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Purported Anomalous Perception in a Highly Skilled Individual: Observations, Interpretations, Compassion

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Abstract—The purported ability of a seventeen-year-old female, investigated for seven years in China, to perceive information without using visual and kinesthetic cues, was studied. In one experiment, five letters from A to Z and five numbers from 0 to 100 were randomly selected by computer, written on small sheets of paper and individually folded and placed in a sealed envelope. The folded stimuli were removed one by one and placed into a cloth bag that was opaque to light; the bag was tied below the participant's right elbow. The participant was accurate for all ten trials. In a second experiment, three video cameras carefully monitored the participant's hand movements; in addition, both ends of the folded papers were sealed with clear tape. Careful analysis of the clear tape and the videotapes revealed evidence of practiced deception. Data were also collected from a 25-year-old graduate student and a 7-year-old child not employing a cloth bag. Their data suggest that deception is not necessarily involved in all cases of purported anomalous perception.

Keywords: anomalous perception—parapsychology—intuition—integrity—magic

Introduction

This paper describes research conducted primarily with a celebrated Asian-American adolescent participant (P) who has been extensively researched in Taiwan since she was nine years old. Papers published in Chinese by Professor Shen Lee (L) and colleagues reported that P was able to anomalously perceive information written on folded pieces of paper without using visual or kinesthetic cues. L and colleagues claimed to obtain highly repeatable anomalous perception effects in P that replicated controversial findings reported in the 1980's in China (Truzzi, 1982, 1987; Zha and McConnell, 1991). However, the integrity of the earlier findings reported in China, and the interpretation of anomalous perception, were seriously questioned by Truzzi (1985) and Krippner (1991). The present report describes the chronology of three recent experiments conducted in the Human Energy Systems Laboratory (HESL) at the University of Arizona, as they unfolded, to convey the scientific and ethical concerns that can emerge in this kind of research.

In February 2000, a delegation of Chinese scientists from Taiwan, Beijing, San Francisco, and Toronto visited the HESL. They also invited P and her older

brother, who currently live in Los Angeles. P had been extensively studied for seven summers by L, a distinguished professor of electrical engineering and Dean of Academic Affairs at National Taiwan University. L was educated in the US, having received his Ph.D. in Electrical Engineering from Stanford University.

Based on L's claims of P's ability, we decided to conduct an exploratory experiment to see if we could replicate the basic findings observed in Taiwan. L was the primary experimenter for the first experiment conducted in the HESL with P. The senior author of this paper (GES) designed the study, created the stimuli used in the research, and videotaped Experiment I.

In May 2000, P returned to the HESL for a second experiment. This experiment was witnessed by: (1) three senior scientists from the university, (2) three skilled magicians, (3) the three authors of this paper, and (4) additional colleagues and laboratory staff. As reported below, evidence suggestive of practiced deception on the part of P was discovered. These observations and their interpretations were found to be consistent with prior observations and interpretations made by Mr. James Randi who tested P when she was 14 years old. The challenge of balancing: (1) the needs of the participant to reveal a potential subtle anomalous phenomena, versus (2) the scientific need to establish the possible mechanisms (normal or anomalous or both) involved, and (3) the ethical implications of potentially uncovering deception in research, are considered in this report.

A third experiment involving a graduate student (S) at the University of Arizona who served as the participant, plus preliminary data involving a 7-year-old child (C), highlight the possibility that practiced deception does not necessarily explain all reports of purported anomalous perception of the type investigated in this research. The data are consistent with the hypothesis that some sort of genuine anomalous phenomenon may exist, at least in a subset of sensitive individuals with integrity.

Experiment I – Exploratory

Participant

The participant (P) was a 17-year-old Asian-American female. It is claimed that when P was 9 years old, her mother discovered that P could accurately (purportedly 90 to 100%) read information hidden from sight within folded pieces of paper held by her fingers. P has subsequently participated in research in the Department of Electrical Engineering at the National Taiwan University for seven summers.

Stimuli

The senior author (GES) prepared the stimuli selected by computer. A random number computer program was used to select five letters from A to Z and five

numbers from 1 to 100. The program allowed for the possibility of selecting a given letter or number more than once. The computer's selections were hand written on pieces of paper approximately 1½ inches high by 4¼ inches long. The letters and numbers were written approximately 1 inch high using a blue ball point pen. The papers were first folded in half, and then folded 3 more times (to 1/6 the original length) in such a way that the writing could not be seen. The letters and numbers were randomly placed in the envelope. The envelope was sealed and signed by GES on the back flap. The sheets containing the computer printouts of the orders were placed in a separate envelope that was sealed and signed on the back flap.

The entire procedure for creating the stimuli was videotaped with a digital video camera. Only GES knew what the 5 possible letters and 5 possible numbers were. However, he did not know which letter or number would be picked on a given trial, except for the last trial. To rule out any possibility that GES was somehow providing subtle visual or auditory cues to P during the experiment (even though GES was blind to which stimulus was selected by L on trials 1–9), after the first five trials, GES left the room for trials 6 and 7. He was informed of P's accuracy when he returned to the room. For trials 8–10, P wore a blindfold to rule out possible subtle visual cues from GES. P was witnessed by at least 2 or more people during all ten trials.

Millivolt Recordings from the Hands

L attached a silver/silver chloride electrode below the thumb and index fingers of each hand. The electrode leads were connected to a digital volt meter and displayed as a continuous DC millivolt signal on a color laptop computer. L had discovered that when information was purportedly received by P on her mental "screen," a seemingly anomalous 30 millivolt "spike" was registered by the digital DC volt meter. Possible interpretations of this anomalous spike included a subtle movement of the electrode-contact made by P.

Experimental Procedure

P was seated behind a massage table so that her arms could comfortably rest on a flat surface. Her older brother sat three feet to her right. He provided the blank pieces of paper that P would use to write down her impressions. L sat in front of the table, also to P's right. The screen of the color laptop computer was visible to the digital video camera that faced both P and her brother; however, the laptop's screen could not be seen by P.

Most of the trials were witnessed by members of the visiting Chinese delegation. The maximum number of witnesses for a given trial was six. They sat along the back wall of the room, behind the video camera, facing the table.

P was told that 5 letter stimuli, from A to Z, and 5 number stimuli, from 1 to 100, had been selected by computer and written by GES on slips of paper and folded. She was told that only GES knew what had been written on the ten pieces

of folded paper, and that GES did not know which letters or numbers would be presented on a given trial (until the very last trial). Consequently, although P was not blind to what the range of possible stimuli could be, she was blind as to what the specific letters or numbers were and the order that they would be presented.

When the experiment began, L took the sealed and signed envelope that contained the folded stimuli, showed it to the camera, and then cut one side of the envelope so that he could remove a folded stimulus. The folded paper was shown to the camera, and then placed in a blue velvet cloth bag following the procedure used by P and L for seven years in most of their experiments conducted at National Taiwan University.

The bag procedure was not chosen by the authors of this paper. We would have preferred that a box or cloth shield be used to eliminate visual cues to P, and that both of P's hands be continuously visible to video cameras. However, P claimed that the bag helped her concentrate and it that also made her feel comfortable. L demonstrated that the bag was opaque to light. The bag was approximately 10 inches long, and had a drawstring that L tied just below her elbow. P purportedly held the paper in the fingers of her right hand, which was in the bag, and in the fingers of her left hand, which was visible. Her left hand purportedly felt the folded paper through the cloth bag.

P was observed to make various rubbing movements with her fingers. The bag sometimes slipped down her arm, and P pulled it up. P sometimes looked at the bag. These movements are described in some detail below. Typically, after a few minutes, it was observed that a voltage spike (approximately 25 times greater than the background DC noise) would appear on the laptop's screen. P would then request a pen, and she would write down what she ''saw on her internal screen.'' She would then wait for a while (from seconds to minutes), a voltage spike would eventually appear, and she would write down additional information. When she thought she had received all that she could receive, L asked her to please ''check her answer.'' P purportedly waited (seconds to minutes) to see if additional information would be received on her internal screen.

When she signaled that she was finished, L removed the bag. L showed the folded paper to the video camera. He then unfolded the paper in front of the camera, and compared what was written on the unfolded paper with what P had written on the blank paper. P received feedback on each trial concerning her degree of accuracy. This procedure was typically employed in China to maintain a playful, motivating, and learning atmosphere for P.

As was mentioned previously, after the first 5 trials, GES wanted to be assured that it was impossible that he was somehow unknowingly conveying subtle information to P. He therefore left the room for trials 6 and 7. Moreover, for trials 8–10, GES requested that P wear a leather blindfold so that she could not see either GES, L or the witnesses. P requested that she be allowed to wear the blindfold over her glasses. P claimed that the blindfold touching her skin might distract her, especially because her ''internal screen'' appeared near her eyes. Because the purpose of the blindfold was to make it impossible for P to see the

faces of the GES, L, and the witnesses sitting in front of her, and because the blindfold was large enough to cover her eye glasses, P's request to wear her glasses under the blindfold was granted.

Results

The data revealed that P obtained all 10 letters and numbers correct. She was confused whether one trial was an "L" or a "7"; however, she accurately reported the actual shape that had been written on the folded piece of paper.

Discussion

This exploratory study uncovered data that appeared to replicate the basic claims of P and the seven summers of observations reported by L at National Taiwan University. Though the original stimuli selected by the computer were known to GES, he was blind to the random order that these stimuli were subsequently selected by L and presented to P (except for the last trial).

The degree of accuracy demonstrated by P was clearly extraordinary. P claimed that reading simple letters and numbers was "child's play" for her. Both P and L claimed that P could read complex Chinese characters and even describe pictures. A series of studies conducted in China purportedly included using clear tape to seal the ends of the folded paper. Also, L claimed that research was conducted in his laboratory in China during which the folded pieces of paper were placed in 35 mm film canisters so that P could purportedly not make direct contact with the folded paper. However, these studies typically used the velvet bag.

L claimed that he has studied other children who also can perform these tasks; however, P was purportedly the most accurate of his participants. Moreover, L claimed that children aged 8–9 tended to do best at the task, and that most children lost the ability around puberty. P purportedly maintained her extraordinary performance into late adolescence. A non-anomalous interpretation of her sustained exceptional performance (practiced deception) is suggested by the findings of Experiment II.

P was invited back to the HESL for further research to attempt to replicate and extend the observations. Before proposing that anomalous perception was involved with P, we wanted to rule out: (1) any possibility of cues inadvertently coming from the experimenters, and (2) any possibility of deception (deliberate deception or self-deception) coming from P.

The experiment was designed to: (1) be double-blind, (2) use computer printed folded papers that were sealed on both ends with clear tape, (3) be witnessed by both senior scientists and skilled magicians, and (4) use a velvet screen rather than a velvet bag (so that her hands could be recorded by video cameras at all times).

After the exploratory study was conducted, we learned that P's family had a lawsuit against Mr. Randi, accusing him of slander when he publicly accused P of trickery after testing P in Japan when she was 14 years old. Randi was quoted

as saying that P was ''caught cheating, doing a simple conjuring trick that was revealed by the cameras''.

P claimed that she was typically able to perform well when she was comfortable and believed that she could do the task. However, she stated that stress and disbelief often distracted her attention from the subtle anomalous perception task. She accused Randi of creating stressful conditions and making false statements. It was possible that the outcome of previous and planned HESL research with P could be potentially used in her upcoming court proceedings. At the time of the confirmatory experiment, P shared that she was very stressed, and feared that she would not be able to perform the task using the velvet shield paradigm.

We reluctantly decided to allow her to continue to use her familiar and comfortable velvet bag in the confirmatory experiment; however, we explained that the folded stimuli would have to be securely taped at both ends. We explained that the tape must remain intact and be unaltered in order for the replication experiment to be potentially interpreted as reflecting anomalous perception. If any evidence indicated that the tape was surreptitiously removed and then re-attached in the velvet bag, the experimental design would be severely compromised and P's integrity questioned.

With the expert consultation of many members of the faculty of the University of Arizona, plus the scientific and magician witnesses who observed a pilot version of the confirmatory experiment, the actual confirmatory experiment was designed and implemented.

Experiment II – Confirmatory

Participant

The participant (P) was the same 17-year-old Asian-American female.

Stimuli

The stimuli were created by L.N. and Mr. James Robbins, a journalist who writes for the New York Times who happened to be visiting the HESL at the time that Experiment II was being performed. To establish a double-blind procedure, letters from A to Z, and numbers from 1 to 100, were printed at 48 font size on a laser printer at 600 dpi. The 8½ by 11 inch paper was cut into strips like Experiment I. Each piece of paper containing a letter or number was folded six times and sealed with two pieces of clear tape, each approximately 1 inch long and attached at each end, thereby sealing the folded stimulus. P reported that the clear tape distracted her when she felt the folded paper in the bag. Feeling the tape, she said, competed with her focusing her attention on the images printed inside the folded paper stimuli. To reduce her stress, she was allowed to advise us on how the clear tape might be attached to purportedly minimize her

distraction; however, she was not allowed to witness the creation of the actual stimuli. Moreover, the taping procedure that was used had to be approved by the scientific and magician witnesses, described below, who observed the experiment.

The 26 sealed folded letters were placed in an opaque plastic box purchased from a local hardware store. The 100 sealed folded numbers were placed in a second identical box. The boxes were individually shaken and then re-shaken at the time of stimuli selection. The entire procedure was videotaped.

The entire stimulus creation procedure was repeated twice, the first day for a pilot experiment where two magicians were present; the second day for the actual experiment where a third magician was present. The third magician was Mr. Andrew Harter, a representative from the Randi Foundation.

Ruling Out Hidden Transmitters

To rule out any possibility of miniature radio or video transmitters being used to somehow convey information to P, Mr. James Kroes (an experienced private investigator in Tucson who is also a professional magician) recommended that all computers and telephones be disconnected during the research. The HESL was electronically swept for possible hidden transmitters and also was monitored for possible transmissions during the actual research. No evidence of hidden transmission was observed; however, since the computers had to be disconnected, it was not possible to obtain DC voltage recordings from P's hands during Experiment II.

Experimental Procedures

Dr. Charles Geoffrion (CG), the Associate Dean of the College of Science at the University of Arizona (previously Senior Vice President for Research and Integrity Research Officer for the University), served as the primary senior scientist witness. CG personally selected the stimuli and oversaw the running of the experiment.

When the experiment was to begin, CG shook each of the boxes more than 30 times. He then randomly removed 5 sealed folded pieces of paper from the box containing the 26 letters and 5 sealed folded pieces of paper from the box containing the 100 letters. He inspected each stimulus to be sure it was both sealed and opaque to the information printed inside. He placed the 10 pieces of paper in a clear plastic jar which had a clear plastic cover. The jar was shaken numerous times to mix the stimuli.

The stimulus selection process was performed in front of other scientists, staff, colleagues, two magicians who witnessed the pilot experiment, and three magicians who witnessed the actual experiment. P's mother was also present for the actual experiment. The procedure was designed so that all of the witnesses would be blind to which stimuli had been randomly selected from the two opaque plastic boxes and subsequently mixed in the clear plastic jar.

P sat in an adjacent room behind a massage table. During the actual experiment, only the second author (LGR) sat in the room with P. LGR sat approximately three feet to the right of P. P and LGR did not witness the stimulus selection procedure and were therefore blind to precise details of the procedure and to the actual stimuli.

Three video cameras continuously recorded what transpired in the experimental room. One video camera was placed in front and to the left of both P and LGR. This camera monitored both P and LGR. A video monitor continuously displayed the output of this camera to the witnesses who sat in an adjacent room.

A second video camera was placed a few feet in front of P's hands. With a telephoto lens, it recorded P's hand movements. Following Randi's procedure, a third video camera (digital broadcast quality) was placed behind and near P's right shoulder. It recorded the movements of: (1) P's arms, (2) the velvet bag covering her right hand, and (3) her left hand.

The experimental procedures were pilot tested before the actual experiment was conducted, and some of the experimental procedures were revised as reported below. In the pilot experiment, after LGR read the instructions for the experiment, she removed a single sealed folded stimulus from an envelope that had been previously sealed by CG. She showed the sealed folded paper to the three cameras, placed the stimulus in the bag, and tied the bag around P's arm just below P's elbow. At the end of each trial she would remove the bag, show the sealed folded paper to the three cameras, and then open the sealed folded stimulus.

However, midway through the pilot experiment it was decided that each stimulus needed to be examined closely by each of the witnesses: (1) before it was given to P, and (2) after P had written down her answers and before the stimulus was unsealed. Therefore the experimental procedure was changed so that CG selected the stimuli from the witness room. He would personally bring each stimulus into the room, and then personally retrieve each stimulus when P had concluded that she had her answer.

In the actual confirmatory study, CG selected one of the sealed folded stimuli from the jar (Step 1), the witnesses examined the stimulus (Step 2), and CG brought the stimulus into the experimental room and placed it in the bag (Step 3). LGR then attached the velvet bag and tied it just below the elbow (Step 4). LGR watched the bag and when it appeared to her to be loosening (Step 5). A clipboard held a sheet of paper that P could write on as she purportedly received information (Step 6). When P was finished, CG returned to the room and retrieved the sealed folded stimulus from the bag removed by LGR (Step 7). CG brought the sealed stimulus back to the witness room (Step 8) where it was examined closely (Step 9) before it was opened by CG (Step 10). The stimulus was then carefully reexamined by the witnesses (Step 11). Individual witnesses chose how many times they personally examined each of the stimuli.

During the pilot experiment, the third author (LN) detected that blue lint from inside the bag was found under both pieces of tape (i.e., on the sticky

surface of the tape). He was concerned that P might have secretly removed the tape in the bag, unfolded and then refolded the paper, and finally resealed the tape.

After the pilot experiment was completed (5 sealed stimulus trials were run, the last 3 trials yielded completely correct answers), LN told GES his growing suspicion. GES suggested that LN keep this observation quiet so that we would determine empirically if the suspicious lint would be observed and replicated during the actual experiment. Hence, LN's discussion with GES was not communicated to P, LGR, or any of the witnesses until after the experiment was stopped.

Results

Examining the Stimuli

After each trial, GES and LN carefully examined the taped stimulus before the stimulus was opened by CG. CG provided a pocket magnifying glass with a flash light. Careful examination of the unsealed clear tape revealed that each and every stimulus removed from the bag contained evidence of blue lint on the sticky side of tape. Both pieces of the tape contained clear evidence of pieces of lint on the sticky side. During the pilot study, P told LGR that the tape sometimes might be coming off. Also, during the actual confirmatory study in two of the first 5 trials, P reported that one of the pieces of tape had come off. P asked if we wished to come in and reseal the tape. The witnesses and LGR (LGR did not share her growing suspicions with P) were aware that one possible interpretation of P's reporting the unsealed tape was that P had already deliberately unsealed, unfolded, and refolded the taped stimulus, and that P was having difficulty resealing one of the tapes.

We did not substitute new stimuli, or void these trials, since P's performance was clearly suspect, and we wished to keep P blind to the witnesses' growing suspicions. Without sharing with P or LGR the suspicions of the witnesses concerning the lint, CG and LN went into the room and placed new tape on the folded stimulus.

The experiment was aborted after 5 trials. P was informed that the experiment had been rendered inconclusive because the safeguards that had been carefully employed to eliminate possible interpretations of deception by P were no longer viable. The replicable observation of blue lint on the sticky side of both pieces of tape could readily be interpreted as deliberate removal of the tape by P so that the paper could be unfolded and refolded in the bag.

Since the observations of perceptual accuracy were open to the interpretation of deception, P's performance during both the pilot and confirmatory studies (approximately 60% accurate) became moot.

GES and LGR explained to P and her mother that the experiment was severely compromised by the observation of lint on both tapes of each of the 10 stimuli

that had been placed in the cloth bag for the pilot and actual confirmatory experiments combined. It was explained to P and her mother that P would have to take part in a subsequent experiment that: (1) made it impossible for P to visually see her hands and arms at all times, and (2) made it possible for video cameras to observe the folded stimuli in her hands at all times (this was the original procedure we had designed). We explained that such a procedure was simple to implement, and P could practice it at home. We also explained that it did not require clear tape that purportedly distracted P.

After the experiment had been conducted and Mr. Andrew Harter, a magician from the Randi Foundation who witnessed the confirmatory experiment, had returned to Florida, Mr. Harter claimed that Mr. Randi purportedly observed similar evidence of lint on the sticky side of the tape when P had tested in Japan.

Examining the Video Tapes of Experiments I and II

A few days later, GES carefully watched, in slow motion (including frame by frame when necessary) all of the footage recorded by the digital video camera in Experiment II that was placed to the right of P's shoulder. Careful examination of the tapes revealed a pattern of observations that were consistent with the interpretation of practiced deception by P.

After the suspicious pattern was discovered in Experiment II, GES carefully watched, in slow motion (including frame by frame when necessary) all the footage recorded by a digital video camera obtained in Experiment I as well. The patterned sequence of behavior was replicated.

The general pattern of behavior described below was observed to various degrees on each of the twenty trials observed in Experiments I and II combined.

When a trial began, P's hand would appear as if it was completely in the bag, and P's visible hand would be near the bottom of the bag (furthest from her elbow and the tie). Her visible hand would show thumb and index pinching movements as if she was holding the folded paper with both hands.

P would typically pull down her sleeve. This resulted in the tie loosening and the bag slipping down her arm a bit.

P's visible hand would then begin to move up the bag, always passing the middle of the bag, and sometimes even reaching the tie. The bag would be observed to be moving in the middle. To a naïve witness, it appeared as if she was holding the paper in the bag; however, it was also possible that the paper was secretly being unsealed and unfolded in the bag, and her visible hand was helping to move the bag down so that her right hand would then be close to the loose tie of the bag. Left hand movements could be interpreted as having propped up the now hypothesized mostly empty bag.

P would be observed to lean back, move her head, watching the tie of the bag. Sometimes she would literally rest her head on her arms. The shoulder camera often revealed evidence of her pulling her arm one to three inches out of the bag, exposing more and more skin. During Experiment I, on the three blindfolded trials, it was observed that the blindfold was adjusted by P to be off center, and P

appeared to be looking underneath the blindfold at her right arm. Steps 3 and 4 sometimes occurred in just a few seconds.

A jerking motion would then be observed as P pulled the loosening tie up her arm with her left hand. The movement was quick, as if she was attempted to keep the bag up her arm. However, her left hand now returned close to the bottom of the bag. It seemed to hold the bag for a while.

Her left hand would remain at the bottom of the bag for a minute or so, and it would begin to show apparent pressing movements. In Experiment II, the shoulder camera revealed observations suggestive of strong thumb-index finger pressing movements (muscle bulging was apparent). The observations could be interpreted either that: (1) she was trying to sense the information inside the folded pieces of paper (the non-deception interpretation), or that (2) she was re-pressing the folded paper (Experiments 1 and II), and resealing the tape (Experiment II) (the practiced deception interpretation).

After a few minutes, the voltage surge would occur (Experiment I) and she would write something on the piece of paper. A slight jerk of the bag was observed during many of the voltage surges (a possible deliberate movement "artifact").

Her left hand was always at the bottom of the bag when the bag was removed.

Discussion

The observation of blue lint under the sticky side of both pieces of tape implied that the tape was deliberately unsealed and resealed in the bag. P claimed that the tape sometimes came off. However, she did not volunteer that both pieces of tape came off on every trial (despite the evidence, P claimed the contrary). Also, the lint was found to occur primarily on the sticky side of the folded paper; the simplest interpretation was that the tape was deliberately unsealed by P so that the paper could be unfolded and refolded in the bag.

Close analysis of the videos revealed a pattern of observations that showed how practiced deception could have been operating. The observations of: (1) P's left hand moving up the bag, (2) the tie moving down, (3) the skin on her arm becoming visible for a few seconds, (4) the bag being propped up, (5) her eye gaze and head movements pointed toward her right arm, (6) the regular pulling up of the bag, and (7) the returning her left hand to the bottom of the bag, all (8) followed by prolonged apparent pressing movements at the bottom of the bag before writing any answers, are consistent with an interpretation of practiced deception by P.

Experiment II was carefully designed to potentially detect such observations. Although the authors of this report did not expect that suspicious observations would be discovered (Randi had not shared the details of his theory with us), the experiment was carefully designed to allow such observations to be revealed. At the time that Experiment II was designed, run, and analyzed, L had not been contacted about the possible interpretation of practiced deception by P. However, the above findings do not necessarily imply that all cases of anomalous

perception reported in the literature involve practiced deception. When L was at the HESL, he demonstrated to the authors how this purported anomalous perception task could be taught to children. In China it is claimed that children aged 8 or 9 tend to be most successful, and that children typically lose their skill by age 13. P was considered to be an exception to this general observation.

During the time period between Experiments I and II, a 25-year-old male graduate student (S) at the University of Arizona practiced 6 sets of 33 trials each, using the procedure taught by Dr. L. Also, a 7-year-old boy (C) practiced 15 trials, 10 from his mother and 5 from his grandmother. Their data are reported in Experiment III.

Experiment III was exploratory; its purpose was to determine the feasibility of testing for anomalous perception in open-minded participants. The findings are included to point out that evidence of practiced deception in a purportedly "gifted" individual does not necessarily eliminate the possibility of anomalous perception in motivated participants.

Experiment III

Participants

The primary participant was a 25-year-old male graduate student (S) in the Department of Psychology at the University of Arizona. The second participant was a 7-year-old boy (C) whose mother had been a graduate student in the Department of Psychology at the University of Arizona. Both participants believed in the possibility of anomalous perception, and were motivated to determine if they could learn the purported skill.

Stimuli

Following the training procedures used in China, the numbers from 10 to 99 were written on individual pieces of paper, folded as in the previous experiments, and placed in a box. Prior to a given session, the stimuli were shaken. Stimuli were removed, held in both hands, and impressions were recorded. Note that no velvet bags were used.

S reported that he performed all trials with his eyes closed. However, this was not required. The only requirement was that the stimuli remain completely folded during the trials. S claimed that this was always the case.

Both participants believed that they were attempting to develop a possible genuine anomalous perception skill, and they were completely aware of the need to remove any possibility of deliberate deception or self-deception. The practice sessions were not videotaped; however, the child's behavior and performance were observed by his mother, a research psychologist with a Masters degree in cognitive psychology, and his grandmother, a distinguished professor at the University of Arizona. At no time was the child observed attempting to unfold

the stimuli. The purpose here was not to conduct a controlled experiment but rather to uncover whether a possible genuine phenomenon existed that deserved systematic investigation under controlled, videotaped conditions.

S conducted 6 sessions. Each session contained 33 trials, for a total of 198 trials. C was tested for 4 brief sessions, 3 with his mother, 1 with his grandmother, for a total of 15 trials. Because C's data replicate and extend the percent accuracy scores observed by S (C's were higher), and because C's data were witnessed independently by two individuals with scientific integrity, his data are included in this report.

Results—S

Each trial contained 2 numbers. The first number could be 1–9, the second number could be 0–9. The probability of getting the first number correct was 1 in 9; the probability of getting the second number correct was 1 in 10. To underestimate the actual probabilities, we chose the expected for all numbers to be 1 in 9, or 11%.

A session contained 33 trials for a total of 66 numbers. The expected number of correct numbers obtained by chance would be 11% of 66, or 7.26. The results for S, separately for each session, are displayed in Figure 1.

It is apparent that S consistently obtained a greater number of correct detections than would be expected by chance. His average percentage correct was 21% compared to 11% expected by chance.

S's performance did not improve over sessions; the data did not indicate a learning curve. On the contrary, the data indicate that S's performance declined over sessions. If S was developing skill in remembering which numbers were associated with which pieces of paper, for example (a possible conventional interpretation), his performance would be expected to improve over time. The data are consistent with a possible boredom effect superimposed on an anomalous perception effect (Nelson and Schwartz, in press).

Results—C

The percentage accuracy for C (31%) was similar to, although somewhat higher than, the percentage accuracy for S (21%). Interestingly, C's performance was higher for the last 5 trials with his grandmother (60%) compared with the first 10 trials with his mother (27%). Both sets were higher than the 11% expected to occur by chance; however, the grandmother's series used only 1 number per trial as well as 4 possible colors per trial. It is interesting that S not only obtained 60% of the numbers correct (chance would be 11%), he also obtained 80% of the colors correct (chance would be 25%).

Discussion

The data for S and C are consistent with the hypothesis that the interpretation of practiced deception may not necessarily apply to every case of purported

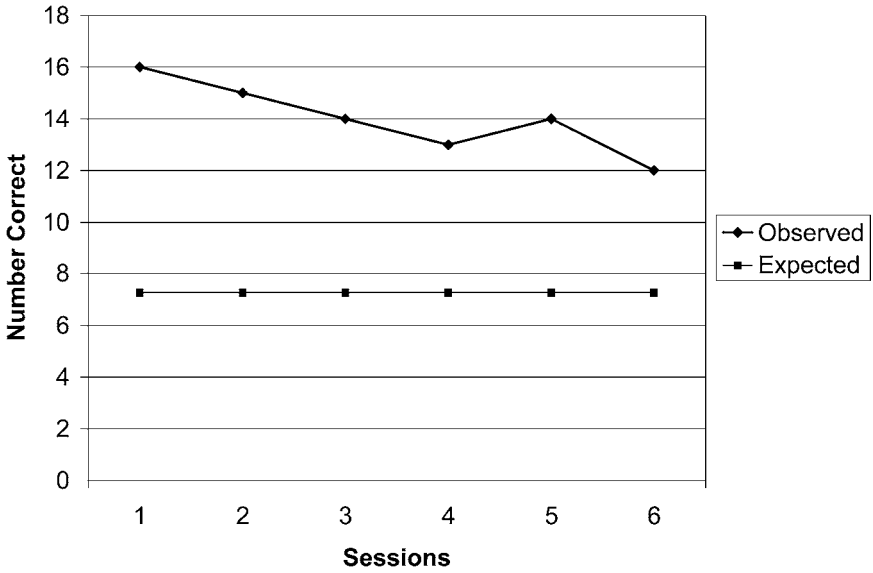

Fig. 1. Observed number of correct perceptions compared with expected by chance.

anomalous perception using the folded-paper task. However, it is clear that the degree of accuracy in these observations is substantially less than was observed for P.

The present set of findings raise questions concerning research in anomalous perception as well as compassion for individuals, especially adolescents, who may be led to engage in practiced deception in order to please parents, scientists, and the culture at large. It is possible that P may have had a talent for anomalous perception as a child. She may felt substantial social pressure to perform at such a high level that she ultimately came to practice deception in order to produce extraordinary results on command.

It is important to recognize that the present observations do not establish definitively that P was engaged in practiced deception; however, the observations obtained with P can clearly be interpreted as evidence of practiced deception. The deception interpretation is the more conservative (and probably likely) interpretation of the data collected in both Experiments I and II.

In 1981, Krippner, accompanied by a team of graduate students and scientists, went to China to witness purported ''extraordinary human functions'' (EHF) in select children. In one test with a group of children, Krippner (1991) wrote:

''They were more successful on uncontrolled tests. The number '16' was written (in Chinese) on paper, folded, and presented to a child who—after considerable effort—identified it correctly. They even identified the colors in which the numerals had been written (e.g., 'blue 5,' 'black 28').

"At this point, I drew a design and folded the paper in a somewhat unorthodox fashion. The child seemed to place the paper under her armpit, went through considerable gyrations, which included placing her hands in front of her eyes, and eventually identified the design correctly. But when the paper was returned, I noticed that it had been unfolded and incorrectly refolded."

Krippner noted "I did my best to explain to our hosts that such behavior was injurious to their cause . . .. Our group was unable to render a positive verdict on the question of China's EHF children."

The same conclusion applies to the present observations in Experiments I and II; however, the data obtained in Experiment III with S and C are consistent with the hypothesis that anomalous perception can sometimes occur, at least in a subset of highly motivated and sensitive individuals. Both S and C are gifted in terms of intelligence and creativity. They are both open to the possibility of anomalous phenomena.

S is a Ph.D. candidate in the Department of Psychology at the University of Arizona who is a serious and rigorous scientist. C is the son of a former graduate student in cognitive psychology whose parents are both academics and who appreciates the need for integrity in science. One challenge for future research is to select individuals with known integrity to participate in research. In addition, future research must integrate the skills of scientists and magicians.

To foster such collaboration, the HESL has adopted the following motto: "If it is real, it will be revealed; if it is fake, we'll find the mistake." The HESL has adopted an "integrity action pledge"—a document that specifies HESL's position on integrity in hypothesis generation, hypothesis testing, data collection, and data interpretation—that is read, understood, and signed by all researchers, staff, students, consultants, media, and individuals claiming exceptional abilities. In the same way that HESL will defend controversial findings if the data collected under controlled circumstances are positive, the HESL will expose suspicious findings if the data collected under controlled circumstances suggest deception (unintentional or intentional). Toward this end, the HESL has developed a Magician's Advisory Committee to foster collaboration so that observations can be made under controlled circumstances, and that interpretations of the data can be made carefully and ethically.

Notes

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