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RESEARCH

Objective Analyses of Reported Real-Time Audio Instrumental Transcommunication and Matched Control Sessions: A Pilot Study

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Abstract—This study asked: Can the presence of instrumental transcommunication (ITC) be objectively detected in sessions collected by an experienced operator using EVPMaker software producing a random stream of allophones (short speech elements)? Several aspects of ten Active Sessions were examined: (1) the distribution of the allophones generated; (2) independent, blinded listening panel interpretations of session samples; (3) content analysis of questions posed by the operator and her perceived responses; and (4) automated interpretation of session samples using speech recognition software (SRS). For analyses (1) and (2), 10 ITC-free Control Sessions collected by the investigators were used for comparison, and it was determined that no differences existed between the Active and Control Sessions regarding: (a) the allophones present and (b) the proportions of participants who recognized words in the samples. Analysis (3) revealed that the responses perceived by the operator did not consistently contain information that logically matched her questions, and analysis (4) demonstrated that SRS was unable to detect the phrases perceived by the operator. Future studies may wish to focus on the psychology and motivation of ITC operators; the impact of the perceived communication; and the potentially psi-conducive effects of using EVPMaker to acquire veridical information.

Keywords: electronic voice phenomena—instrumental transcommunication—EVP—ITC—speech recognition software—listening panel

Introduction

In the quest to detect and communicate with deceased individuals (called discarnates), a wide range of tools and devices have been developed. The earliest forms of spirit communication ranged from the use of hallucinogens to achieve a communication-conducive altered state of consciousness to simple tools such as the planchette which moved a writing instrument across paper when touched by the fingertips of operators. As technology has advanced, so has the sophistication and complexity of these communication devices. Today, the use of different technologies to facilitate discarnate communication and interaction is known as instrumental transcommunication (ITC).

ITC has been defined as "communication beyond (trans) our known reality through instruments or technical devices" (Cardoso, 2003:1). Specifically, ITC is the process of capturing the voices, images, or other aspects of ethereal entities (be they discarnates or other non-corporal entities) through the use of different technologies. Unlike the more traditional methods used to capture electronic voice phenomena (EVP) in which voices are said to appear on recordings when no voices were heard while the recording was being made, some ITC techniques allow for immediate feedback which may facilitate real-time communication. (For a thorough discussion of the history of EVP and ITC, see Barušs, 2001, Butler & Butler, 2004, Fontana, 2005, Laszlo, 2008.)

ITC research to date has been criticized because 1) conversations may not be collected under controlled conditions by independent observers and 2) full details of experimental protocols may not be provided (e.g., Fontana, 2005:380). The current study was designed to address both of these concerns and focused on a relatively new ITC method which uses EVPMaker, a free software program developed and distributed by Stephan Bion (2010a). The software loads a digital audio file into a buffer in the computer's memory and then plays back randomly ordered short segments of the file.

Originally, EVPMaker software was used as a random source of background noise when recording for traditional EVP. More recently, EVPMaker operators have begun loading the software with a specially created audio file that contains 72 allophones (short speech elements) digitally generated by a SpeakJet voice and sound synthesizer chip (Magnevation, Capshaw, AL, http://www.magnevation.com/SpeakJet.swf) to generate "a robotic-like random voice" (Bion, 2010b). EVPMaker operators have claimed that they can hear meaningful, real-time responses in the EVPMaker output to questions that they ask aloud when using this EVPMaker plus SpeakJet Allophone File configuration (e.g., Downey, 2010). Unlike previous ITC collection methods in which software was not used, sessions using this configuration provide a new opportunity for objective scientific analysis of communication because (1) real-time communication is experienced, (2) EVPMaker output files can be statistically analyzed, and (3) the voice produced during EVPMaker sessions is consistent, allowing for objective analysis with voice recognition software. In an attempt to objectively test for the presence of ITC in this scenario, the present study analyzed real-time ITC sessions recorded by an experienced EVPMaker operator (described in more detail in Materials and Methods, in the Operator section) in which the operator-claimed contact with an external entity was established and conversations took place.

Recording a Typical EVPMaker + SpeakJet Allophone ITC Session

In her practice, the operator who participated in this study normally utilizes two computers to record ITC sessions. The first computer runs the EVPMaker software which has been loaded with the SpeakJet allophone audio file to produce a stream of randomly selected allophones heard through the computer's speakers. The second computer is used to audio record the session (including the output from EVPMaker and the questions or comments she utters aloud) from the computer's microphone. During the session, the operator may perceive recognizable words or phrases (which we call *utterances*) being "spoken" by the contacted entity in the EVPMaker output.

Problems with This Method and the Need for Additional Controls. From a research perspective, this ITC recording method requires more controls to ensure that the operator 1) is consistently following the recording method and 2) is not tampering with the data. To address these issues, the investigators developed and pre-tested a dedicated computer system referred to as a Standardized Data Collection Platform (SDCP) which the operator used while recording sessions for this study. The SDCP incorporated stealth security and system auditing features which allowed investigators to verify that recording protocols had been followed and to ensure that the integrity of the data for each recording session had not been compromised (a detailed discussion of the SDCP is included below).

Optimizing Data Collection

As has been previously noted, "negative results from a study using methods that did not appropriately optimize the experimental environment and positive results from a study that did not maximize all possible controls are equally ineffective in establishing new scientific knowledge" (Beischel, 2007/2008:40). In addition to the implemented controls listed above, the investigators incorporated the following elements in order to ensure that the current study provided the most favorable conditions for ITC to occur:

1) The investigators did not attempt to conduct and record ITC sessions on their own. The experimental sessions were recorded by an experienced operator who was allowed to record the ITC session in her "natural environment" without direct oversight or supervision.

2) The operator was allowed to conduct as many ITC sessions as she wished with no specific end date given. Her instructions were to (a) provide the investigators with 10 sessions (referred to as Active Sessions) in which she believed that ITC occurred and (b) provide the investigators with the files (e.g., EVPMaker output files, audio recordings, and her transcripts of the sessions) from all collected sessions, even those which did not contain ITC.

3) The investigators gave no instructions as to how the ITC sessions should proceed. Before data collection began, the operator explained that her sessions are conversational in style; that is she asks a question, waits for a response, and then asks a new or follow-up question or responds to an utterance she hears in the EVPMaker output stream. In order not to impose any artificial restrictions on the process, the investigators gave no instructions to the operator as to (a) how these conversations should be structured, (b) what types of questions should be asked, or (c) what information (i.e. veridical or non-veridical) should be acquired during the sessions. The operator was simply to follow her own process and let the conversations unfold as they would in any session she would normally record.

Objectively Testing for the Presence of ITC

It is an implicit assumption in ITC research that the recognizable utterances recorded during an ITC session are the result of some type of external influence on the recording system. The source of this influence is assumed to be an external entity such as a discarnate or other ethereal entity. Alternative explanations include mind–machine interaction (e.g., Radin & Utts, 1989) between the operator and the ITC technology being used (which in this case is EVPMaker), random chance, and pareidolia (the tendency to interpret vague or random stimuli as meaningful) (e.g., Zusne & Jones, 1989, Banks, 2001). Thus, the research question for this study asked:

> *Can the presence of ITC be objectively detected in real-time ITC sessions recorded by an experienced EVPMaker operator in which the operator claims successful contact with an external entity has occurred?*

In order to objectively determine the existence of ITC in the Active EVPMaker Sessions collected by the operator while addressing the alternative explanations listed above, the investigators subjected the Active Sessions to the following analyses:

1. Statistical Analyses of Allophones. It was hypothesized that if external influence (regardless of source) was affecting the Active Sessions collected by the operator, the frequency, number, and distribution of the allophones generated by EVPMaker (which should be a random process) would deviate from chance expectation.

2. Blinded Listening Panel with Randomized Matched Controls. It was hypothesized that issues of pareidolia might be addressed by comparing blinded participants' interpretations of the utterances from Active Sessions to samples of the EVPMaker output from Control Sessions in which no operator was present.

3. Content Analysis of Operator Questions and Perceived Responses. It was hypothesized that should ITC occur, utterances identified by the operator in the Active Sessions might be meaningful when reviewed in the context of the questions she posed.

4. Automated Interpretation of Utterances Using Speech Recognition Software. It was hypothesized that issues of pareidolia could further be addressed by removing the human element from the process of identifying and interpreting utterances. Because the EVPMaker output in this study always uses the same "voice" produced by the SpeakJet chip, speech recognition software could be trained to recognize the SpeakJet voice and analyze utterances in the Active Sessions.

Materials and Methods

The philosophy behind the protocol development for this study emphasized the need for off-the-shelf, readily accessible materials and software so that the study could be easily replicated by other researchers.

Operator

The operator in this study was recommended by the granting organization, the Association TransCommunication (ATransC) [formerly the American Association of Electronic Voice Phenomena (AA-EVP)]. She is an ATransC Certified Proxy Practitioner, defined by ATransC as a member or practitioner who has "demonstrated the ability and willingness to attempt contact with loved ones [on] behalf of others" (ATransC, 2010). Other qualifications defined by ATransC include "at least four successful contacts via EVP [on] behalf of sitters which have resulted in a letter of testimonial indicating that the sitter correctly heard the EVP and expressed thanks to the practitioner" and an "understanding of the characteristics of EVP and ability to distinguish false positive results" (ATransC, 2010). The operator is considered by ATransC to be an expert in the collection and interpretation of ITC real-time communication sessions using the EVPMaker plus SpeakJet Allophone File configuration. Further information about the operator is not included here in order to protect her privacy and for confidentiality.

EVPMaker Software

EVPMaker version 2.2 (http://www.stefanbion.de/evpmaker/evpminst.exe) was loaded with the SpeakJet Allophone audio file (http://www.tonbandstimmen.de/files/speakjet/SpeakJetAllophones.wav) as the audio source. "EVPMaker . . . divides any recording of speech into short segments and then plays them back continuously in random order. The resulting 'gibberish' still sounds like speech, but can't be understood anymore" (Bion, 2010a).

SpeakJet Activity Board and Software

The SpeakJet Activity Center (SAC) (Magnevation, Capshaw, AL, http://www.magnevation.com/descriptionactivitycenter.htm) is a self-contained development board which connects to a computer via its RS232 port and can be sent command codes to generate groups of allophones (i.e. to produce audible words). Magnevation Phrase Translator software version 1.14 was used to manage communication between the host computer and the SAC and to send command codes to the SpeakJet chip.

Audacity Software

Audacity (http://audacity.sourceforge.net/) is free, open-source audio recording and editing software. Audacity was used in this study to isolate session samples for use in the listening panel (described below) and speech recognition software analyses.

Speech Recognition Software

Dragon NaturallySpeaking version 9 Preferred Speech Recognition Software (Nuance Communications, Burlington, MA, http://www.nuance.com/naturallyspeaking/) was used to analyze the EVPMaker output. This package reports 99% accuracy, has a vocabulary of more than 300,000 words, requires minimal training, and was specifically designed to import and transcribe audio WAV files, the file type produced by EVPMaker.

The Standardized Data Collection Platform (SDCP)

The Standardized Data Collection Platform (SDCP) was used to collect experimental EVPMaker sessions and save the session files in a controlled and secure environment. The SDCP consisted of an ultra-portable Eee PC 900 laptop computer (ASUS, Fremont, CA, http://usa.asus.com) fitted with a 320 GB Passport portable USB hard drive (Western Digital, Lake Forest, CA, http://www.wdc.com/en/). The only application software installed after purchase was EVPMaker version 2.2 and the SpeakJet allophone data file. The SDCP was hand-delivered to the operator's home by an investigator (author MB) at the start of data collection. After the system was installed and the operator trained in its use, the operator conducted a test session with the investigator present. According to the operator, communication was possible using the SDCP.

SDCP Security Software. One of the criticisms aimed at previous ITC research calls attention to potential tampering of the source material so that it produces the desired result. This was especially of concern in this study given that the data were collected at the operator's home without direct observation or supervision by the investigators. To ensure the integrity of the data, the SDCP was equipped with Spector Pro version 6.0 software (SpectorSoft, Vero Beach, FL, http://www.spectorsoft.com) to track keystrokes and system events (e.g., mouse clicks, file reads/writes) which ensured that the files on the SDCP were not altered and that recording protocols were followed; that is to guard against fraud and user error. During the study, only the investigators were aware of the type of security software installed on the SDCP. Additionally, the wireless Internet transceiver on the system was disabled to prevent the SDCP from being connected to the Internet during data collection. Finally, comparisons were made between the files saved on the SDCP and those mailed to the investigators by the operator (described below).

Collecting the Control ITC Sessions

Prior to collection of Active Sessions by the operator (described below), Control Sessions in which no operator was present were collected using the SDCP. Control Sessions were collected first in case the SDCP was damaged during the collection of the Active Sessions (e.g., in transit to/from the operator). In addition, concern was expressed by the granting organization that it might not be possible to collect true Control Sessions after the operator had used the SDCP. It was theorized that once the operator had established a communication link, the SDCP would continue to act as an “active station” which would continue to receive communication even in the absence of the operator, thus contaminating any future sessions.

Procedure. The first author (MB) collected 10 EVPMaker Control Sessions on the SDCP. EVPMaker software settings were configured to match those used by the operator in her ITC recording sessions (e.g., each session was three minutes in length, and the pseudo-random number generator function in EVPMaker was used). It is important to note that the SDCP speakers were turned off during the collection of the Control Sessions, and the investigator did not hear the sessions as they were recorded. In addition, those sessions have never been and will never be heard in their entirety by any person. These precautions were taken in an attempt to discourage potential ITC from occurring in the Control Sessions. The 10 original control files were removed from the SDCP external hard drive prior to its being delivered to the operator.

Collecting the Active Sessions with the Operator

Procedure. When recording each three-minute conversation, the operator used her personal computer to record the EVPMaker audio output and her spoken questions and commentary while a second computer (the SDCP) produced and saved the EVPMaker output. All the sessions attempted by the operator were reported to contain two-way ITC conversations. After each conversation was recorded, the operator copied the EVPMaker session file from the SDCP to one of eleven flash drives supplied by the investigators and returned it by mail to the investigators; a backup copy of the file was saved on the SDCP. Using audio editing software on her personal computer, the operator also created an edited version of the conversation session that highlighted the sections in which she identified recognizable words and phrases (utterances). She also created a transcript of the conversation. The operator then emailed to the investigators (a) the raw, unedited recording of the session; (b) the edited recording of the session; and (c) a transcript of the conversation. After the data from the last conversation was sent, an investigator (MB) returned to the operator's home to retrieve the SDCP.

Security Review. Once the SDCP was back in the possession of the investigators, the security logs of the SDCP were reviewed for possible security violations. Output from the security software was compared to the protocol provided to the operator to ensure it was properly followed. In addition, system events logged by the security software were reviewed to ensure that no file or hardware tampering occurred. Other analyses performed to ensure consistency between the files saved on the SDCP and the files provided by the operator via email and on the flash drives included:

1. A comparison of the Active Session EVPMaker files saved by the operator on the SDCP and the copies sent to the investigators via US mail,
2. A comparison of the Active Session EVPMaker files and their associated unedited recorded audio files,
3. A comparison of the transcript files to the recorded audio files, and
4. A comparison of the unedited audio recordings and the edited audio recordings.

From these analyses, it was concluded that tampering with the data was highly unlikely and that the probability of fraud being involved in the collection of the Active Sessions by the operator was extremely low.

Analyses and Results

Allophones Generated in the Active Sessions

To compare the Active Sessions collected by the operator to the Control Sessions collected by the investigators, the following were examined: (a) the frequency of each allophone (including an additional non-audio–based control comparison), (b) the total number of allophones, and (c) the ranking of allophones compared to the ten most common sounds in English speech. These analyses are discussed in turn below. Data are reported as mean ± standard error of the mean (SEM).

Allophone Frequency. The first analysis assessed potential differences in the distribution of the 72 possible allophones in the Active and Control Sessions. It was hypothesized that if communication involving English words was present in the Active Sessions, certain allophones might be present more or less often than in the Control Sessions. To address this, the raw output from the original EVPMaker files was examined and the percent frequency of each allophone in each session was determined. The mean frequencies for each of the 72 allophones in the Active and Control Sessions were then compared by performing 72 t-tests (paired, two-tailed, $\alpha = 0.05$), one for each allophone. Due to the large number of analyses, a Bonferroni correction for multiple comparisons was performed and resulted in a new level of significance of 0.0007. At this new α, none of the differences in the frequencies of the 72 allophones reached significance.

Non-Audio–Based Isolated Controls. In order to test for the presence of external influence in the Control Sessions, a concern of the granting organization, a second set of control files was created without using EVPMaker. This employed a custom software tool developed by the first author (MB) that mimicked the random stream produced by EVPMaker but abstracted the output in such a way that it would discourage potential ITC. The software randomly generated numbers between 0 and 71 to mimic the output of the 72 allophones in EVPMaker. For example, the software tool would generate a number, say 23, and add one to a tally of the number of times 23 was generated. Thus, the stream of the numbers generated was never collected, only the tallies of how many times each number was generated; the order of the numbers (and their associated allophones) could never be reproduced. The software also randomly chose the total number of generated data points (i.e. tallied numbers) from values between the smallest and largest allophone counts in the 10 EVPMaker Control Sessions. This protocol was run a total of 10 times. For the analysis, the tallies of these “simulated allophones” were compared to the total number of allophones in a “session” to determine the percent frequency of each allophone in each session. The mean frequencies for each of the 72 allophones in the Control and these Isolated (or fabricated) Control Sessions were then compared by performing 72 t-tests (paired, two-tailed, Bonferroni corrected $\alpha = 0.0007$), one for each allophone. These analyses demonstrate that there were no differences in the frequency of the 72 allophones when comparing the Isolated Control Sessions and the “regular” Control Sessions. It was thus concluded that the “regular” Control Sessions most likely were not contaminated with ITC.

Total Number of Allophones. The next analysis addressed the hypothesis that if external forces (e.g., entity communication or investigator or participant conscious or unconscious intention) had influenced the output of the Active

Sessions, that may have caused alterations in the number of allophones present in the Active samples in comparison to the Controls (e.g., by "pushing" more allophones into a session or choosing more of the allophones that take longer to "pronounce," etc.). To compare the mean number of total allophones per 3-minute session, a t-test (paired, two-tailed, $\alpha = 0.05$) was performed. The mean number of allophones did not differ between the Active (1,676 ± 7) and Control (1,670 ± 3) samples ($p = 0.38$).

Frequency of Allophones Compared to Common English Sounds. Also examined was whether the most common sounds in the English language appeared more frequently in the Active Sessions than in the Controls. The sounds ranked 1–10 in USA English are: *n* (as in *net*), *t* (as in *tip*), *i* (as in *in*), *u* (as in *up*), *s* (as in *sin*), *d* (as in *did*), *ee* (as in *eel*), *ie* (as in *pie*), *l* (as in *lift*), and *a* (as in *and*) (Zurinskas, 2004:10). The mean rank for these 10 sounds in the Active Sessions was 32 and was 28 for the Control Sessions. The frequency with which each of the top 10 English sounds was found in the Active and Control Sessions did not differ ($p = 0.69$).

Blinded On-Line Listening Panel with Randomized Matched Controls

Listening Panel Participants. Participants for the listening panel were recruited through the Windbridge Institute website, the AA-EVP *NewsJournal*, and the Forever Family Foundation *Signs of Life* Internet radio program; the recruitment information was then reposted on other websites featuring similar topics. Potential participants were instructed to submit their email addresses on a specific page on the Windbridge Institute website. A total of 275 email addresses were collected. When the study began, each potential participant received a personal email from the investigators with information on how to access the online survey (described below). A total of 132 surveys were collected. Of these, 98 contained usable data. Participants were removed if they did not provide complete data, if they did not answer an item regarding their primary spoken language, or if they indicated that American English was not their primary spoken language. The participants in this study ranged in age from 21 to 76 years (45.6 ± 1.3) and included 69 females (70%) and 29 males (30%). To ensure that all participants had the proper computer hardware and software to complete the online listening panel survey, they were asked to listen to a test audio sample and confirm that the sample played without problems before proceeding.

Listening Panel Method. One of the methods employed by EVP researchers in an attempt to establish objectivity in the interpretation of words and phrases captured during EVP recording sessions is the use of a listening panel (e.g., Butler, 2010). The core listening panel method usually involves a group of experienced individuals coming to consensus regarding the interpretation of a short section of recorded EVP. Listening panel participants are then presented with the recording and asked to report any words that they recognize. The participant responses are then compared to the group's initial interpretation and the percentage of matching words is determined. The current study built on the core listening panel method with the addition of blinded controls, randomization of samples, and scoring methods based on previously published research.

The panel was conducted as an online survey. Although participants knew that they would be listening to samples of EVP recordings, they were blinded to the fact that half of the audio samples were controls collected without an operator present. To address issues of participant fatigue and survey item position effects, three different versions of the online survey were created. Each version presented the samples to the participants in a different, random order. Each participant was randomly assigned a survey version.

The listening panel consisted of 20 audio samples. Each sample was between 1.2 and 3.5 seconds in length. Ten of the samples were selected from words or phrases identified in real time by the operator during the Active Sessions. The other 10 samples were selected from the Control Sessions recorded by the investigators. For each sample, the participant was instructed to play the sample and report on what they heard. Participants could listen to a sample as many times as they wished before continuing. Participants were asked to indicate if they heard any recognizable words (Yes or No response) and report any words they heard by typing them into a dialog box.

Selecting and Isolating the Utterances. The method by which the samples for the listening panel were selected included several steps. First, the transcripts and notes for each Active Session that were provided by the operator with the session recordings were reviewed. Any utterances that the operator noted she recognized in real-time without the need for additional review after the session was completed were then identified. This included a total of 90 utterances across the 10 Active Sessions. Each utterance was then assigned a number, and one utterance from each of the Active Sessions was selected using an online random number generator (http://www.random.org).

The utterances in the Active Session recordings were then located, isolated, and prepared for use in the listening panel. To isolate an Active Session utterance, an unedited session recording file was loaded into Audacity audio editing software, the utterance and its start time and duration were identified, and the utterance was saved as its own audio recording in Mp3 format. This process resulted in 10 separate Mp3 audio files, each containing an Active Session utterance.

To create the matched controls, the section of each Control Session that matched the start time and duration of the corresponding Active utterance was selected. For example, the Session 1 Active Utterance started at 00:01:20.723097 and had a length of 1.31 seconds. To create the corresponding matched control, Control Session 1 was loaded into Audacity and a section of the file with the same start time and duration as the Active utterance was selected, copied, and converted into its own Mp3 file. This process was repeated for each session, resulting in 10 matched Control utterance audio files. It should be noted that these matched sections were the only portions of the Control Sessions ever played audibly.

Analysis of Yes/No Responses. Data from participants who did not answer the question "Did you hear any recognizable words in this audio sample?" for both an Active Session (e.g., Active Session 3) and its paired Control Session (e.g., Control Session 3) were removed from data analysis for that pair; their data from other pairs of samples in which both questions were answered (e.g., Active Session 7 and Control Session 7) remained in the data pool. In addition, participants who answered either "Yes" or "No" to this question remained in the pool; the only stipulation was whether both questions in a pair were answered. It should be noted that the 20 randomized samples in the listening panel survey were simply numbered 1–20, so participants were not aware of this pairing scheme and some simply chose to answer some items and not others. On average, 81 participants' responses (min. = 78, max. = 83) were retained in the data pool for each of the 20 samples.

When asked the question "Did you hear any recognizable words in this audio sample?" an average of 73% of participants responded "Yes" for samples from the Active Sessions collected by the operator. In comparison, an average of 63% answered "Yes" for the Control samples. This difference is not significant ($p = 0.12$; one-tailed, paired t-test) which is somewhat surprising considering that the Active Session samples were "pre-screened" by a human listener; that is the Active samples were "chosen" by the operator based on her having perceived words therein, whereas the Control samples were chosen as matched samples and not based on the presence of any recognizable sounds. In addition, roughly half or more of participants heard recognizable words in each of the 20 samples regardless of whether they were Active or Control samples. Furthermore, the proportion of "Yes" responses in each group (Active and Control) was significantly larger than what could be expected by random (50/50) chance (binomial probability; $p < 0.000001$ for each group).

Analysis of Participant Responses vs. Operator Perception. For the 10 samples from the operator's Active Sessions used in the listening panel, 599 responses from participants reporting to have heard recognizable words in a sample were gathered. Of the 599 responses, fewer than 10% were direct matches to the operator's perception. In one of the samples (Session 4), 29% of participants who heard recognizable words reported hearing the identical words the operator heard ("You are here"), and in a second session (Session 6: "I'm here for you") 43% did. In the remaining eight samples, none of the participants reported hearing what the operator perceived.

Each of the participants' responses was scored by the investigators as to how well it matched the operator's perception of a sample. The scoring system was developed based on similar scales developed for remote viewing (Targ et al., 1995) and mediumship readings (Beischel, 2007/2008). Each of two investigators independently contemplated each participant response and provided a score as to how similar the sounds, syllables, and content were to the operator's reported perception of that sample. In cases in which there were scoring discrepancies, the two investigators discussed the particular response until a consensus score was agreed upon. The scoring system employed the following ratings:

4: Direct match with no incorrect sounds, syllables, or content
3: Good match with relatively few incorrect sounds, syllables, or content
2: Mixture of matching and non-matching sounds, syllables, and content
1: Slight match with few matching sounds, syllables, and content
0: Poor match with very few to no matching sounds, syllables, and content

Using the same convention used in mediumship reading scoring methods, only mean scores of 3 or above demonstrate a true "hit." The overall mean for the consensus scores for all of the 10 samples was 1.15 ± 0.05, a value that falls well below the "hit" threshold. In addition, the high end of the 95% confidence interval of the scores (1.25) also failed to reach this limit.

One of the 10 samples—Session 6 ("I'm here for you")—fell just under the "hit" threshold with a mean of 2.99 (± 0.12). However, it was determined that this value is a statistical outlier (i.e. outside of three times the interquartile range above or below the mean) and its removal from the data set should be considered. If the scores given to Session 6 are removed from the analysis, the resulting updated mean for the remaining nine samples falls from 1.15 (± 0.05) to 0.86 (± 0.05). This demonstrates that the perceptions of the listening panel received an average score lower than what was deemed a "slight match" to the operator's perception.

Analysis of Responses to Control Samples. As stated above, the proportion of participants who reported hearing recognizable words in the samples from Active Sessions was no different than the proportion who recognized words in the Control Sessions. To investigate this further, the individual participants' reports of what they heard for the two Control Sessions with the highest proportions of "Yes" responses were examined. For Control Session 3, 92% of participants claimed to recognize words and in Control Session 6, 95% of participants heard recognizable words. In Session 3, 100% of the participants heard the word "I." Of those participants, 58% heard "I do," 12% heard "I'm" or "I am," and 8% heard "I knew." In Session 6, 92% of the participants who heard recognizable words heard the word "You." Of those participants, 88% heard the phrase "You are," 20% heard the words "You" and "light," and 9% heard "You" and another "-ight" or "-ite" word.

From these data, it was concluded that there was substantial consensus among participants even in samples from Control Sessions composed of randomly ordered sounds. Thus, consensus among participants during the listening panel did not rule out pareidolia as a possible explanation for the perceived presence of ITC in the Active Sessions.

Content Analysis of Operator Questions and Perceived Responses

The next analysis involved addressing if the content of the responses perceived by the operator during the Active Sessions was contextually meaningful to her questions. Over the course of the 10 sessions, the operator perceived 124 answers to questions she had posed. A scoring system was developed to rate how well each answer logically matched the associated question; this system was based on a similar method used for item-by-item scoring in mediumship reading studies (Beischel, 2007/2008). The scoring system employed the following ratings:

3: Obvious fit (the perceived response is a direct answer to the posed question that does not require interpretation to make logical sense)
2: Fit requiring minimal interpretation (the perceived response indirectly answers the question and needs minimal interpretation or symbolism to make logical sense)
1: Fit requiring more than minimal interpretation (the perceived response indirectly answers the question and needs a greater degree of interpretation or symbolism to make logical sense)
0: No fit (perceived response is not a logical response to posed question)

Two investigators discussed the perceived responses to the operator's questions and jointly determined a score for each. Of the 124 responses, roughly one-third (31%, 38) received a score of 0. Similarly, another third (34%, 42) received a score of 3. The remaining third of the responses (35%) received median scores of 1 (20) or 2 (24). The overall mean was 1.56 ± 0.11, a score at the middle of the scoring range, and the higher end of the 95% confidence interval fell below 1.8. Based on the distribution of these scores, it was concluded that responses perceived by the operator did not consistently contain information that logically matched her questions.

Objective Interpretation of Utterances Using Speech Recognition Software

Training the Speech Recognition Software. The Dragon NaturallySpeaking speech recognition software (SRS) was trained to recognize the "voice" of the SpeakJet chip. The SRS manufacturer's instructions requested that the intended speaker (in this case, the SpeakJet chip) read aloud a prepared script provided with the software. Thus, it was required that the chip "say" the training script to the SRS. This required that the script be exported out of the SRS as a text file and that each of the words in the script be converted manually into the "language" of sound commands recognized by the SpeakJet chip. It is important to note that the chip is not a text-to-speech converter. The chip "talks" by joining together text codes for individual speech-like sounds along with timing codes to produce sounds that resemble human (in this case English) speech. The text codes are entered into the Magnevation Phrase Translator control software and then converted into a series of numeric commands that are loaded into the chip. The chip then plays the sounds that correspond to these commands.

For example, the sentence "He felt he must have picked up and discarded over a thousand stones" from the training script was converted by the investigators into the following SpeakJet chip commands:

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\HE \IY \P6 \FF \EH \LE \TT \P6 \HE \IY \P6 \MM \UX \
SE \TT \P6 \HE \SLOW \AY \VV \P6 \PE \IH \KO \TT \P6
\SLOW \UX \PO \P6 \SLOW \AY \SLOW \NE \OD \P6 \
DE \FAST \IH \SE \KE \AW \FAST \RR \DE \EH \ED \P6 \
SLOW \OW \FAST \VV \AXRR \P6 \UX \P6 \SLOW \TH \
FAST \AYWW \ZZ \FAST \AX \SLOW \NE \OD \P6 \SE \
TT \OWWW \NO \ZZ
```

Once all of the words were translated into these codes, they were copied and pasted into the Magnevation Phrase Translator software interface in small segments in order for the chip to "speak" them. The audio output of the Activity Board was connected to the microphone input jack of a second computer and the SpeakJet sounds recorded, creating the complete spoken script as a WAV file. This audio file was then imported into the SRS training module to train it to recognize the SpeakJet chip output.

Immediately after initial training, the audio file with the recorded script was imported into the transcription module of the SRS. The software converted the SpeakJet speech to text with an estimated accuracy of 80%. The mistakes the SRS made in converting the speech to text were corrected until it achieved an estimated accuracy of 95% and leveled off.

Testing Isolated Utterances. The segments from each of the 10 Active Sessions that were used as items in the listening panel were also analyzed by the SRS. The coded SpeakJet chip translations of those phrases were further analyzed by the SRS. The same 0–4 scoring system that was used to score the listening panel participants' responses was then used to score how well the SRS translation matched (1) the original phrase perceived by the operator and (2) the output of the SpeakJet chip when programmed to speak the phrase the operator reported hearing.

The SRS translations of the output from the EVPMaker sessions collected by the operator received an average score of 1.5. The SRS translations of the coded SpeakJet chip output received a significantly higher average score of 3.8 ($p = 0.0002$). These data demonstrate that the SRS is capable of accurately translating those particular 10 phrases when coded and that the phrases perceived by the operator were not consistently present in the EVPMaker output.

Because (1) the SRS did not recognize the phrases perceived by the operator in the Active Sessions and (2) there were no relevant "target" phrases to which to compare SRS translations of the Control samples, no SRS analyses of the Control Sessions were performed.

SpeakJet Chip Translations. How the phrases heard by the operator and used in the listening panel compared to the SpeakJet Chip translations of those phrases was also examined. To do this, the specific allophone codes that created each utterance were separated out from the rest of the allophones in the session. Steps included listening to an Audacity audio file created from the EVPMaker file from each session, locating the segment in the session, noting the start time of the phrase and its duration, and using that information to locate the associated allophone codes in the EVPMaker file. The phrases heard by the operator were also coded into SpeakJet chip commands in the same way that the text used to train the speech recognition software was. The coded commands were then entered into the Magnevation Phrase Translator software and played by the SpeakJet chip to verify that they reflected those particular phrases.

Table 1 contains the actual allophones and the associated phonetic sounds that were played at the time that the operator heard each phrase as compared to the SpeakJet translations of those same phrases. It is evident from this comparison that these 10 phrases that the operator heard during the real-time EVPMaker Active Sessions were not present in the EVPMaker output at those times in the sessions. However, similar vowel sounds were often found in the output. For example, when the operator heard the phrase "you are here," the allophones being "spoken" by EVPMaker actually "said" something like "ooch k hoe are teer." Similarly, when the operator heard "I'm here for you," EVPMaker was "saying" "I oo we're kk door you."

TABLE 1

The 10 Phrases Heard in Real-Time by the Operator and Used in a Listening Panel, the Allophones "Spoken" by EVPMaker at Those Times (with the Associated Phonetic Pronunciations), and the SpeakJet Chip Commands Required if the Chip Were To "Say" Those Phrases

Phrase Heard by the Operator	Allophones Generated by EVPMaker during That Segment of the Session (and associated phonetic sounds)	SpeakJet Chip Translation of the Phrase ("-" added between words for clarity)
Cut out the therapy	\WW \UW \UX \AXUW \OK \IH \AX \SH \KO \AXRR \WW \EB \IY ("woo uh ow ki ush er w bee")	\KO \UX \TT - \AYWW \TT - \DH \UX - \TH \EYRR \UX \PE \IY
I'm at our circle	\OHIY \NE \SE \EH \DO \OB \TH \LO \AW \JH \RR \DH \OWWW ("ines eh d b th law jr tho")	\OHIY \MM - \AY \SLOW \TT - \AWRR - \SO \AXRR \KO \UH \LO
Their people are still talking	\AXRR \IYRR \OWWW \AWRR \TH \ZH \OB \AXUW \SH \OH \GE \DH \NGE ("er ear o are th j b owsh h g thng")	\SLOW \DH \EYRR - \PE \IY \PE \LE - \AWRR - \SE \TT \IH \LO - \TT \OH \KE \IH \NGE
You are here	\IHWW \CH \OK \HO \OW \AWRR \TU \IYRR ("ooch k hoe are teer")	\IYUW - \AWRR - \HE \IYRR
People, they're capable for bigger help	\HE \GO \TH \LE \EG \FF \AXRR \EB \EK \BO \NE \LE \MM \OWWW \SO \WW \OWRR \BE \LE \RR \KO \EHLE* ("h g thl g fir bk bnl moswor blr kle")	\PE \IY \PE \LE - \DH \EYRR - \KE \EYIY \PE \UX \BO \UX \LE - \FF \OWRR - \BE \IH \GE \AXRR -\HE \EHLE \PO
I'm here for you	\OHIY \UW \WW \IYRR \KO \EK \DO \OWRR \IYUW ("I oo we're kk door yoo")	\OHIY \MM - \HE \IYRR - \FF \OWRR - \IYUW
I will stop talking at you	\OHIH \LE \OG \OK \SH \UX \NE \UH \OW \PE \CH \IY \DE \EG \EY \ZH \HE \IYUW ("I'llgk shun uh ope cheed gedge hoo")	\OHIY - \WW \IH \LE - \SE \TT \OH \PO - \TT \OH \KE \IH \NGE - \AY \TT - \IYUW
You are a dear	\BE \IHWW \NO \CH \AWRR \ZH \PE \RR \EYIY \CH \UW \OK \IYRR ("boon char j pray choo keer")	\IYUW - \AWRR - \EYIY - \DE \IYRR
Yes, oracle	\IYEH \TU \NO \NGO \OWRR \AW \LE \SO ("y t n ng or awls")	\IYEH \SE \SE - \OWRR \UX \KO \UH \LO
Have a talk	\EH \GE \OWWW \EYIY \BE \TH \SH \OH \OH \OB ("eh go abe th shob")	\HE \AY \VV - \EYIY - \TT \OH \KE

* In the EVPMaker output, the command "EHLE" is erroneously listed as "EHLL" which is not a command recognizable by the SpeakJet chip. Thus, if the commands listed in the EVPMaker output files are played through the SpeakJet chip, the chip does not play any of the "EHLE" sounds. That sound is coded by a number in the EVPMaker software (not by the EHLE command) so it is included in the EVPMaker audio output, but trying to replicate the output of an EVPMaker session using the output commands is not possible without editing. This command is erroneously listed as "EHLL" in Table C of the SpeakJet User Manual, which is where this error may have arisen.

Discussion

Conclusions

This pilot study (1) attempted to create optimal conditions under which an experienced EVPMaker operator could successfully record EVPMaker conversations; the design also (2) established proper experimental controls that ensured the integrity of the data. Based on general feedback from the operator and her confirmation that a conversation was recorded in each of the 10 Active Sessions as well as a review of the SDCP security system and a cross-check of all data supplied by the operator, the investigators have a high level of confidence that these two objectives were met.

In order to answer the research question—*Can the presence of ITC be objectively detected in real-time ITC sessions recorded by an experienced EVPMaker operator in which the operator claims successful contact with an external entity has occurred?*—this study:

1. compared EVPMaker Active Sessions collected by an operator to Control Sessions collected by the investigators,
2. analyzed the responses from participants in a listening panel regarding their perceptions of samples from the Active and Control Sessions,
3. analyzed how the responses perceived by the operator logically matched her posed questions, and
4. employed speech recognition software to provide a perceptual bias-free analysis of samples from the Active Sessions.

To compare the content of the Active and Control Sessions, the following were examined: (a) the frequency of each allophone (including an additional non-audio–based Control comparison), (b) the total number of allophones, and (c) the ranking of allophones compared to the ten most common sounds in English speech. For each of those analyses comparing the Active and Control Sessions, no differences were found. It was also determined that the Control Sessions collected by the investigators were most likely not influenced by external forces.

No differences were noted in the responses of listening panel participants to samples from Active Sessions and those from Control Sessions. The proportions of participants who reported hearing recognizable words were similar for both types of session. Furthermore, of the responses from participants who reported hearing recognizable words in an Active sample (60 ± 4.6), fewer than 10% were direct matches to the operator's perception, and in 8 of the 10 samples from Active Sessions none of the participants reported hearing what the operator perceived. When each participant response was scored for how well it matched the operator's perception, the overall mean for the consensus scores as well as the 95% confidence interval fell well below the conventional "hit" threshold. Additionally, after removing one outlier datum, none of the remaining nine individual samples received an average score that achieved a level that could be deemed a "hit."

In addition, at least roughly half of the participants heard recognizable words in each of the 20 samples regardless of whether they were from Active or Control Sessions. In other words, there was roughly a 50% chance that a participant would hear recognizable words in any EVPMaker output. This finding is, of course, based on the assumption that the Controls used in the study did not contain ITC. However, given that there were no differences found between the EVPMaker Controls and the non-audio–based Isolated Controls, the investigators have a high degree of confidence that the EVPMaker Controls were not contaminated.

In the examination of the individual participants' reports of what they heard for the two Control Sessions with the highest proportions of participant word recognition, it was determined that there was substantial consensus among participants even in samples from Control Sessions composed of randomly ordered sounds. Thus, consensus among participants during a listening panel does not provide evidence for anomalous communication or messages generated by EVPMaker using the SpeakJet Allophone file.

In conclusion, after detailed analysis of the Active Sessions provided by the operator and the Control Sessions created by the investigators, it was discovered that there were no differences between the sessions. The Active and Control EVPMaker Sessions were identical with regard to the frequency of the allophones, the total number of allophones, the presence of the sounds most commonly heard in English speech, and recognition by listening panel participants. Taking all of these analyses into account, the presence of ITC in the Active Sessions was not objectively detectable.

Furthermore, the analysis of the operator's questions and the perceived answers in the Active Sessions revealed that the responses did not consistently contain information that logically matched the questions. The operator perceived a response that was relevant to the question she had posed—regardless of whether or not that response was detectable in the EVPMaker output—roughly one-third of the time. These data suggest that the interpretation of EVPMaker conversations is a subjective process, the content of which is meaningful primarily (and perhaps solely) to the operator.

Finally, the segments from each of the 10 Active Sessions that were used as items in the listening panel were also analyzed by speech recognition software (SRS) and scored for how well the SRS translation matched (1) the original phrase heard by the operator or (2) the output of the SpeakJet chip when programmed to speak that phrase. The SRS translations of the output from the EVPMaker sessions collected by the operator received a significantly lower mean score than the SRS translations of the coded SpeakJet chip output. This demonstrates that the phrases reported in real-time by the operator were not consistently present in the EVPMaker output. This indicates that the recognition of these phrases is highly subjective.

Recommendations for Future Research

One of the goals of this study was to develop and apply new data collection and analysis methods to ITC research to help inform larger-scale studies in the future. We recommend that researchers interested in replicating and extending this study increase the number of experienced operators—if possible—in future studies. As this method of ITC collection becomes more popular, a larger pool of operators with sufficient and successful experience may become available.

As stated above, it appears that the interpretation of EVPMaker conversations is a subjective process and the content may be meaningful solely to the operator. While addressing this hypothesis was outside the scope of this study, it is interesting to speculate that the EVPMaker recording experience may be similar to the use of other divining or spirit communication tools such as Tarot cards, Rune stones, Scrying, the *I Ching*, etc. These types of tools provide a symbolic language that the practitioner can use to form a connection or acquire information that might not be accessible through "normal" means. The EVPMaker software loaded with the SpeakJet allophone file may provide operators with a tool that allows them to receive messages in a language specific to each of them and their individual frames of reference. Thus, researchers may wish to investigate the potentially psi-conducive effects of using EVPMaker to acquire veridical non-local information.

In addition, rather than looking at the engineering, technical, or signal processing aspects of EVPMaker communication, future studies may instead choose to focus on the experiences, psychology, and motivation of the operators; the meaning and content of the communication; and how that communication impacts the lives of those who receive it.

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