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Mental Boundaries, Staring Detection and Phenomenology: A Synthesised Ganzfeld and Remote Staring Study

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Abstract: ***The sense of being stared at*** **may be interpreted as a psi phenomenon. However, previous research has neglected to investigate this experience using a psi-conducive environment such as the *Ganzfeld*. Furthermore, the personality traits that influence the sense of being stared at remain unclear and previous studies have not investigated the phenomenological correlates of this phenomenon. The aim of the present study was, therefore, to synthesise Ganzfeld and *remote staring* methodology in order to experimentally investigate the effect of the Ganzfeld on the sense of being stared at. Personality and phenomenological correlates of the sense of being stared at were also examined. Forty "receivers" were administered the *Short Boundary Questionnaire* to quantify a personality trait referred to as *mental boundaries*. Receivers were randomly assigned to either a Ganzfeld or non-Ganzfeld condition, and administered 20 randomized staring/non-staring trials. Receivers' phenomenology was retrospectively assessed using the *Phenomenology of Consciousness Inventory* (PCI). Only the hits (i.e., correct guesses) for the Ganzfeld/non-staring trials were significantly greater than MCE (i.e., mean chance expectation). There was not a significant main effect for the Ganzfeld/non-Ganzfeld factor with regards to hit rate, but there was a significant main effect for staring/non-staring. Furthermore, there was no significant interaction between these factors. The correlation between mental boundaries and staring hit rate approached significance. For the Ganzfeld group, both PCI-volitional control and PCI-rationality were significantly positively correlated with non-staring hit rate. For the non-Ganzfeld group, PCI-altered experience was significantly positively correlated with staring hit rate. Future research might use a complementary mixed-method to further investigate the phenomenology of a receiver's sense of being stared at during Ganzfeld and non-Ganzfeld stimulus conditions.**

Keywords: Ganzfeld, mental boundaries, phenomenology, sense of being stared at

INTRODUCTION

The sense of being stared at is "the ability to know that one is being stared at or watched, by someone placed outside the range of one's vision" (Colwell, Schroder, & Sladen, 2000, p. 71). This phenomenon is sometimes referred to as *staring detection* as the word *sense* infers *feeling* and not one of the four senses (Braud, 2005). A variety of intentions and emotions accompany deliberate staring (e.g., curiosity, a wish to attract others' attention, affection; Sheldrake, 2003), and a multiplicity of emotional experiences are activated in those stared at (e.g., anger, fear, sexual arousal; Sheldrake, 1994). The sense of being stared at appears to be widespread and surveys undertaken in Europe and North America (e.g., Braud, Shafer, & Andrews, 1993a; Cottrell, Winer, & Smith, 1996; Sheldrake, 1994) have revealed that between 70% and 97% of people sampled claimed to have experienced this phenomenon.

The sense of being stared at appears to contradict the currently accepted theories of vision which stipulate that "vision is confined to the brain" and "the concentration of attention on a person or an animal should have no effects at a distance, other than those mediated by sound, vision or other recognized senses" (Sheldrake, 2005, p. 48). Indeed, this phenomenon is arguably indicative of an interconnectedness between people (Braud, 2005), which raises questions about the location of consciousness, which has long been held by scientists not to extend beyond the physical body (Fontana, 2005). If the sense of being stared at is real, then this has profound implications for the fields of medicine, psychology, and philosophy—and indeed culture and society—which often assume the separation of mind and body and subject-object duality (Sheldrake, 1994).

Empirical Support for the Sense of Being Stared At

Prior to the 1990's there were few studies investigating the sense of being stared at, possibly due to "negative" findings reported by early researchers. For example, Titchener (1898) published no results nor provided details of his experimental protocols, but declared his results negative, and deemed the sense of being stared at a mere superstition. Subsequently, Coover (1913) performed an experiment whereby a "receiver" sat with his/her back to the looker, and "guessed" (sensed) whether he/she was being stared at by the looker, who either stared or looked away according to a random sequence. A similar study was carried out by Poortman (1959). Although both Coover (1913) and Poortman (1959) reported non-significant results, the data was subsequently reanalyzed by Sheldrake (1998), and Braud et al. (1993a), and both results were found to be significant.

The first major stream of sense of being stared at research was the *direct looking* method designed by Sheldrake (1998, 1999, 2000, 2001) who implemented a procedure similar to Coover (1913), with participants working in pairs and receivers guessing whether they were being stared at or not. Sheldrake (2008) states that the results of "[m]any thousands of trials" (p. 98) reveal a distinct pattern: "in the 'looking' trials, scores were above the chance level, usually around 60%, while in the 'not looking' trials they were close to the chance level of 50%, with overall success around 55%" (pp. 98-99).

Sheldrake (2001) systematically addressed the possibility of artefacts, including peeping or peripheral vision, subtle sensory cues, cheating, hand scoring errors and implicit learning. Sheldrake introduced blindfolds, ceased providing participants with trial by trial feedback, and then placed blindfolded participants behind closed windows without providing feedback to lookers or receivers. The pattern persisted (Sheldrake, 2001), and Radin (2004), who separated Sheldrake's trials into ascending order of protection from sensory cues, found that although effect sizes decreased as sensory controls increased, there was no significant difference between effect sizes.

Braud (2005) developed the other major stream of sense of being stared at research referred to as *remote staring*. In studies conducted by Braud et al. (1993a), and Braud, Shafer, and Andrews (1993b), staring occurred via a closed circuit television (CCTV), and staring detection was recorded as autonomic responses measured by galvanic sensors attached to the receiver's fingers. In most experiments, receivers were pre-occupied with activities such as reading. This method was designed to access the unconscious element of the sense of being stared at, and to eliminate sensory cueing and conscious guessing. Significant differences in skin resistance were found between staring and non-staring trials. A meta-analysis performed by Schmidt, Schneider, Utts, and Walach (2004) of 15 remote staring studies showed a small but significant effect and, thus, evidence of staring detection.

Thus, broadly speaking, previous research (e.g., Braud et al., 1993a, 1993b; Sheldrake, 1998, 1999) has repeatedly demonstrated a small but significant sense of being stared at effect. It is noteworthy that the simplicity of the experimental methodology used, and consistent pattern of results (e.g., Sheldrake, 2005), initially aroused the skepticism of parapsychologists who had assumed that, if the sense of being stared at is a psi phenomenon, it would be weak, elusive and unpredictable (Sheldrake, 2003). We suggest that given that the sense of being stared at may be interpreted as a psi phenomenon, it may be advantageous to use an environment designed to enhance the psi performance of receivers, and for this purpose the Ganzfeld was used in the present study.

Ganzfeld

The *Ganzfeld* ("total field") may be defined, in general terms, as a "homogeneous perceptual environment" (Bem, 1993, p. 102). Specifically, the Ganzfeld consists of an undifferentiated visual field created by viewing a red light through halved translucent ping-pong balls taped over one's eyes. Additionally, an analogous auditory field is produced by listening to white or pink noise (i.e., a monotonous hissing sound; Bem, 1993). The Ganzfeld is typically used because information obtained by psi is considered a weak signal usually undetected due to external sensory "noise" and the internal sensory noise attributed to bodily tension (Bem, 1996). The Ganzfeld is designed to reduce sensory noise, and a progressive relaxation exercise is usually administered at the beginning of the Ganzfeld period to reduce bodily tension (Bem & Honorton, 1994).

The Ganzfeld has been used primarily in telepathy experiments, and has been found to be a replicable and effective method of demonstrating psi communication (Bem & Honorton, 1994; Storm & Ertel, 2001). We, therefore, propose that if the sense of being stared at is a psi phenomenon, and the Ganzfeld ostensibly enhances psi, then the Ganzfeld may enhance the sense of being stared at.

It is noteworthy, however, that previous research (e.g., Dalton, 1997; Honorton, 1997; Parker, 2000) has reported individual differences with regards to Ganzfeld susceptibility. For example, some artists reported physical sensitivity and, thus, difficulty adapting to the Ganzfeld environment (Carpenter, 2006). Characteristics of the most successful novice Ganzfeld participants include previous personal psi experiences, involvement in mental disciplines such as meditation, previous participation in psi experiments, and preferences for the Feeling and Perception sectors of the Myers-Briggs Type Indicator (MBTI), but none of these qualities alone predict success (Honorton, 1997). The MBTI has also been used in remote staring studies, with the Introversion sector found to be associated with success (Braud et al., 1993b). Another personality trait which may influence receivers' susceptibility to the Ganzfeld and the sense of being stared at is mental boundaries.

Mental Boundaries

Hartmann's (1991) *mental boundaries* construct is based upon the following notion:

> consider the contents of our minds…we are speaking of parts, of regions, functions, or processes that are separate from one another and yet connected with one another. The boundaries between them are not absolute separations: they can be relatively thick or solid on the one hand, or relatively thin or permeable on the other (p. 4).

Mental boundaries are, therefore, conceptualized as existing on a continuum from very "thick" to very "thin" (Hartmann, Harrison, & Zborowski, 2001), with most people possessing a combination of both thick and thin boundaries (Hartmann, 1991). People with very thick boundaries tend to have singular focus, separate thoughts from feelings, experience distinct states of awareness, with states other than sleeping or consciously thinking rarely experienced and considered strange (Hartmann, 1991). In contrast, people with very thin boundaries tend to be aware concurrently of a large variety of stimuli, and are sensitive to noise, lights, and emotional experience. They tend to combine thoughts with feelings, free-associate effortlessly, and move easily into fantasy and daydreaming. They can be summarized as vulnerable, sensitive, flowing, artistic and open (Hartmann, 1991).

The thin boundary qualities of sensitivity; flexibility and fluidity of emotion, thought and imagery; and artistic or creative ability are all associated with psi awareness (Bem & Honorton, 1994; Krippner, Wickramasekera, & Tartz, 2008). Consequently, the thinness of one's boundaries may influence Ganzfeld susceptibility and also one's ability to sense being stared at. However, various phenomenological effects of the Ganzfeld may also correlate with one's sense of being stared at. Thus, what is needed is a methodology designed to provide a comprehensive assessment of phenomenology.

Phenomenology

Over the past few decades, various self-report measures have been constructed to quantify *phenomenology* (i.e., subjective experience) (Rock & Kambouropoulos, 2007). One noteworthy measure is the *Phenomenology of Consciousness Inventory* (PCI; Pekala, 1991); a retrospective assessment instrument designed to quantify the phenomenological effects of stimulus conditions (e.g., hypnosis, meditation, fire-walking, shamanic drumming). The PCI consists of 12 major (e.g., positive affect, altered state of awareness) and 14 minor (e.g., altered time sense, altered body image) phenomenological dimensions (Pekala, 1991). Recently, the PCI has been used to assess the phenomenological effects of Ganzfeld stimulus conditions (Rock, 2006; Rock, Abbott, Childargushi, & Kiehne, 2008).

However, to date, the PCI has not been used to assess participants' phenomenology associated with direct staring or remote staring trials. Instead, staring studies have been *proof*-focused and, thus, exclusively concerned with the replication of a specific effect (i.e., correct guesses). In contrast, *process*-focused (i.e., phenomenological) investigations may lead to a better understanding of the mechanisms that enhance, or hamper, the sense of being stared at.

The Present Study

The aims of the present study were to determine whether: (1) the hit rates (i.e., number of correct guesses) for Ganzfeld/staring and non-Ganzfeld/staring conditions are significantly greater than MCE (mean chance expectation); (2) there is a difference between Ganzfeld and non-Ganzfeld conditions with regards to the hit rate; (3) there is a difference between staring and non-staring conditions with regards to the hit rate; (4) there is an interaction between Ganzfeld/non-Ganzfeld and staring/non-staring with regards to the hit rate; and (5) for the Ganzfeld and non-Ganzfeld groups, mental boundaries and phenomenology correlate with the staring and non-staring hit rates.

The present study consisted of a two-way mixed-model design. The between-subjects factor, stimulus condition, consisted of two levels (i.e., Ganzfeld versus non-Ganzfeld). The repeated-measures factor, staring, also consisted of two levels (i.e., staring versus non-staring; that is, each receiver participated in staring trials *and* non-staring trials). This design thus yielded four conditions: Ganzfeld/staring; Ganzfeld/non-staring; non-Ganzfeld/staring; and non-Ganzfeld/non-staring. The non-Ganzfeld/non-staring condition was a control condition.

The hypotheses tested in the present study were based on the pattern of significant findings explicated by Sheldrake (2008), coupled with our proposal that: (a) a psi-conducive environment such as the Ganzfeld may enhance the sense of being stared at; and (b) the thinness of one's mental boundaries may influence Ganzfeld susceptibility and the sense of being stared at. We formulated the following hypotheses:

Hypothesis 1: Ganzfeld/staring and non-Ganzfeld/staring groups have hit rates greater than MCE (P_{MCE} = .50), when expressed as the percentage of correct guesses.

Hypothesis 2: There is a difference between the Ganzfeld and non-Ganzfeld groups with regards to hit rate.

Hypothesis 3: There is a difference between staring and non-staring groups with regards to hit rate.

Hypothesis 4: There is an interaction between Ganzfeld/non-Ganzfeld and staring/non-staring with regards to hit rate.

Hypothesis 5: For the Ganzfeld and non-Ganzfeld groups, there is a positive relationship between thinness of mental boundaries and staring hit rate.[1]

Additionally, the present study's design enabled the investigation of the following research question:[2]

Research Question: For the Ganzfeld and non-Ganzfeld groups, are any phenomenological dimensions correlated with staring and non-staring hit rates?

METHOD

Participants

Forty participants (i.e., receivers) were recruited from the general community and Deakin University graduate and post-graduate students. The mean age was 47 years (*SD* = 15 years; Median Age = 49, ranging from 18 to 77). The 25th percentile was aged 41 years, and the 75th percentile was aged 60 years. Of the sample, 29 (72.5%) were women. Twenty receivers were randomly assigned to the Ganzfeld condition and 20 receivers were randomly assigned to the non-Ganzfeld condition. Participation in the present study was voluntary. All participants were treated according to the "Ethical Principles of Psychologists and Code of Conduct" (American Psychological Association, 1992).

Materials and Apparatus

Receivers were provided with a pencil-and-paper pre-condition questionnaire and post-condition questionnaire. The pre-condition

[1] Although this is a directional hypothesis, given (1) the controversy surrounding one-tailed tests (see, for example, Lombardi & Hurlbert, 2009), and (2) the fact that no previous research has tested this hypothesis, we decided that (3) the probability values in the present study should be conservatively set as two-tailed.

[2] Due to the exploratory nature of the phenomenological aspect of the present study, a research question was formulated in addition to the hypotheses.

questionnaire consisted of demographic items (e.g., age, gender) and the *Boundary Questionnaire Short Form* (BQ-Sh; Rawlings, 2001-2002). The post-condition questionnaire consisted of the PCI (Pekala, 1991).

The Rawlings (2001-2002) BQ-Sh was used in the present study to quantify the "thinness" of mental boundaries. The BQ-Sh is an empirically derived shortened version of the 145-item Hartmann (1991) *Boundary Questionnaire* (BQ). The BQ-Sh consists of 46 items with a 5-point Likert-type scale, and six subscales: unusual experiences, need for order, trust, perceived competence, childlikeness, and sensitivity. The BQ-Sh has adequate psychometric properties as evidenced by Rawlings' (2001-2002) empirical examination of the scale, and it can, thus, be considered a satisfactory alternative to the BQ. For example, the BQ-Sh strongly correlates with the BQ (r = 0.88) and the alpha coefficients for the BQ-Sh subscales range from 0.69 to 0.80 (Rawlings 2001-2002).

Pekala's (1991) PCI is a 53-item scale that was used in the present study to assess receivers' phenomenology. The PCI contains 26 dimensions including 12 major dimensions (positive affect, negative affect, altered experience, visual imagery, attention, self awareness, altered state of awareness, internal dialogue, rationality, volitional control, memory and arousal), and 14 minor dimensions (joy, sexual excitement, love, anger, sadness, fear, altered body image, altered time sense, altered perception, altered or unusual meaning, amount of imagery, vividness of imagery, direction of attention and absorption) (Pekala, 1985). Participants are asked to respond to each item on a seven-point Likert scale (Pekala & Wenger, 1983). The PCI has respectable psychometric properties (e.g., Pekala, 1991). For example, the PCI has been shown to reliably discriminate between qualitatively different states of consciousness (thus supporting the scale's criterion validity), and has demonstrated good internal consistency, yielding coefficient alphas between .70 and .90 (Pekala, Steinberg, & Kumar, 1986).

A CCTV was set up between two adjacent rooms; one room was used by the receivers and the other room was used by the starer and the experimenter. The sound attenuated room used by the receivers had blacked-out windows. In one corner of the room, a camera was placed approximately 1.5 metres behind the receiver's chair at a height of approximately 1.6 metres. While seated in the chair, receivers' heads and shoulders were exposed to the camera, which monitored the receivers continuously throughout the experiment.

In the corner, diagonally opposite the camera and approximately one metre in front of the receiver's chair, was a bench upon which seven lamps were placed. Each lamp contained a 40-watt red light globe, and was arranged according to previous Ganzfeld studies (e.g., Glicksohn, 1992; Hochberg, Triebel, & Seaman, 1951; Rock, 2006). Specifically, five lamps were placed evenly in an arc in front of the chair. The lamps were approximately at eye level for the receiver seated in the chair. In addition, two lamps were elevated to a height of 30 centimetres and were placed on each side of the central lamp. The combined effect of the lamps was the creation of a homogeneous visual field.

Ganzfeld goggles were created from white paper masks lined with soft material. The eye holes were enlarged, and covered with halved ping pong balls.

Separate CD-Rs consisting of procedural instructions were recorded for the Ganzfeld and non-Ganzfeld conditions. A stopwatch was synchronized with the trials recorded on the CD-R.

A mobile phone, set on a vibrating “ring” signal, was given to each receiver to hold during the experiment. The phone was briefly rung by the experimenter to prompt the receiver if the receiver failed to answer within 20 seconds during a staring or non-staring trial, or if their answer was not heard clearly by the experimenter.

In the experimenter’s room, the starer sat in front of the CCTV monitor, which displayed the back of the receiver’s head and shoulders. The trials were derived from a series of 20 randomized trial sheets produced by Sheldrake and downloaded from Sheldrake’s website.[3]

Procedure

All experiments were conducted in the same laboratory at Deakin University, Melbourne. The room was blacked-out for experimental purposes and maintained at a comfortable temperature. All receivers were required to read a plain language statement explaining the general nature and requirements of the study, and sign a consent form. Subsequently, receivers were administered the pre-condition questionnaire consisting of demographic items and the BQ-Sh. Receivers were randomly assigned to either the Ganzfeld or non-Ganzfeld condition.

The Ganzfeld condition. Receivers were seated in the chair with a halved ping-pong ball placed over each eye and were instructed to keep their eyes open. The experimenter informed the receivers that there would be a total of 20 × 30 second trials, and that they would hear the instructions for these trials on a CD-R via headphones. Receivers were asked to respond “Yes” during a trial if they felt that they were being stared at, and “No” if they felt that they were not. A chime signaled the commencement of each trial. Receivers were given a mobile phone to hold throughout the trials.

[3] http://www.sheldrake.org

Receivers were informed that the mobile phone would vibrate for a short time if their answer was incoherent to the experimenter or not delivered within 20 seconds of the chime. If the mobile phone vibrated, then participants were allocated a further five seconds to respond.

Subsequently, the red lights and the stereophonic white noise were turned on and the normal lighting was extinguished. For the next 10 minutes, the CD-R instructions guided receivers through a progressive relaxation exercise in conjunction with exposure to the Ganzfeld. The relaxation exercise was followed by a further five minutes of Ganzfeld exposure, and then instructions explaining the procedure for each of the trials. A randomized sequence of 20 × 30 second trials was then administered in the Ganzfeld environment.

The experimenter, located in the adjacent room, monitored the procedural instructions on the same CD-R using headphones, and synchronized a stop watch with the 20 trials recorded on the CD-R. Ten seconds before the commencement of each trial the experimenter either held up a green card or an orange card, which signaled to the starer to either stare or not stare, respectively. In the case of a staring trial, the starer stared with the intention of attracting the attention of the receiver, and was emotionally warm towards the receiver. The starer ceased staring as soon as the response was given by the receiver. In the case of a non-staring trial, the starer turned away from the CCTV monitor and thought of something else. The starer noted the receiver's answer "Yes" for staring and "No" for not staring.

The non-Ganzfeld condition. Receivers were seated in the chair and exposed to normal lighting while wearing headphones. They were asked to keep their eyes open for the duration of the experiment, and to sit quietly during the 15 minutes of silence prior to the commencement of the trials. A CD-R was played via headphones for the non-Ganzfeld receivers, which was blank for the first 15 minutes, and then delivered instructions and chimes that were identical to the Ganzfeld CD-R. Thus, non-Ganzfeld receivers were not administered a progressive relaxation exercise or a Ganzfeld stimulus. From this point onwards, the procedure for the 20 trials follows that just described in the previous section for the Ganzfeld condition with one exception: non-Ganzfeld receivers were, of course, not exposed to a Ganzfeld environment.

After the completion of the 20 trials, Ganzfeld and non-Ganzfeld receivers were administered the post-condition questionnaire consisting of the PCI. See Figure 1 for a schematic diagram of the experimental protocol.

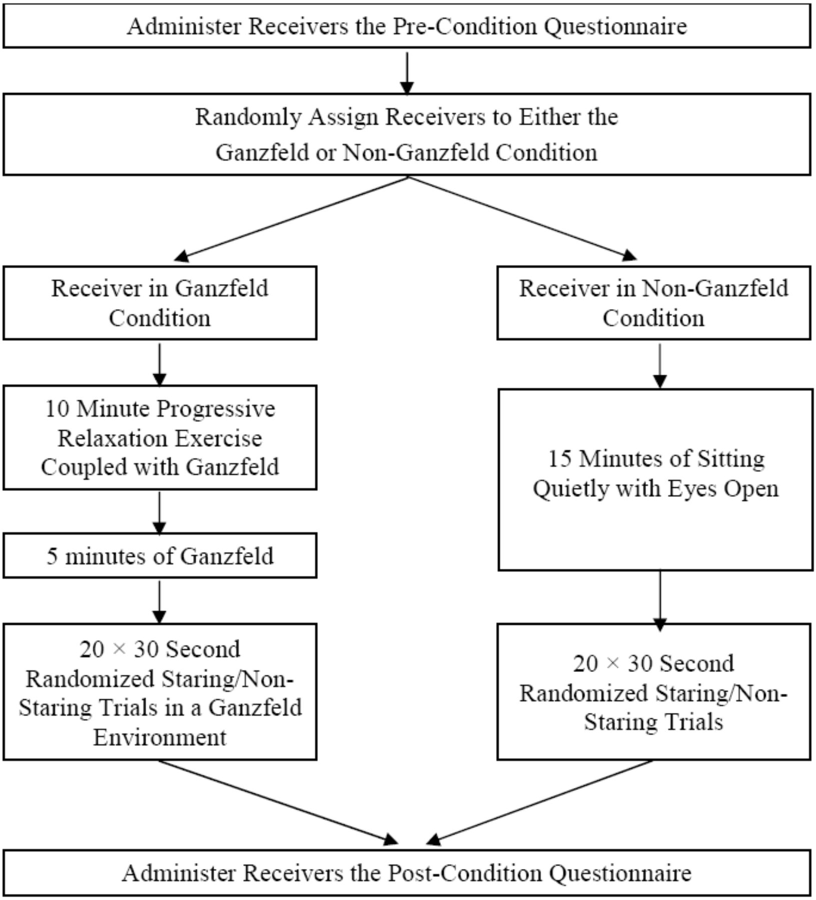

Figure 1. Schematic diagram of experimental protocol.

RESULTS

Following Evans and Thalbourne (1999), a correct response during the experimental condition was either saying “Yes” during a staring trial or “No” during a non-staring trial. The percentage of correct Yes responses for each receiver is referred to as the *staring hit rate*, whereas the percentage of correct No responses for each receiver is referred to as the *non-staring hit rate*. The summation of the correct staring and non-staring responses for each receiver expressed as a percent is merely referred to as the *hit rate*.

Preliminary Analyses

In order to assess the quality of the present study’s randomization process, we investigated whether sex, age and mental boundary scores were evenly distributed across the Ganzfeld and non-Ganzfeld conditions. A chi-square test for independence found that there was not a significant difference between conditions with regards to sex, $\chi^2(1, N = 40) = 0.13$, $p = .72$. An independent *t*-test revealed that there was no significant difference between conditions with regards to age, $t(38) = -1.29$, $p = .21$. Similarly, an independent *t*-test revealed that there was no significant difference between conditions with regards to mental boundary scores, $t(38) = -0.54$, $p = .59$. These findings suggest that sex, age and boundary scores were evenly distributed across the two conditions.

The mean score for the BQ-Sh for the whole sample, the Ganzfeld group, and the non-Ganzfeld group was 79.65 ($SD = 15.67$), 78.30 ($SD = 15.88$), and 81.00 ($SD = 15.75$), respectively. Reliability of the scale was adequate: Cronbach’s alpha = 0.71. This is consistent with the total BQ-Sh reliability of .74 reported by Rawlings (2001-2002). Of the two demographic variables sex and age, only age significantly correlated with the BQ-Sh total score, $r(38) = -.38$, $p < .05$ (two-tailed).

For the present study, the reliability of the PCI was adequate: Cronbach’s alpha = 0.81. The PCI produces a total score for each of 26 dimensions but not for the entire scale. Consequently, it was not tenable to investigate whether, for example, any demographic variables correlated with the total PCI score.

H1: Ganzfeld/staring and non-Ganzfeld/staring groups have hit rates greater than MCE ($P_{MCE} = .50$), when expressed as the percentage of correct guesses.

To address *H1*, binomial probabilities were calculated. As can be seen from Table 1, only the hit rate for the Ganzfeld/non-staring group was significantly greater than MCE. Interestingly, the hit rate for the

Ganzfeld/staring group was less than MCE. It is also noteworthy that the hit rate for the non-Ganzfeld/non-staring group was approaching significance (p = .09).

H2: There is a difference between the Ganzfeld and non-Ganzfeld groups with regards to hit rate; H3: There is a difference between staring and non-staring groups with regards to hit rate; and H4: There is an interaction between Ganzfeld/non-Ganzfeld and staring/non-staring with regards to hit rate.

A single mixed between-within subjects analysis of variance (ANOVA) was performed to address these three hypotheses. The between-groups factor was Ganzfeld versus non-Ganzfeld, and the repeated-measures factor was staring versus non-staring. The dependent variable was hit rate.

Table 1
Binomial Probabilities of Hit Rates for each Condition (MCE = .50)

Condition		Mean Hit Rate %	*SD*	*p* *
Ganzfeld				
	Staring	43.83	14.31	0.97
	Non-Staring	57.91	17.49	0.02 **
Non-Ganzfeld				
	Staring	52.94	19.47	0.26
	Non-Staring	55.17	13.14	0.09

* Binomial probability; ** $p < .05$

There was no significant main effect for Ganzfeld/non-Ganzfeld with regards to hit rate, F (1, 38) = 0.94, p = .34 (two-tailed). However, there was a significant main effect for staring/non-staring, F (1, 38) = 4.23, $p < .05$ (two-tailed), partial η^2 = 0.10. The mean score for the non-staring group (M = 56.54, SD = 16.45) was significantly higher than the staring group (M = 48.38, SD = 16.43). However, there was no significant interaction between Ganzfeld/non-Ganzfeld and staring/non-staring with regards to hit rate, F (1, 38) = 2.23, p = .14 (two-tailed). Figure 2 depicts the means for the hit rates of the various factorial combinations.

H5: For the Ganzfeld and non-Ganzfeld groups, there is a positive relationship between thinness of mental boundaries and staring hit rate.

Pearson's correlations were performed to examine the relationships between mental boundaries and staring hits, for the Ganzfeld and non-Ganzfeld groups. In accordance with *H5*, for the non-Ganzfeld group, thinness of mental boundaries and staring hit rate did correlate positively, but the relationship only approached significance, $r(18) = 0.44$ $p = .06$ (two-tailed). Interestingly, for the Ganzfeld group, thinness of mental boundaries was negatively correlated with staring hit rate, but again the relationship only approached significance, $r(18) = -.42$, $p = .06$ (two-tailed).

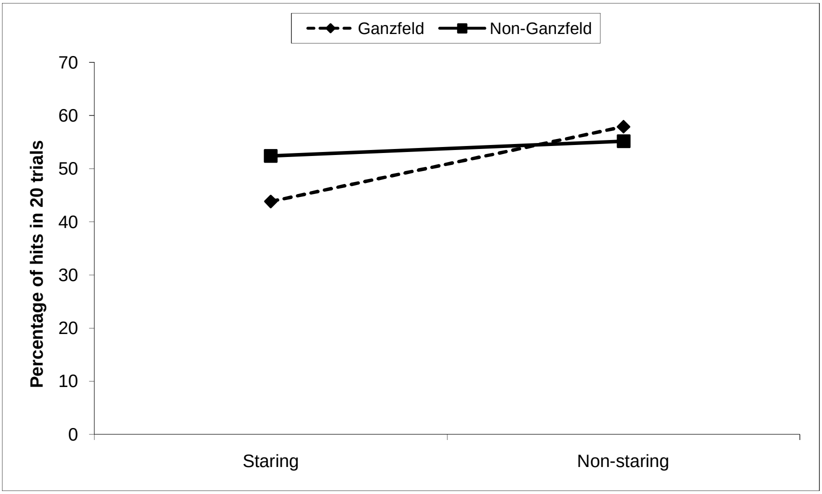

Figure 2. Means for hit rate at Ganzfeld/staring, Ganzfeld/non-staring, non-Ganzfeld/staring, and non-Ganzfeld/non-staring.

Research Question: For the Ganzfeld and non-Ganzfeld groups, are any phenomenological dimensions correlated with staring and non-staring hit rates?

For the Ganzfeld group, there was a significant positive correlation between PCI-rationality and non-staring hit rate, $r(18) = 0.69$, $p < .01$ (two-tailed). Furthermore, there was a significant positive correlation between PCI-volitional control and non-staring hit rate, $r(18) = 0.63$, $p < .01$ (two-tailed).

For the non-Ganzfeld group, there was a significant positive correlation between PCI-altered experience and staring hit rate, $r(17) = 0.62$, $p < .01$ (two-tailed). Moreover, the negative correlations between PCI-altered state of awareness and non-staring hit rate, $r(18) = -.40$, $p = .08$ (two-tailed), and between PCI-positive affect and non-staring hit rate, $r(18) = -.40$, $p = .08$ (two-tailed), were approaching significance.

DISCUSSION

Unexpectedly, the Ganzfeld/staring condition was associated with a hit rate *less* than MCE. The reason(s) for this result is (are) unclear, given that the sense of being stared at has been interpreted as a psi phenomenon, and previous research suggests that the Ganzfeld is psi-conducive (Bem & Honorton, 1994; Storm & Ertel, 2001). In this context, it is perhaps salient that the present study's receivers were Ganzfeld novices, and previous studies have demonstrated that novices vary with regards to Ganzfeld performance (Honorton, 1997). For example, some individuals experience physical sensitivity to the Ganzfeld environment which may inhibit psi (Carpenter, 2006). Consequently, it may prove edifying to extend the present study by including semi-structured interviews designed to elicit the essential aspects of the receivers' sense of being stared at experience within a Ganzfeld environment. The resultant qualitative data may provide insights regarding why the Ganzfeld appeared to hamper staring detection.

The prediction that the non-Ganzfeld/staring condition would be associated with a hit rate significantly greater than MCE was not supported. Unexpectedly, however, the Ganzfeld/non-staring condition was associated with a hit rate significantly greater than MCE. This suggests that the Ganzfeld enhanced *non*-staring detection but not staring detection. These results are inconsistent with Sheldrake's (2008) finding of a consistent pattern of an approximately 60% hit rate for staring trials, and close to chance detection in non-staring trials. However, the present study's hit rates were consistent with the results of Poortman (1959), and also Evans and Thalbourne (1999), who used a remote staring methodology, albeit in the absence of a Ganzfeld stimulus. We note that Evans and Thalbourne (1999) speculate that, "Perhaps the feeling of being stared at is so subtle, involving sensations that it takes time for us to become aware of consciously, it is easier for us to detect the lack of it than it is to register its presence" (p. 321). We acknowledge that this explanation is inconsistent with the pattern of results identified by Sheldrake (2008) and his contention that, "… in the control trials, no one is looking. The subjects are being asked to detect the *absence* of a stare, an unnatural request with no parallel in real-life conditions. Under these circumstances, subjects guess at random" (2005, p.

18). However, it is noteworthy that the pattern of findings reported by Sheldrake (2008) is derived from *direct looking* trials, whereas Evans and Thalbourne's (1999) results were obtained from *remote staring* trials. Perhaps the quality of the sense of being stared at is somehow different in direct looking trials relative to remote staring trials, thereby rendering it easier to detect non-staring than staring via a CCTV. If it is, in fact, easier to detect the *absence* of being stared at using a remote staring methodology, then, by extension, one might expect *Ganzfeld* receivers to perform better in non-staring trials relative to staring trials using a CCTV.

The hypothesis that there would be a significant main effect for the Ganzfeld/non-Ganzfeld factor with regards to hit rate was not supported. This finding suggests that the Ganzfeld did not significantly increase the total number of correct staring *and* non-staring responses relative to a non-Ganzfeld stimulus condition. This result may be due, in part, to the fact that, as previously stated, all of the receivers in the present study were Ganzfeld novices (Honorton, 1997). Indeed, it is possible that the novelty of the Ganzfeld stimulus exacerbated the physical sensitivity of some participants, thereby, failing to enhance the hit rate.

In line with our predictions, there was a significant main effect for the staring/non-staring factor with regards to hit rate. Specifically, the non-staring hit rate was significantly higher than the staring hit rate. As previously stated, this result is inconsistent with Sheldrake (2008), but consistent with other studies (e.g., Evans & Thalbourne, 1999; Poortman, 1959). Braud (2005) emphasizes that the sense of being stared at is a very complex phenomenon, and due to the likely influence of individual differences, predispositions, the environment, and personal history, not every experiment yields consistent results. Again, process-focused studies using qualitative phenomenological methodologies to identify the essential elements of the experiences of receivers may provide plausible explanations for this finding.

The hypothesis that there would be a significant interaction between the Ganzfeld/non-Ganzfeld and staring/non-staring factors with regards to hit rate was not supported. This finding suggests that the effect of staring and non-staring on hit rate was, broadly speaking, the same for Ganzfeld and non-Ganzfeld receivers.

It is noteworthy that, for the Ganzfeld and non-Ganzfeld groups, the correlation between mental boundaries and the staring hit rate approached significance. Interestingly, the correlation between mental boundaries and the staring hit rate was negative for the Ganzfeld group, yet positive for the non-Ganzfeld group. Thus, thick mental boundaries were associated with greater staring detection for the Ganzfeld group, whereas the opposite pattern was evident for the non-Ganzfeld group. As previously stated, individuals with thin boundaries are typically sensitive to external stimuli

(Hartmann, 1991). Consequently, the red lights and white noise of the Ganzfeld may have overwhelmed some thin boundary participants and, therefore, hindered their staring detection. This might explain the inverse association between boundaries and hit rates for the Ganzfeld group. However, in the absence of experiences of physical sensitivity to the Ganzfeld, thin boundaries may assist receivers with regards to detecting presumably weak signals such as staring. This might account for the positive association between boundaries and hit rates for the non-Ganzfeld group. In any event, the preceding findings suggest that the concept of mental boundaries is a complex one; apparently the negative correlation between mental boundaries and staring hit rate during exposure to one stimulus (i.e., the Ganzfeld) is not necessarily indicative of a negative correlation between mental boundaries and staring hit rate during exposure to other stimuli.

For the Ganzfeld group, both PCI-volitional control and PCI-rationality were significantly positively correlated with the non-staring hit rate. Thus, non-staring detection was enhanced as the willful control of one's experience, and the clarity of one's thought processes, increased during exposure to the Ganzfeld. Interestingly, PCI-volitional control and PCI-rationality were negatively, but non-significantly, correlated with *staring* detection for both the Ganzfeld and non-Ganzfeld groups. Perhaps using the rational mind to willfully control staring detection is counter-productive given that staring detection is typically accomplished by the subtle senses of knowing, feeling and bodily sensation, during one's daily life.

For the non-Ganzfeld group, PCI-altered experience was significantly positively correlated with the staring hit rate. The altered experience dimension ostensibly quantifies changes in one's body image (e.g., bodily expansion into the world), time sense (e.g., dilation, contraction), perception of objects in the external world (e.g., changes in colour, shape, size), and meaning (e.g., experiences that might be deemed religious or transcendental) (Pekala, 1991). Thus, in certain contexts, experiences that diverge from the phenomenology of ordinary waking consciousness may enhance the sense of being stared at.

A number of limitations warrant consideration. The present study's novel synthesis of Ganzfeld and remote staring methodologies constituted a labour intensive protocol that impeded participant recruitment and, thus, compromised statistical power. Consequently, the present study's sample size was too small to allow comparisons of very thin versus very thick mental boundary receivers within each condition with regards to phenomenology and the sense of being stared at. It is arguable that by removing the second and third quartile of the mental boundary scores and, thus, retaining only the extreme mental boundary receivers, the magnitude of the effect with regards to phenomenology and the sense of being stared at may have been larger.

The experimenter was not blind regarding whether a particular trial involved staring or the absence of staring. Consequently, any psi ability that the experimenter may have had might have been selectively applied in order to reinforce the starer's efforts during staring trials. Thus, staring detection might have been enhanced by a psi-mediated experimenter effect (Evans & Thalbourne, 1999). However, this seems unlikely given that, in the present study, the non-staring hit rate was significantly higher than the staring hit rate. It is also salient that the starer noted that he/she was unable to stare with a consistent intensity and emotion across the various staring trials. It is plausible that this may have affected results, making it more difficult for receivers to detect staring during some trials.

Future research might use a complementary mixed-method whereby the phenomenology of a receiver's sense of being stared at during a Ganzfeld and non-Ganzfeld stimulus condition is quantitatively assessed using the PCI and qualitatively assessed using semi-structured interviews designed to yield comprehensive constituent themes. The essential aspects of the sense of being stared at experience that the PCI dimensions fail to quantify may be captured by the semi-structured interviews, and vice-versa. By triangulating these methods, one may be able to generate a more comprehensive understanding of the sense of being stared at phenomenon.

It would also be edifying to replicate and extend the current findings by examining other potentially psi-modifying variables (e.g., the cognitive-perceptual factor of the schizotypy construct) that may predict staring and non-staring detection. Such research will be crucial with regards to accounting for individual differences in the sense of being stared at.

In conclusion, the Ganzfeld/non-staring condition was associated with a hit rate significantly greater than MCE. This result is inconsistent with Sheldrake (2008), but consistent with the findings of other studies (e.g., Evans & Thalbourne, 1999). A non-significant main effect for the Ganzfeld/non-Ganzfeld factor was found which may have been due, in part, to the fact that all of the receivers in the present study were Ganzfeld novices. There was, however, a significant main effect for the staring/non-staring factor with regards to hit rate, but no interaction between the two factors. For the Ganzfeld and non-Ganzfeld groups, the correlation between mental boundaries and the staring hit rate was approaching significance. This finding indicates that, with sufficient statistical power, boundaries may be identified as an important psi-modifying variable that enhances staring detection. Finally, for the Ganzfeld and non-Ganzfeld groups, various PCI variables were significantly correlated with hit rate. This result suggests that it is valuable to elicit phenomenological reports from test participants in staring studies.

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