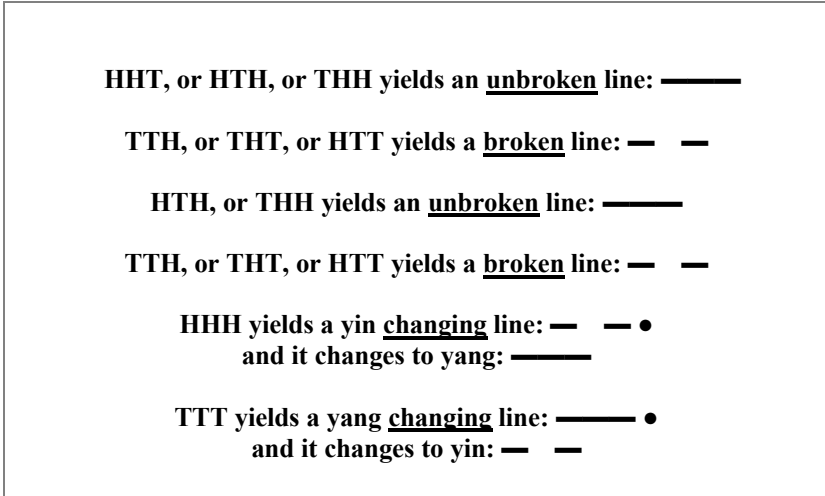


Figure 1. Coins are thrown three at a time, yielding eight possible outcomes. A throw can yield an unchanging line (HHT, HTH, etc.) or, with three of a kind, a changing line (HHH or TTT: Changing lines generate a second hexagram). Each of six lines in total is produced this same way, one line on top of another from the bottom up, thus forming a hexagram. H = heads; T = tails.

When the participant and the witness were satisfied that the hexagram(s) were calculated correctly, they signed and dated the bottom of the score sheet. (Note that the experimenter was also witness to this whole process from the coin-throwing stage to the signing stage.) A “hit” was a match of the participant’s outcome hexagram with 1 of his or her 16 selections, as marked on the hexagram descriptor form, whereas in the case of a “miss” there was no such match. Hits and misses were determined later, and were never revealed to the participants at the time of testing to avoid unwanted effects on subsequent testing. After the *I Ching* component, participants completed the Transliminality Scale (Form B; Thalbourne, 1998), and the 16PF. All results were given to participants at a debriefing session 2 weeks after testing.

## RESULTS

The results for the sample of Psychology II students ( $N = 43$ ) are presented first, followed by the results for the larger database ( $N = 243$ ).

Parapsychological Hypotheses ( $N = 43$ )

*Hypothesis 1: Hexagram hitting is at a rate greater than MCE when expressed as a proportion of hits ( $P_{MCE} = .25$ ) and an effect size  $\pi$  ( $\pi_{MCE} = .50$ ). The observed proportion of hits was greater than chance ( $P_{obs.} = .26$ ,  $p = .535$ ), as was the effect size  $\pi$  ( $\pi = .51$ ,  $Z = 1.15$ ,  $p = .125$ ), but neither was significant.*

*Hypothesis 2: There is a positive relationship between transliminality and hexagram hitting. A near-zero, nominally negative and nonsignificant relationship was found,  $r = -.01$ ,  $p = .481$ , one-tailed.*

*Hypothesis 3: There is a positive relationship between transliminality and number of changing lines. A negative and nonsignificant relationship was found,  $r = -.12$ ,  $p = .219$ , one-tailed.*

*Hypothesis 4: Hexagram hitting correlates positively with Factor F (Liveliness), Factor H (Social Boldness), Factor EX (Extraversion), and Factor IN (Independence) and negatively with Factor Q<sub>4</sub> (Tension). Table 1 lists the Pearson correlations and their respective values. All but one correlation was nonsignificant (viz., hitting with Factor Q<sub>4</sub>), but it was not in the direction hypothesised. Three of the five correlations were in the right direction, which may be a chance result.*

TABLE 1  
CORRELATIONS OF HEXAGRAM HITTING WITH FIVE 16PF FACTORS

Factor	<i>r</i>	<i>p</i>
F (Liveliness)	.07	.337
H (Social Boldness)	.18	.131
EX (Extraversion)	-.03	.437
IN (Independence)	.17	.141
Q <sub>4</sub> (Tension)	.27	.040

Note:  $df = 41$ ; All tests are one-tailed

*Hypothesis 5: Number of changing lines correlates positively with answers to Question 2 ("Possibility"). The relationship was positive, but not significant,  $r = .05$ ,  $p = .385$ , one-tailed.*

*Hypothesis 6: There is a positive relationship between hexagram hitting and scores on the pro attitude scale. The relationship was not in the direction hypothesised, but it was not significant,  $r = -.16$ ,  $p = .146$ , one-tailed.*

*Psychological Hypotheses (N = 43)*

*Hypothesis 7: Transliminality correlates positively with answers to Question 2 (the “sheep” question). Transliminality did correlate positively and significantly with answers to Question 2,  $r(41) = .33$ ,  $p = .015$ , one-tailed. This result suggests that high scorers on transliminality tend to answer ‘yes’ to the ‘sheep’ question (see Procedure above).*

*Hypothesis 8: Transliminality correlates positively with answers to Question 3 (the “super sheep” question). Transliminality correlated positively and significantly with answers to Question 3,  $r(41) = .40$ ,  $p = .004$ , one-tailed. This result suggests that high scorers on transliminality tend to answer ‘yes’ to the ‘super-sheep’ question (see Procedure above).*

*Hypothesis 9: Transliminality scores correlate positively with Factor A (Warmth) and Factor M (Abstractedness) and negatively with Factor G (Rule-Consciousness), Factor TM (Tough-Mindedness), and Factor SC (Self-Control). Transliminality did not correlate significantly with Factor A, but did correlate negatively with Factor G, although not significantly. Table 2 lists the other three correlations, all of which were in the hypothesised directions and were significant.*

TABLE 2  
CORRELATIONS OF TRANSLIMINALITY WITH FIVE 16PF FACTORS

Factor	<i>r</i>	<i>p</i>
A (Warmth)	.01	.288
G (Rule-Consciousness)	-.13	.209
M (Abstractedness)	.65	< .001
TM (Tough-Mindedness)	-.51	< .001
SC (Self-Control)	-.34	.013

Note:  $df = 41$ ; All tests are one-tailed

*Parapsychological Hypotheses (N = 243)*

In this subsection, the same nine hypotheses were tested on the pooled sample of 243 participants.

*Hypothesis 1: Hexagram hitting is at a rate greater than MCE when expressed as a proportion of hits ( $P_{MCE} = .25$ ) and an effect size  $\pi$  ( $\pi_{MCE} = .50$ ).* The observed proportion of hits was significantly greater than chance ( $P_{obs.} = .32, p = .007$ ), as was the effect size  $\pi$  ( $\pi = .59, Z = 2.71, p = .003$ ). Hit-rate, expected to be 25%, was in fact 32%.

*Hypothesis 2: There is a positive relationship between transliminality and hexagram hitting.* A very weak positive relationship between these two variables was found,  $r(241) = .10, p = .068$ , one-tailed, which may be regarded as marginally significant. [but see APPENDIX B, ERRATA]

*Hypothesis 3: There is a positive relationship between transliminality and number of changing lines.* The relationship between these two variables was positive, but it was not significant,  $r = .04, p = .261$ , one-tailed. [but see APPENDIX B, ERRATA]

*Hypothesis 4: Hexagram hitting correlates positively with Factor F (Liveliness), Factor H (Social Boldness), Factor EX (Extraversion), and Factor IN (Independence) and negatively with Factor Q<sub>4</sub> (Tension).* Table 3 lists the Pearson correlations and their respective values. All five correlations were in the directions hypothesised, and all but one correlation (viz., hitting with Factor Q<sub>4</sub>) was significant, if we accept the marginally significant correlation between 'hitting' and Extraversion (Factor EX). [but see APPENDIX B, ERRATA]

*Hypothesis 5: Number of changing lines correlates positively with answers to Question 2 ("Possibility").* A significant relationship between these two variables was found,  $r(241) = .16, p = .006$ , one-tailed. This result suggests that believing in the possibility of psi tends to be conducive to a psi effect in the form of generation of three-of-a-kind in the throws of three coins (and therefore changing lines). [but see APPENDIX B, ERRATA]

Hypothesis 6 (that there is a positive relationship between hexagram hitting and scores on the pro attitude scale) was not tested in this analysis as only 43 participants were given the scale.

TABLE 3 [but see APPENDIX B, ERRATA]  
CORRELATIONS OF HEXAGRAM HITTING WITH FIVE 16PF FACTORS

Factor	<i>r</i>	<i>p</i>
F (Liveliness)	.11	.039
H (Social Boldness)	.19	.002
EX (Extraversion)	.10	.058
IN (Independence)	.14	.017
Q <sub>4</sub> (Tension)	-.07	.137

Note: *df* = 241; All tests are one-tailed

*Psychological Hypotheses (N = 243)*

*Hypothesis 7: Transliminality correlates positively with answers to Question 2 (the “sheep” question).* Transliminality did correlate positively and significantly with answers to Question 2,  $r(241) = .34$ ,  $p < .001$ , one-tailed. This result suggests that high scorers on transliminality tend to answer ‘yes’ to the ‘sheep’ question (see *Procedure* above).

*Hypothesis 8: Transliminality correlates positively with answers to Question 3 (the “super sheep” question).* Transliminality correlated positively and significantly with answers to Question 3,  $r(241) = .32$ ,  $p < .001$ , one-tailed. This result suggests that high scorers on transliminality tend to answer ‘yes’ to the ‘super-sheep’ question (see *Procedure* above).

*Hypothesis 9: Transliminality scores correlate positively with Factor A (Warmth) and Factor M (Abstractedness) and negatively with Factor G (Rule-Consciousness), Factor TM (Tough-Mindedness), and Factor SC (Self-Control).* Transliminality correlated with all five factors in the directions hypothesised and significantly, although only marginally with Factor A (see Table 4).

TABLE 4

CORRELATIONS OF TRANSLIMINALITY WITH FIVE 16PF FACTORS		
Factor	<i>r</i>	<i>p</i>
A (Warmth)	.11	.052
M (Abstractedness)	.39	< .001
G (Rule-Consciousness)	-.24	< .001
TM (Tough-Mindedness)	-.31	< .001
SC (Self-Control)	-.26	< .001

Note: *df* = 241; All tests are one-tailed

*Post Hoc Analyses*

*The 'possibility of psi' and 'psi-ability'*: In a post hoc analysis on the two belief questions—'possibility' (the 'sheep' question) and 'ability' (the super-sheep question)—it was hypothesised that that pro attitude scores (the 1 through 7 scale) would correlate positively and significantly with 'possibility' and 'ability'.

Pro attitude scores correlated positively with 'ability',  $r(41) = .26$ ,  $p = .046$ , one-tailed, and with 'possibility',  $r(41) = .40$ ,  $p = .004$ , one-tailed. Participants who believed in their own abilities, and in the abilities of other participants in the sample, to get hits by paranormal means, tended to place greater importance on getting hits themselves. These relationships suggest (somewhat logically) that belief in the paranormal and the importance of having a paranormal experience are inter-related.

*The hitting/Factor Q<sub>2</sub> correlation*: Storm and Thalbourne (1998-1999) found a significant negative correlation between hitting/Factor Q<sub>2</sub> (Self-Reliance) in their initial study ( $N = 93$ ). In their follow up study, Storm and Thalbourne (2001a) tested the sample ( $N = 107$ ) to see if this correlation would replicate, but it was not negative, and not significant. In Part 2 of the same study (Storm & Thalbourne, 2001b), they tested the combined sample ( $N = 200$ ), and although the correlation was negative, it was not significant. In the present study the sample of 43 students was tested. The direction of the correlation switched again to positive, but it was not significant,  $r(41) = .13$ ,  $p = .211$ . Finally, the combined sample ( $N = 243$ ) gave a negative, and non-significant,  $r(241) = -0.03$ ,  $p = .333$ . [but see

APPENDIX B, ERRATA] All these subsequent results are attributable to chance and require no further explanation.

*The hitting/Factor H correlation:* Storm and Thalbourne (1998-1999) reported a preponderance of females *and* a preponderance of psychology students in their initial *I Ching* study ( $N = 93$ ). In their follow-up study (Storm & Thalbourne, 2001a), it was noted that numbers of females *and* numbers of psychology students had dropped significantly when compared with the earlier sample. Storm and Thalbourne (2001b) decided to test four mutually exclusive groups (i.e., female psychology students, male psychology students, female non-psychology participants, and male non-psychology participants) in order to determine (a) which (if any) of the four groups may have had been instrumental in the significant outcomes found in the initial study, (b) whether the nonsignificant correlations in the follow-up study could be attributable to randomization failure, and (c) whether any significant correlations within the four groups in the initial study would replicate in the follow-up study.

As it happened, only the female psychology students reproduced the five significant correlations originally found for the whole sample, including hitting/Factor H (Social Boldness),  $r(37) = .50, p = .001$ . (For other details, see Storm & Thalbourne, 2001b, pp. 296-298.)

Storm and Thalbourne (2001b) then tested the data for the corresponding group of female psychology students in their follow-up study. Only the hitting/Factor H correlation was significant,  $r(22) = .44, p = .016$ . However, this replicated correlation was not significant for the sample featured in the present study, but it was in the direction hypothesised,  $r(33) = .17, p = .166$ .

In conclusion, these latest replication failures (planned and post hoc) cannot be taken as the final word on the possible relationships between the relevant 16PF factors and psi performance. Palmer (1977) warns that “low and variable reliability of ESP scores implies that correlations between such scores and personality variables are likely to be very small and unstable,” and therefore it would be “hazardous to draw any conclusions—positive or negative—from most individual experiments of this type” (p. 176). Therefore, since only three experiments have been run at this early stage, any assumptions about the non-significant correlations might be premature.

*Success Rates*

Using the more reliable dataset produced by the pooling of three studies ( $N = 243$ ), success rates were calculated. Seventeen specific statistical tests were conducted to test 8 hypotheses. Of these tests, 16 produced significant results that confirmed or partially confirmed 7 of the 8 hypotheses. More specifically, for the parapsychological hypotheses, there were 9 successful tests out of 10 (90%), and for the psychological hypotheses, there were 7 successful tests out of 7 (100%). (Note that all these percentages are greater than 5% and therefore are unlikely to be explained by chance alone, although inflation of some results might occur through inter-correlations.)

DISCUSSION

The third *I Ching* experiment using only 43 participants has produced extremely disappointing results. It is important, though, to recognise that this experiment was a rather rushed affair. The fact that it was putatively a *replication* experiment is undermined by the more important fact that participants were not tested *individually* in the true sense of the word (see Bem & Honorton, 1994). That is, insufficient time was given to each student to establish a rapport with the experimenter, and settle each one down to the task at hand. This experimenter feels that the ambience on the test days was rather tense, and perplexed moods seemed to overshadow some students (one participant admitted later that she was confused and mystified by what was going on), and there were considerable time constraints on all three test-sessions. It seems that the initial briefing session, followed immediately by testing, gave very little time for students to acclimatise and therefore orient themselves in a favourable manner. Also, four different practicals were offered, of which students had to choose one. It is not certain whether students chose the parapsychology practical because they liked it the best, or hated it the least! On the grounds of psi-conduciveness, combined with the fact that the sample was rather small, the experiment hardly qualifies as a replication study.

Nevertheless, the results of eight planned hypotheses, as tested using the data from three pooled samples (total  $N = 243$ ), in conjunction with the success rates presented above, suggest that this implementation of the *I Ching* experiment may continue to be a reasonably reliable means of testing psi. Not only do the results using the pooled data offer evidence of a possible paranormal function, but Storm and Thalbourne's unorthodox methodology of the *I Ching* task in the present study also offers a process-

oriented test of psi for two reasons. First, it appears that certain personality/attitude types are more likely to elicit psi than others—particularly the ‘lively’ (Factor F), ‘socially-bold’ (Factor H), ‘extraverted’ (Factor EX), ‘independent’ type (Factor IN), who is also relatively free of ‘tension’ (Factor Q<sub>4</sub>), and (possibly) highly transliminal. In terms of strengths of effects, however, there has been a consistent weakening of all effects over the three studies from the initial study to the study presented here. It is hypothesised, though, that the relative strengths of these effects should rise with further testing and pooling of samples given that the main cause of the weakening has been the lack-lustre results of this third study ( $N = 43$ ). Further testing may confirm this hypothesis.

Second, the process-oriented approach in this *I Ching* experiment also lends itself well to theoretical considerations, although at this stage, notwithstanding the favourable results of Storm’s (2001) tests on the ‘pro attitude’ component of Thalbourne’s (2000) theory of psychopraxia, there was no evidence that a pro attitude was necessarily involved in generating a hexagram hit. However, the visual analogue scale dimensions may have been ambiguously worded, which may have produced confused responses in participants (“**I’m not interested at all**” should be worded “**It’s not at all important to me,**” and “**It’s very important to me**” should be worded “**It’s of the utmost importance to me**”).

Nevertheless, it is also possible that the pro attitude has more to do with unconscious forces as yet indeterminate, but it seems in the present study that conscious admission from test participants was insufficient in itself. After all, participants can only respond according to their conscious intent, so that testing unconscious predispositions may not be an openly empirical question. Storm (2001) recommended that psycho-physiological factors that are unconscious to the test participant also need consideration. These factors may be part-and-parcel of the overall pro attitudinal complex. Storm (2001) has also questioned the possibility of assessing the pro attitude by simply and naively asking the participant what they think: “It must be acknowledged that pro attitudes may be intimately enmeshed with concepts involving issues of self-image and self-esteem (or lack thereof), and the maintenance of these concepts” (p. 261). As such, further testing of the pro attitude should perhaps include the use of self-image scales, and/or self-esteem scales, and/or measures of *need* for a psi outcome (as possible indicators of pro attitude) rather than measures of *evaluation* of, or *expressions of interest* in, a psi outcome.

In a post hoc analysis of the pro attitude scale, however, our understanding of the nature of belief was broadened (if not, confirmed) in the two-fold finding that belief in one’s own (and others’) psi ability tends to come with an expression of interest in how important it is to have a

paranormal experience, at least as expressed as a pro attitude towards psi. This relationship seems logical—after all, believing that psi is something that people *do*, on the one hand, and on the other hand, expressing how important it is to *elicit* psi (in the pro attitude), must come from the same source. And there is still some evidence in this study that belief of at least one form is related to psi—recall that number of changing lines correlated positively and significantly with ‘possibility’,  $r(241) = .16, p = .006$ . In conclusion, there is still much scope for the testing of psi using the *I Ching* in even more elaborate and innovative ways, limited only by the imagination of the experimenter.

#### REFERENCES

- Bem, D. J., & Honorton, C. (1994). Does psi exist? Replicable evidence for an anomalous process of information transfer. *Psychological Bulletin*, *115*, 4-18.
- Cattell, R. B., Eber, H. W., & Tatsuoka, M. M. (1970). *Handbook for the sixteen personality factor questionnaire (16PF)*. Champaign, IL: Institute for Personality and Ability Testing, Inc.
- Palmer, J. (1977). Attitudes and Personality Traits in Experimental ESP Research. In B. B. Wolman (Ed.), *Handbook of parapsychology* (pp. 175-201). NY: Van Nostrand Reinhold.
- Rubin, L., & Honorton, C. (1971). Separating the yins from the yangs: An experiment with the *I Ching*. *Journal of Parapsychology*, *35*, 313–314.
- Rubin, L., & Honorton, C. (1972). Separating the yins from the yangs: An experiment with the *I Ching*. In W. G. Roll, R. L. Morris, & J. D. Morris (Eds.), *Proceedings of the Parapsychological Association 1971* (No. 8, pp. 6–7). Durham, NC: Parapsychological Association.
- Russell, M., & Karol, D. (1994). *The 16PF fifth edition administrator's manual*. Champaign, IL: Institute for Personality and Ability Testing, Inc.
- Storm, L. (2001). *A parapsychological investigation of the theory of psychopraxia: Experimental and theoretical researches into an alternative theory explaining normal and paranormal phenomena*. Unpublished Ph.D. thesis, Department of Psychology, University of Adelaide.
- Storm, L., & Thalbourne, M. A. (1998–1999). The transliminal connection between personality and paranormal effects in an experiment with the *I Ching*. *European Journal of Parapsychology*, *14*, 100–124.

- Storm, L., & Thalbourne, M. A. (2001a). Studies of the *I Ching*: I. A replication. *Journal of Parapsychology*, *65*, 105-124.
- Storm, L., & Thalbourne, M. A. (2001b). Studies of the *I Ching*: II. Additional Analyses. *Journal of Parapsychology*, *65*, 291-309.
- Thalbourne, M. A. (1994). Postscript to an experiment with the *I Ching*: How many changing lines? *European Journal of Parapsychology*, *10*, 130-145.
- Thalbourne, M. A. (1998). Transliminality: Further correlates and a short measure. *Journal of the American Society for Psychical Research*, *92*, 402-419.
- Thalbourne, M. A. (2000). *The common thread between ESP and PK*. New York: The Parapsychology Foundation.
- Thalbourne, M. A., & Delin, P. S. (1994). A common thread underlying belief in the paranormal, creative personality, mystical experience and psychopathology. *Journal of Parapsychology*, *58*, 3-38.
- Thalbourne, M. A., Delin, P. S., Barlow, J. A., & Steen, D. M. (1992-1993). A further attempt to separate the yins from the yangs: A replication of the Rubin-Honorton experiment with the *I Ching*. *Journal of Parapsychology*, *9*, 12-23.
- Thalbourne, M. A., & Houran, J. (2000). Transliminality, the Mental Experience Inventory, and tolerance of ambiguity. *Personality and Individual Differences*, *28*, 853-863.

*Anomalistic Psychology Research Unit*  
*Department of Psychology*  
*University of Adelaide*  
*Adelaide SA 5005*

Email: lance.storm@psychology.adelaide.edu.au

APPENDIX A

*I CHING* HEXAGRAM DESCRIPTOR FORM

<input type="checkbox"/> Creative, Motivated	<input type="checkbox"/> Adaptable, Helpful	<input type="checkbox"/> Retroactive, Concerned	<input type="checkbox"/> Changeable, Transformed
<input type="checkbox"/> Receptive, Accepting	<input type="checkbox"/> Negligent, Habituated	<input type="checkbox"/> Empowered, Tested	<input type="checkbox"/> Spiritual, Fulfilled
<input type="checkbox"/> Troubled, Disorganised	<input type="checkbox"/> Rejuvenated, Generous	<input type="checkbox"/> Progressed, Open	<input type="checkbox"/> Shocked, Aware
<input type="checkbox"/> Inexperienced, Uneducated	<input type="checkbox"/> Contemplative, Cautious	<input type="checkbox"/> Censored, Compromised	<input type="checkbox"/> Meditative, Peaceful
<input type="checkbox"/> Expectant, Apprehensive	<input type="checkbox"/> Hindered, Provoked	<input type="checkbox"/> Loyal, Dedicated	<input type="checkbox"/> Developed, Awakened
<input type="checkbox"/> Conflicted, Tense	<input type="checkbox"/> Gracious, Idealistic	<input type="checkbox"/> Opposed, Contradicted	<input type="checkbox"/> Subordinate, Disadvantaged
<input type="checkbox"/> United, Organised	<input type="checkbox"/> Crest-fallen, Disabled	<input type="checkbox"/> Obstructed, Threatened	<input type="checkbox"/> Abundant, Accomplished
<input type="checkbox"/> Sociable, Cooperative	<input type="checkbox"/> Renewed, Optimistic	<input type="checkbox"/> Liberated, Delivered	<input type="checkbox"/> Mobile, Seeking
<input type="checkbox"/> Restrained, Disappointed	<input type="checkbox"/> Innocent, Truthful	<input type="checkbox"/> Reduced, Impoverished	<input type="checkbox"/> Gentle, Influential
<input type="checkbox"/> Behavior-oriented, Self-aware	<input type="checkbox"/> Strong, Vital	<input type="checkbox"/> Advantaged, Beneficent	<input type="checkbox"/> Joyous, Generous
<input type="checkbox"/> Prosperous, Fruitful	<input type="checkbox"/> Nurturant, Re-appraising	<input type="checkbox"/> Resolute, Intentional	<input type="checkbox"/> Fragmented, Ego-aware
<input type="checkbox"/> Stagnant, Unassisted	<input type="checkbox"/> Stressed, Challenged	<input type="checkbox"/> Tempted, Seduced	<input type="checkbox"/> Limited, Thrifty
<input type="checkbox"/> Unselfish, Caring	<input type="checkbox"/> Endangered, Unlucky	<input type="checkbox"/> Community-oriented	<input type="checkbox"/> Insightful, Unbiased
<input type="checkbox"/> Supreme, Successful	<input type="checkbox"/> Obligated, Dependent	<input type="checkbox"/> Advanced, Fortunate	<input type="checkbox"/> Conscientious, Conservative
<input type="checkbox"/> Modest, Inhibited	<input type="checkbox"/> Attractive, Liked	<input type="checkbox"/> Oppressed, Exhausted	<input type="checkbox"/> Balanced, Prospective
<input type="checkbox"/> Enthusiastic, Harmonious	<input type="checkbox"/> Steadfast, Matured	<input type="checkbox"/> Wise, Hospitable	<input type="checkbox"/> Hopeful, Reserved

APPENDIX B

ERRATA

[Originally published in *Australian Journal of Parapsychology*, 2, pp. 170-171]

In the previous issue of the *Australian Journal of Parapsychology*, vol. 2, pp. 44-62, there were a number of statistical errors in the Results section of the article by Lance Storm entitled “A parapsychological investigation of the *I Ching*: Seeking psi in an ancient Chinese system of divination”. Due to a data entry problem the errors involved calculations for the pooled sample ( $N = 243$ ) that were conducted to test Hypotheses 2, 3, 4 and 5 in the planned analyses, and the hitting/Factor  $Q_4$  correlation in the post hoc analyses. The errors are minor and have no effect on the conclusions based on those findings, but should be publicised.

On page 54:

*“Hypothesis 2: There is a positive relationship between transliminality and hexagram hitting. A very weak positive relationship between these two variables was found,  $r(241) = .10$ ,  $p = .068$ , one-tailed, which may be regarded as marginally significant.”*

The statistics should be:  $r(241) = .12$ ,  $p = .034$ . Thus, the result is not “marginally significant” but significant.

On page 54:

*“Hypothesis 3: There is a positive relationship between transliminality and number of changing lines. The relationship between these two variables was positive, but it was not significant,  $r(241) = .04$ ,  $p = .261$ , one-tailed.”*

The  $p$  value should be:  $p = .264$ .

On page 54:

*“Hypothesis 4: Hexagram hitting correlates positively with Factor F (Liveliness), Factor H (Social Boldness), Factor EX (Extraversion), and Factor IN (Independence) and negatively with Factor  $Q_4$  (Tension). Table 3 lists the Pearson correlations and*

their respective values. All five correlations were in the directions hypothesized, and all but one correlation (viz., hitting with Factor  $Q_4$ ) was significant, if we accept the marginally significant correlation between ‘hitting’ and Extraversion (Factor EX) [ $r(241) = .10, p = .058$ ].”

On page 55, Table 3, the  $r$  and  $p$  values for the first four hitting/16PF Factor correlations are incorrect. Table 3 is reproduced here *mutatis mutandis*. Thus, the hitting/Extraversion correlation is not “marginally significant” but significant.

TABLE 3  
CORRELATIONS OF HEXAGRAM HITTING WITH FIVE 16PF FACTORS

Factor	$r$	$p$
F (Liveliness)	.15	.010
H (Social Boldness)	.22	< .001
EX (Extraversion)	.14	.015
IN (Independence)	.15	.012
$Q_4$ (Tension)	-.07	.137

Note:  $df = 241$ ; All tests are one-tailed

On page 54:

*“Hypothesis 5: Number of changing lines correlates positively with answers to Question 2 (“Possibility”). A significant relationship between these two variables was found,  $r(241) = .16, p = .006$ , one-tailed.”*

The statistic should be:  $p = .007$ .

On page 56:

*“The hitting/Factor  $Q_2$  correlation. . . . [T]he combined sample ( $N = 243$ ) gave a negative, and non-significant,  $r(241) = -0.03, p = .333$ .”*

The statistics should be:  $r(241) = -0.04, p = .275$ .