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BRIEF REPORT

A Four-Element–Themed Self-Selecting Mobile Application for ESP Testing

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HIGHLIGHTS

A new computerized test for 'extrasensory perception' (ESP) is designed for use in everyday environments and draws on principles in occultism to promote better results.

ABSTRACT

A The current study engaged in a pilot data analysis for the purpose of examining a newly developed E (Element)-PSI application which was completed in varying real-life environments while reporting information about users' location, mood, and focus on the ESP task. In addition, participants completed an ESP induction task, and trait measures of Transliminality, Paranormal Belief, and paranormal experience as measured by the Survey of Strange Events. A total of 44 participants from the United States completed the study as part of an initial registration process for an ongoing experiment. Results indicate small, but non-significant effects due to sample size in terms of the induction process and focus on the ESP task toward positive increases in ESP hit rates. Implications from these suggestive-only findings presented in terms of cultural, trait, and contextual variables contributing to ESP success rates are discussed in terms of using these findings toward formal large-sample replication.

KEYWORDS

ESP, psi, extrasensory perception, ESP testing, mobile application

INTRODUCTION

Studies on extrasensory perception (ESP)—or described more broadly as putative 'psi'—have advanced and flourished since J. B. Rhine's early experimental work (e.g., Bem, 2011; Rhine, 1950; Steinkamp et al., 1998; Tart et al., 1979). But this burgeoning literature also includes many debates about the meaning of the empirical findings (Bem & Honorton, 1994; Haraldsson & Houtkooper, 1995; Storm et al., 2012). For example, seasoned scientists in this domain are familiar with the critiques over mathematics (e.g., Rouder et al., 2013), procedural research design (e.g., Draconis, 1978), or in some cases seemingly external interference from so-called 'Trickster' effects (e.g., Kennedy, 2003). With respect to the above, we note that laboratory ESP studies do not consistently address or control for environmental, trait, or contextual variables (with exceptions, e.g., Pérez-Navarro & Guerra, 2012; Tart et al., 1979). However, factors such as environment, traits, and context, under a trait model of ESP, could easily affect performance on ESP tasks.

The current research explores two empirical observations with psi research. *First*, laboratory studies occasionally seem to inhibit psi performance and, in many cases, even lack external validity (Mitchell, 2012; McDermott, 2011; Schram, 2005). *Second*, we do not ascribe to the idea that psi is a mechanistic process whereby participants perform like automatons. Rather, psi effects apparently involve mental processes and contextual cues that interact with general skills and traits within the participant population (Geukes et al. 2012; Yang et al. 2014). The former applies directly to ESP research findings in that decline

effects are likely in long-term repeated trials (Tart et al., 1979), whereas motivation, focus, and traits relate to success in any given task (Kennedy, 2003; Schmidt & Prein, 2019). Notably, varying environments, as well as feedback before or after ESP trials have been shown to facilitate or inhibit ESP performance (Haraldsson & Houtkooper, 1995; Schmidt & Prein, 2019; Tart et al., 1979).

We thus contend that proof- or process-oriented debates about ESP will only be resolved via a Hegelian interactionist model (e.g., Hegel, 1998) that considers the role of participants' traits, beliefs, and environmental influences on ESP performance within 'real world' conditions. To this end, we report on a pilot study of our newly developed ESP testing application (or 'app') that can be conducted on any mobile device and notably in naturalistic settings, as well as being used on regular computers within laboratory settings. The app further gauges a research participant's belief in their ability to correctly guess the ESP targets during the procedure, as well as their degree of focus on the ESP task. We also examine an induction technique based on the app's use of the four traditional Western elemental symbols (i.e., earth, wind, fire, and water) to examine if visualization or mental imagery practice increases ESP hit rates in naturalistic environments.

METHODS

Participants

A total of 44 participants (M_{age} = 44.67, *SD* = 14.09, *range* = 18–73) from the United States completed the study as part of an initial registration process for an ongoing experiment. Participants comprised 14 males, 27 females, one transgender person, and one gender-fluid person. Most participants were Caucasian (*n* = 42), and two participants were of European and Cherokee (*n* = 1) and White and Asian (*n* = 1) descent. Table 1 gives the descriptive statistics for all the measures used here. Our participants comprised a targeted convenience sample of individuals who stated an interest in paranormal phenomena, and completed initial measures for a previous laboratory study. Our goal in repurposing these participants' data is for the express purpose of a pilot study. As such, generalization of the findings to the population is clearly limited, but helpful in examining initial trends to guide future research.

Measures

E-PSI (Element-PSI) App. Designed specifically for this study by the first author in a Google Form format using natural randomization and blind-logic switch features, this app can be characterized as a double-randomized card draw from four possible choices. However, the current test differs from the classic Zener card format in several ways. First, Zener symbols were eschewed in favor of the culturally and historically embedded symbols of the four elements. Thus, the participant is exposed to the four traditional elemental symbols of earth, air, fire, and water as possible choices. The rationale of using elemental symbols is clarified below in the description of the induction method.

Second, and unlike previous psi tests, the user selects their trial from a set of four trial options representing a series of four twelve-numbered series consisting of a combination of zeros and ones. With each trial case selection, the application randomizes the presentation order of these twelve number codes, preventing any ability of the user to memorize or notate specific trials should the E-PSI application be repeated. An example of trial selection is presented in Figure 1. Once a trial is selected, the participant engages in their ESP trial (see Figure 2) and is then instructed to select from a new series of four trials. Thus, the user under quasi-blind conditions selects one of four trials, each of which contains a different computer-selected target, negating either the need or debate over "purely

TABLE 1. Means, Standard Deviations and Range of Scores on Measures

Instrument	Mean (*SD*)	Minimum	Maximum
ESP Hit Rate (%)	21.59 (13.79)	0.00	60.00
NAP	26.56 (5.28)	17.12	44.12
TPB	26.44 (4.88)	11.16	39.23
TLIM	26.70 (5.22)	13.70	37.30
SSE	53.31 (11.96)	22.30	74.60
Confidence	10.61 (4.41)	5.00	23.00
Focus	10.86 (4.50)	5.00	21.00
Symbol Visualization	5.41 (1.67)	1.00	7.00
Image Association	4.74 (1.68)	1.00	7.00

N = 44. NAP = New Age Philosophy; TPB = Traditional Paranormal Beliefs; TLIM = Transliminality; SSE = Survey of Strange Experiences; Confidence = Confidence of ESP during trails; Focus = Focus during ESP trials; Symbol = Symbolic Visualization; Image = Image Association.

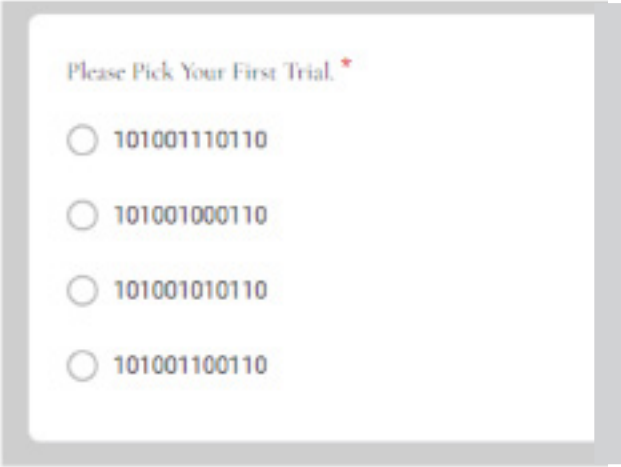

Figure 1. Example of ESP self-selection trial presentation. *Note:* Ordered presentation with each trial section is randomized, no number stays in the same position in subsequent trials or repeats of the test.

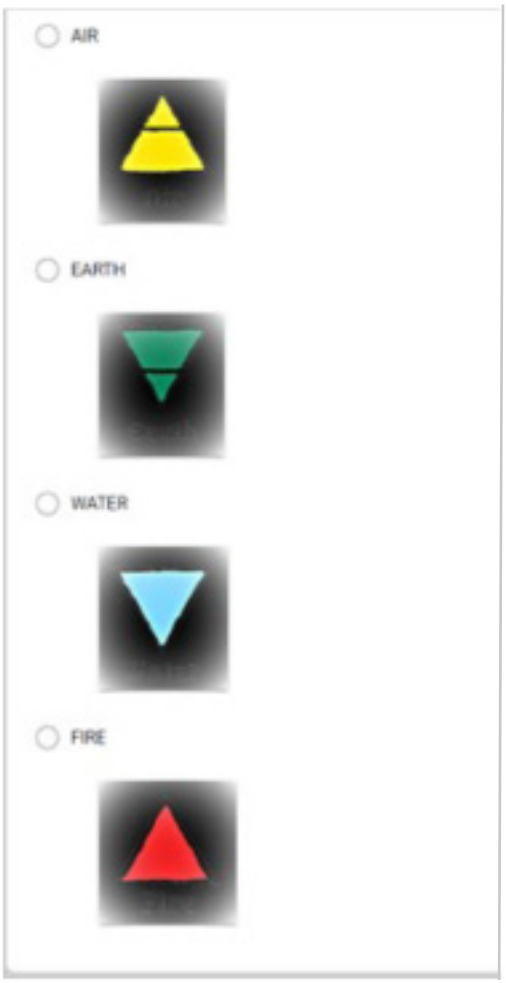

Figure 2. Individual ESP trial test example.

random number generators," as the participant is entirely choosing their own six ESP trials from a possible 24 overall trials, with no cues or guidance as to what the target for any given trial will be. Particularly, for any given trial series, the participant will only interact with the random six trials they selected, and each of the 24 trials are presented and appear exactly the same, with the only difference being the target element in which a correct guess is deemed a 'hit.' We provide a visual summation of the selection process in Figure 3.

In full transparency, we should first note that the ESP application following some logic switching errors, allowed some participants to complete five trials, and others seven. Further, some participants completed multiple sets of ESP trials. In order to accommodate variance in the overall trials completed we created a standardized average hit rate based on total hits divided by total trials taken.

E-PSI (Element-PSI) App: Embedded Mood and Environment Measures. Embedded within the E-PSI app, and designed to both investigate and control for mood and environmental factors, are several initial questions posed before the ESP trials. These include the participant's *specific location*, and four 4-point forced-choice Likert questions that assess *mood* (i.e., "*I am feeling anxious or stressed*" and "*I am feeling happy*") and *environmental distraction* (i.e., "*It is noisy or crowded where I am taking my test*" and "*I feel that I can concentrate*"). Notably, Google Forms automatically timestamps survey entries, and with participant-provided location latency between tests and locations can automatically be coded. For the current study, the sample size was not sufficient to engage in tests with these embedded questions, which will be deferred for future studies with appropriately large sample sizes.

E-PSI (Element-PSI) App: Embedded Test Engagement and Expectancies. Also, within the app each individual ESP trial has two additional Likert questions to gauge engagement during each psi selection task. First, participants are asked "To what extent do you feel that your chosen answer is correct?" and to respond on a 4-point forced-choice Likert scale where 1 = *Not at all certain*, and 4 = *Very certain*. Second, participants are asked "How focused were you on selecting the correct element?" and to respond on a 7-point Likert scale ranging from 1 = *I had much difficulty focusing*, to 7 = *I was very focused*. The former question is designed to assess certainty in their psi/guessing response, while the latter question addresses general focus or involvement in the trial process.

E-PSI (Element-PSI) App: Induction Process. As part of the preparation for the study, participants were asked to complete a guided visualization exercise created as a Google form, in which the participant is guided through a brief breathing exercise, and then given specific instructions

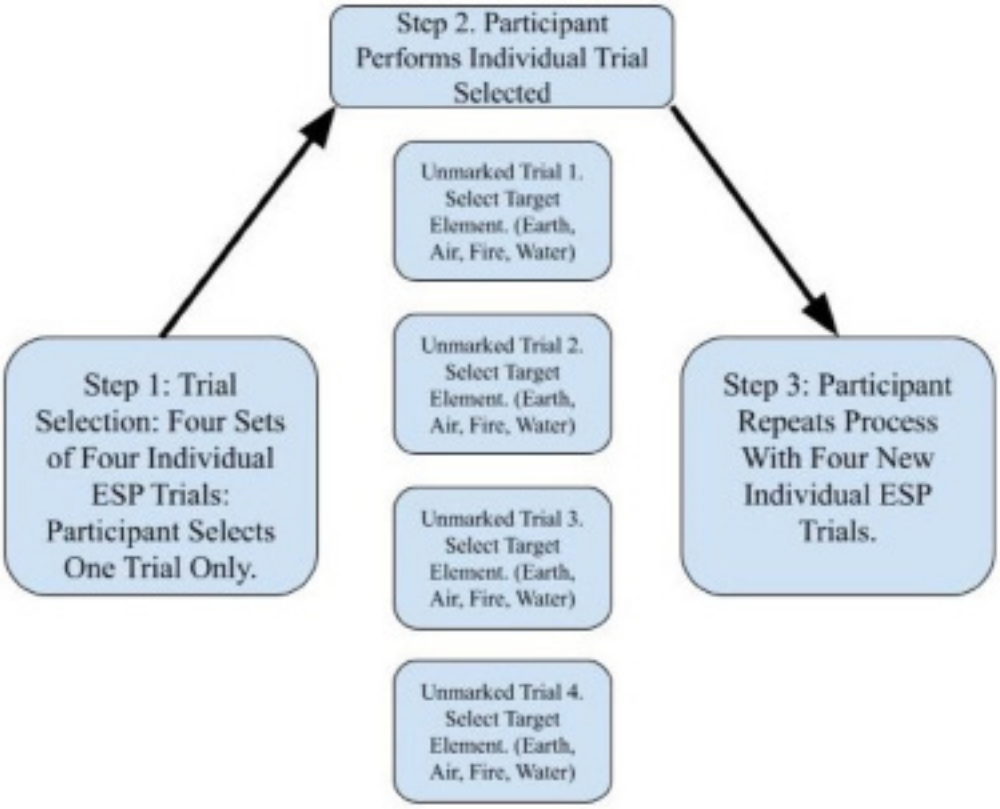

Figure 3. Flow diagram of trial selection and individual trial completion process.

on visualization for each of the four elements of earth, air, fire, and water, which are completed one element at a time. The content of this Induction Process represents an amalgam of pre-Victorian and post-Victorian magical associations used for occult ritual via western hermetic and occult practices (e.g., Gosden, 2020; Regardie et al., 1989). Visualization instructions contain two components: First, the induction form shows the symbol for a particular element, and next participants are told what descriptive traits are associated with the element (i.e., for earth, features of being solid, calm, material, practical, structured, and set). Subsequently, the participant is asked to see the symbol in their mind and then asked to associate this symbol in their mind with several sense modalities related to the element (i.e., for earth, standing barefoot on grass on top of a hill, while attempting to feel the grass under feet and smelling the earth below).

After each element, participants are asked to complete two Likert style questions both coded at 1 = *very difficult,* and 7 = *Very easy*. The first question asks, *To what extent could you see the "element symbol" in your mind*? (n = 44, M = 5.41, SD = 1.67), and the second question asks: *To what extent could you associate the additional images and feelings with this symbol*? (n = 44, M = 4.74, SD = 1.68). For the current study, as it is a pilot, we averaged these visualization ratings across all four elements. However, we note for interested parties that both the induction method and ESP app are designed in such a way that future research can examine the relationship (if any) between the visualization of a particular element and whether the participant unconsciously picks trials from which a particular element is unknowingly selected as the target, allowing for an examination of unconscious psi in terms of which element target the participant selects based on their affinity in visualizing a particular element.

Standardized Scales

Revised Paranormal Belief Scale *(RPBS: Lange et al., 2000a).* The Rasch scaled RPBS comprises two, moderately correlated belief subscales that reflect "New Age Philosophy" (11 items, Rasch reliability = .90) and appears related to a greater sense of control over external events via belief in paranormality while "Traditional Paranormal Beliefs" (5 items, Rasch reliability = .74) represents more traditional cultural religious beliefs beneficial toward maintaining social control via determinism.

Revised Transliminality Scale *(RTS: Lange et al., 2000b)*

is a 17-item, T/F, Rasch-scaled measure of "hypersensitivity to psychological material originating in (a) the unconscious, and/or (b) the external environment" (Thalbourne & Maltby, 2008, p. 1618). The Rasch reliability is .82.

Survey of Strange Events *(SSE: Houran et al., 2019).* This is a 32-item, 'true/false' Rasch scaled measure of the overall perceptual intensity (or depth) of a ghostly account or narrative via a checklist of anomalous (subjective and objective) experiences inherent to these episodes. The Rasch reliability is .87, with higher scores representing a greater frequency and intensity of anomalous ('ghostly') experiences. Supporting the SSE's construct and predictive validities, Houran et al. (2019) found that the phenomenology of 'spontaneous' accounts (i.e., ostensibly sincere and unprimed) obtained from survey respondents differed significantly from control narratives from other survey respondents who provided information while focused on 'primed conditions, fantasy scenarios, or deliberate fabrication.'

RESULTS

Note that the purpose of pilot trials or studies is to test research protocols, data collection instruments, sample recruitment strategies, and other research techniques in preparation for a larger study (Kannan & Gowri, 2015; Kraemer et al., 2006; Leon et al., 2011). Thus, our preliminary data were not intended for hypothesis-testing strictly speaking, but rather to help establish the feasibility and usability of the newly developed psi-app. That said, analyses of the data did reveal some intriguing results that we discuss here in the hopes of motivating new research as part of a transparent model-building process. As such, the authors wish to clearly express the following findings as either suggestive or tentative pending future large-scale replication, as part of a transparent model-building process.

Demographic, Location, and Environmental Effects

Table 1 provides all the descriptive statistics, and we further found no compression, ceilings, or floors within the distribution of the variables. In terms of the location where participants completed their psi testing, the smaller sample size prohibits detailed analysis. However, a cursory inspection shows that participants used the psi-app at home (n = 33) or in a car (n = 6). However, a small number of participants did the testing at work (n = 2), at someone else's home (n = 2), or in a hotel (n = 1). Participants were similarly asked about their environment and mood while taking the ESP test. Most participants disagreed (i.e., 'not at all' or 'somewhat not') that their environment was "crowded or noisy" (n = 37 or 84.1%), and that they were not "feeling anxious or stressed" (n = 35 or 79.5%). Conversely, the majority of participants (i.e., 'completely' or 'somewhat yes') felt that they could "concentrate" (n = 37 or 84.1%), and that they felt "happy" (n = 39 or 88.6%).

In order to examine if participant age was related to the principal variables of the study, we computed standard Pearson r correlations with age as the dependent variable. Results indicate that age was significantly associated with NAP scores (r = .401, p = .007). However, we found no significant differences between age and ESP hit rates (r = –.012, p = .94) or scores on TPBs (r = .278, p = .07), TLIM (r = .171, p = .27), or the SSE (r = .141, p = .36). See Table 2 for Spearman *rho* correlations of ESP hit rates with Induction scores and individual difference variables.

To explore for possible gender effects, we applied standard t-tests to gender and the variables of interest. No significant differences were found across gender for any measure: ESP Hit Rate ($t(42)$ = –.764, p = .45); NAP ($t(39)$ = –.332, p = .74); TPBs ($t(39)$ = –.846, p = .40); TLIM ($t(39)$ = –.70, p = .49); SSE ($t(39)$ = .865, p = .39); Symbol Visualization ($t(39)$ = –1.08, p = .29); Image Association ($t(39)$ = –1.97, p = .06); Focus ($t(39)$ = .674, p = .51); and Confidence ($t(39)$ = .71, p = .48).

In terms of location and environment, we performed similar t-tests resulting in significant differences in ESP hit rates across location, where participants who took the test at home returned significantly fewer correct hits (M = 19.17, SD = 13.25; $t(42)$ = –2.087, p = .043) than those who took the test elsewhere (M = 28.82, SD = 13.40). No significant differences in Symbol Visualization ($t(42)$ = –.764, p = .45) or Image Association scores ($t(42)$ = –.334, p = .74) were found across Location. Similarly, no significant differences in Noise ($t(42)$ = –1.50, p = .14), Anxiety ($t(42)$ = 1.44, p = .16), Concentration ($t(42)$ = .09, p = .93), or Happiness ($t(42)$ = –.12, p = .91) were found across the Locations.

Traits, Focus and Confidence, Induction, and ESP Hit Rates

The t-tests above indicated significant differences as a function of Location, but the Spearman *rho* correlation matrix in Table 2 shows the 'raw' relationships between Paranormal Belief, Transliminality, and Paranormal Experience, as well as the participant's Confidence and Focus during the ESP trials and any effect from the Induction Process. Overall, ESP hit rates were not significantly related to any of the variables in our small sample (*rho*'s –.167 to .220). However, the effect sizes in Table 2 would reach statistical significance if they replicated in larger samples (n's = approximately 160 to 305). Notably, several patterns seem promising that are consistent with our emphasis on envi-

TABLE 2. Correlations Between ESP Hit Rates, Induction Scores, and Individual Differences

Scale	NAP	TPB	TLIM	SSE	Confidence	Focus	Symbol	Image
ESP Hit Rate	−.095	−.061	−.167	−.092	.104	.220	−.169	.148
NAP		.741**	.213	.189	−.226	−.296	.304*	.269
TPB			.233	.192	−.089	−.145	.208	.101
TLIM				.581**	−.263	−.311*	.409**	.433**
SSE					.029	−.023	.349*	.218
Confidence						.953**	-.249	−.227*
Focus							-.260	−.273
Symbol								.608**

N = 44. NAP = New Age Philosophy; TPB = Traditional Paranormal Beliefs; TLIM = Transliminality; SSE = Survey of Strange Experiences; Confidence = Confidence of ESP during trails; Focus = Focus during ESP trials; Symbol = Symbolic Visualization; Image = Image Association. * = p <.05; ** = p <.01.

ronmental and trait features associated with ESP hit rates.

Both Confidence in getting an ESP answer right and the participant's Focus during the ESP task show correlations in a positive direction, but these variables are so highly correlated (r = .95, p < .001) as to be synonymous. Yet, Confidence in the ESP selection process is approximately related as half as strongly as Focus (r = .104 versus .220, *n.s.*) but representing together as much as a 5% variance shift in ESP hit rates. Further, the Induction Process provides mixed relationships to ESP hit rates, noting that visualizing the symbol is inversely related to ESP hit rates (r = −.169, *n.s.*), while visualizing a more complex tableau of modes of sensation associated with these elements is positively related (r = .148, *n.s.*) suggesting that more complex associations of sight, sound, and feeling with an element is better suited to affect ESP hit rates than simply familiarizing the participant with the symbol.

Finally, our measures of the broader level traits such as Transliminality, Paranormal Belief (i.e., New Age Philosophy vs Traditional Paranormal Beliefs), as well as Paranormal Experience are all small and negative predictors of ESP hit rates (r's −.061 to −.167, *n.s.*), which contrasts with previous findings (for reviews, see e.g., Thalbourne & Houran, 2003; Thalbourne & Storm, 2012; Ventola et al., 2019). However, given that we found statistically significant effects of Location, and findings from recent work show differential relationships between high and low levels of these variables, we strongly suspect there was variance suppression among these variables and ESP hit rates, due to the fact that median split high and low levels of Paranormal Belief and Transliminality are likely to have fundamentally different slopes of prediction. Thus, when not treated separately, a classic slightly negative correlation appears due to the aggregation of two groups with different slopes of prediction.

DISCUSSION

At best, our findings are merely suggestive given that this was a pilot study using a smaller sample that mainly served to prove out a proof-of-concept of a new technological approach to psi research. To be clear, the point of our research was to show a transparent process for testing an interactionist model for psi-related phenomena in more natural settings. We thus contend that the methods and data reported here indeed make promising points that are ripe for replication and extension. For example, analysis showed significant differences in ESP hit rates even in our reduced sample. The findings further indicated significantly higher hit rates when participants took the psi-app test away from their homes, although hit rates did not significantly shift relative to participant Mood, Concentration, Noise, or Symbol Visualization. On the other hand, we did observe positive (but not non-significant) overall correlations with participant Confidence, Focus, and Image Visualizations. These patterns might imply that Focus, Confidence, and Concentration are primary success factors in ESP performance, with Mood and Environmental Variables as tertiary factors.

But there also were highly curious results that deserve further study. Particularly, the positive relationships between NAP, TPB, TLIM, and the SSE replicated previous studies (e.g., Laythe et al., 2018), but they all were inversely and only mildly associated with hit rates. That said, we

reiterate our strong suspicion that there could be differential slopes on ESP performance between participants with high levels and low levels of these same traits. We are unable to tease out these effects here, so future research should examine these unexpected patterns in hit rates with larger samples that provide ample power to test for differences between low-scoring vs high- scorixng groups across the personal characteristics above.

However, our data do make a broader point if we remember that significant ESP hit rates are typically small. For instance, Bem's (2011) famous pre-sentiment studies show an aggregate .012 variance effect size. Similar small effects are found in meta analysis (e.g., Sherwood & Roe, 2003; Tressoldi et al., 2010). Given these small but significant effects, we opine that researchers in ESP should be actively concerned about variables like the ones we study here, noting that while the effects are small, they are surely sufficient to make the difference in a significant or non-significant ESP effect.

Namely, this study ostensibly affirms that variance in ESP hit rates is related to participants' Traits, Focus, Concentration, and sensory association with the Target Symbols used in the task. Recall that Confidence and Focus were measuring basically identical concepts for the current participants ($r > .95$), but the combined variance of these two variables shifted ESP rates upwards of five percent, with Image Association adding another 2%. In aggregate, and with larger samples typically seen in ESP tests, seven percent above chance performance is certainly sufficient to contribute to a significant effect.

Taken altogether, our pilot data support an interactionist model for psi effects in that contextual traits and environments ostensibly affected ESP scores, albeit not powerfully so. This means that both laboratory and field studies of psi phenomena should account or control for these variables. Perhaps most importantly, our approach also demonstrates the importance of testing methods that can be used across disparate settings and thus have value for modeling how ESP appears to work 'in the real world.' Both issues are conspicuously absent from the literature except for broad-based large-sample studies (e.g., Milton & Wiseman, 1999; Wiseman & Greening, 2002), which do not account for traits, culture, or beliefs that inhibit or increase the performance of ESP tasks.

From our own work (Laythe et al., 2022)—and beyond the variables measured here—we think it is likely that ESP performance is also influenced by ideological or cultural structures (Drinkwater et al., 2019; Hill et al., 2019; Laythe et al., 2022). To be sure, Paranormal Belief itself represents a higher-level structure of belief compared to the typically ongoing developmental influences from childhood, such as attachment, which foster differing beliefs in religious ideology, and subsequently paranormal experience (e.g., Kirkpatrick, 1998; Rowatt & Kirkpatrick, 2002).

As such, studies of ESP must examine not only core predictive traits such as Transliminality and Paranormal Belief (Houran et al., 2022), but also participants' broader Religio-Cultural Beliefs in order to better understand the 'tree' of ESP in context of 'the forest' in which it is situated. Notably, previous research clearly shows a cultural relationship to primary variables associated with paranormal experience (including ESP) and religious beliefs and experience (i.e., McClenon, 2012; Maltby & Day, 2002; Demmrich et al., 2013).

Finally, as a pilot test we note that our E-PSI app was arguably successful in terms of (a) demonstrating variability in participant's ESP guessing (0–60%), (b) its capability to assess contextual, focus, and trait variables in real-world environments that coincide with ESP outcomes, and (c) a small non-significant contribution to ESP scoring as a function of an induction process which facilitates visualization of the target ESP symbols.

To the latter, whereas the current pilot data shows a positive relationship with ESP scoring, we wish to be clear that without comparison use of an induction method with non-esoteric symbology (i.e., Zener symbols), it is unclear if this small effect is due to the induction, the use of historically embedded religio–cultural symbols (i.e., the four elements), or a combination of the two. They are inherently confounded. As such, future research will need to further examine induction techniques in contrast with different sets of symbols, noting the likely possibility that a cultural or historical connection with symbols may be the underlying variable which fuels a useful symbol induction process.

As the E-PSI app is, in essence, a forced set of both participant selected trial selection, and ESP target selection, it essentially dodges the issue with computerized "true randomization" (e.g., Rouder et al., 2013). As each self-selected trial set (of four possible trials) looks identical, and each trial itself is presented identically, we end up with participants quasi-randomly choosing their own "path" through the ESP application without any notable cues. From our perspective, this is a benefit, as the only response bias attributable to the E-PSI application would represent a failure in the logic switches to send participants to a particular trial set. Again, as all trial sets and individual trials are identical (except for the selected ESP target), we do not deem computer or coding error to have any particular effect on scoring. Rather in this case, bias toward a particular response set falls securely on the participant, with no evident cues to purposely guide them to favor a particular trial set choice.

We hope that our pilot work inspires the use of our E-PSI app within 'citizen science' frameworks (Ceccaroni

& Piera, 2017). The growing popularity of this approach in mainstream academia (e.g., Skarlatidou et al., 2019; Trojan et al., 2019) underscores its promise to expand or bolster research designs across frontier science. Indeed, the literature over the last decade alone provides ample case studies on managing and evaluating citizen science projects (Jordan et al., 2012), as well as the diversity of participants (Pandya, 2012) and volunteer outcomes (Skarlatidou et al., 2019).

However, parapsychologists have not effectively leveraged citizen scientists despite important advancements in both lay-friendly questionnaires and instrumentation (for an overview, see Laythe et al., 2022). It is therefore our hope—as we plan formal replications of the study above—to invite fellow parapsychologists and citizen scientists to use this application, freely available at request to the first author, to collect large, multi-cultural samples in order to determine the extent to which environmental, trait, and cultural variables positively or negatively affect ESP performance.

In closing, we openly offer the E-PSI application to any qualified researchers who have a Google email account and a willingness to use either the E-PSI app or the induction method described here. Indeed, we will heartily cooperate with any interested researchers who wish to expand, replicate, or contravene the data presented here.

IMPLICATIONS AND APPLICATIONS

Our study demonstrated the feasibility and usability of using a mobile application for ESP testing that also can address contextual, cultural, and environmental variables which may contribute to successful outcomes. Further, our pilot data serve to make the research building process with larger samples more transparent. Indeed, we hope that user-friendly technologies and methodologies as described here will motivate more strict replications via the participation of citizen scientists in parapsychology who can help to build cumulative databases (cf. Laythe et al., 2021). Progress on this latter goal could minimize the need for preregistering research designs, which can be a tedious and time-consuming exercise. Preregistration is said to improve the interpretability and credibility of findings (Nosek et al., 2018), but we tend to agree with those scientists who have questioned the underlying reasons that are cited for this widely adopted conclusion (e.g., Pham & Oh, 2020; Rubin, 2020).

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