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Inducing Altered States of Consciousness (ASC) through Binaural Beats – Effects on Electronic Voice Phenomenon (EVP) Mediumship

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The so-called survival hypothesis states that there are several levels of existence, each consisting of different forms of energy and matter. According to this theory, corporeal death entails a transportation of the soul or essence of being to a different level of reality (see for example Hart, 1959). Research in this field is hindered by three obvious reasons: First of all, it is difficult, if not impossible to control the process, short of actually killing the subject in the laboratory environment. Secondly, only subjects that are brought back on the verge of death, that have experienced near death can verbally communicate the experiences to the researcher. In most cases of such experiences, it cannot be claimed with certainty that the phenomenon wasn't elicited from e. g. spontaneous neurological activity. Thirdly, the theory states that as the dying individual enter another layer of reality, the laws of physics as we know it change drastically. It cannot be taken for granted that the tools available for the scientist can register what goes on when the soul leaves the body. The survival hypothesis and indeed the whole after-life speculation thus remain white spots on the scientific map. The studies that have been made suffer from bias and/or methodological problems like the lack of interview protocol and objective rat-

ing scales. Researchers trying to tackle the difficult issues are often seen as unserious, even though reliable studies would affect the most basic premises of science. It would, for example, influence the debate on the separability of mind and body, thus remaining outside the questioned area of parapsychology (Cardena, 1996, Greyson, 2001). This article doesn't provide an analysis *per se* on the survival hypothesis because of the methodological problems posed above, but focuses on another aspect of the matter of non-corporeal life, and how communication between different levels of reality can be studied scientifically.

Electronic voice phenomenon (EVP)

EVP is defined as unexpected voices that are collected onto a recording medium, like a tape recorder. The first EVP recordings were conducted by the Swedish artist and film producer Friedrich Jürgenson, who reported hearing far away voices while listening to a tape of recorded bird song. He worked several years with similar recordings, and concluded almost uncontradicted by the scientific society, that the voices were those of dead people (Jürgenson, 1964). The English speaking world was introduced to

the phenomenon by Konstantine Raudive in his book *Breakthrough* (Raudive, 1971). He allegedly made tens of thousands of EVP recordings and became the leading individual in an international movement that still evolves and grows (Banks, 2001). Butler (2002) offers characteristic features of EVP that can be compressed to three major features:

1. **The acoustic features of EVP:** The recorded voices often have a distinctive cadence and sound, come with background noise and are often in a language known to the experimenter. In some cases, voices from living persons are modulated by the supposed communicating entity, and the messages need not be addressed to the experimenter.
2. **The recording issues:** The communicating entity seems to modulate the energy from the background noise to generate phrases. Waves are in a way 'collected' prior to the message, and this may result in sudden bursts of transmissions. EVP researchers have on occasions found several layers of voices on the same physical location of the recording medium. The final recording issue is that the messages in many cases seem to be truncated and incomplete.
3. **Recording environment:** The EVP recordings are not one way communications. The experimenter or someone nearby often initiates a sort of dialogue with the communicating entity. Several studies indicate that the techniques used by the experimenter and general mood states in persons nearby affect the recordings. This has spurred discussions concerning the nature of ERP recordings, where some hypothesises that the voices might in fact be inserted, consciously or unconsciously, by the experimenter by means of e. g. telekinesis.

Several EVP researchers have stated that night time is best for recordings, in part because there are less broadcast signals, but mostly because most of the communicating entities seem to be most active during the night. This has however not been examined in controlled conditions. In addition, some sources claim that the recordings might indeed be affected by the geographical location of the recording device. Some communicating entities seem to be connected to specific sites important to the entity, like cemeteries or houses (see e. g. <http://www.paranormalinvestigators.com/WhatIsEVP.htm>).

To this day, the scientific community has offered no so-called rational explanation to the electronic voice phenomenon, and although this lack of a falsification doesn't mean that the phenomenon is real, it still hasn't been branded as a fraud. In a series of validity and reliability studies, EVP recording devices have been screened from broadcasts as well as magnetic and electronic fields. Several independent researchers have analyzed the voices and transcribed almost identical messages from the tapes. Because of its inherent characteristics, EVP might be an unsurpassed instrument to verify the survival hypothesis (Butler, 2002).

Apparatus and recording issues

EVP has been detected in many instruments, but the golden standard according to the German EVP Association (*Vereins Für Tonbandstimmforschung*, www.vtf.de) is still the tape recorder with an external microphone and a source of background (white) noise. Although the actual input

source is debated, it is possible to collect EVP through e. g. tape heads and analogue/digital converters (Butler, 2002). Friedrich Jürgensen (1969) stated a few guidelines for EVP researchers. Apart from technical issues, he also wrote about the importance of a controlled surrounding. Many human factors like number of listeners and mood state of the recorder affect the receiving. This characteristic of EVP is sometimes labelled as the “newness” or “state of consciousness” effect (Butler, 2002). Several researchers have reported that enthusiastic and focused listeners produce better sessions, although precise theories are lacking.

The Neurophysiologic Definition of Enthusiasm and Binaural Beats

One must not forget that even though the voices are collected on tape, the messages are always directed to a living human being. The recorder is only a means of communication, in essence a medium. If there are no willing listeners, no EVP will appear on tape. It is of outmost importance to maximize the reliability of the EVP recordings. If a successful recording always depend on the listeners, dubious listeners (read: scientists) will never receive any messages.

Recent research indicate that there may be ways of working around this problem. Lane et al. (1997) conducted a study where people’s vigilance, cognitive performances and moods were significantly affected in a non-invasive way (i. e. not by drugs). The physiological foundation for this method is the natural rhythms of the nervous system, the so-called brain waves. The most prominent rhythm in the brain is

the alpha rhythm, which has a frequency of about 8 to 13 cycles per second. This rhythm is largely affected by the visual system – if the eyes are open, the alpha waves are small, and if they are closed they become larger. The beta wave has a frequency of 13 – 30 Hz, the theta wave from 4 – 8 and the delta wave from 0,4 to 4 Hz (see figure 1).

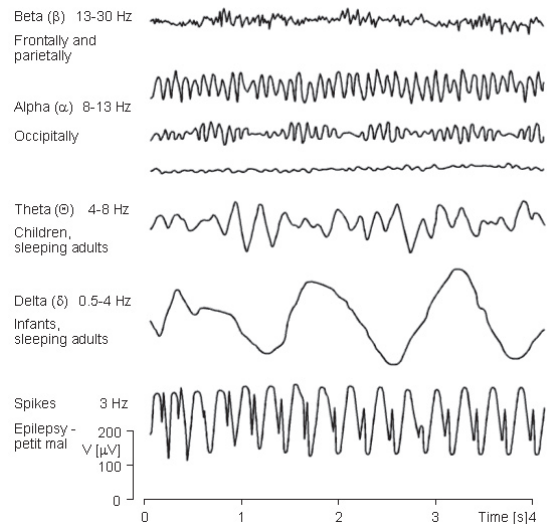


FIGURE 1 – Brain waves of different frequencies seen in an electroencephalogram (EEG)

These changes can be seen by placing scalp electrodes on a subject and recording the neural activity as an electroencephalogram (EEG). EEG is used extensively in the clinic to assess for example neurological disorders. Lane et al. (1997) proved that these frequencies could be altered by external stimuli, thus changing the state of consciousness of a person.

The binaural beat theory proposes that when two tones of similar frequency are mixed, the interference between their waveforms will produce a composite signal with a frequency in the middle of these tones. Mixing a 100 Hz tone with a 110 Hz tone will produce a signal with a perceived

frequency of 105 Hz. This new tone doesn't actually exist physically, but is fabricated in the human's olivary nucleus as a middle frequency, a binaural beat, that can change the frequency of the brain.

Lane et al., presented binaural beats to 32 subjects in four different frequency bands and showed that there were significant alterations of both EEG activity and mood states of the different subjects. The beta wave binaural beat (13 – 30 Hz) produced the largest positive effects on mood, vigilance and performance.

This study is based on the fact that voices sometimes appear on recording devices screened from radio waves and electricity, and that the voices seem to communicate with people in the vicinity. The study does not offer any explanation or hypothesis on the nature of EVP, but focuses on the recording issues – how researchers and people in the vicinity of the recording instrument affect the presumed communications. The working hypothesis is that an acceptable mood state can be induced in doubtful or inexperienced listeners by altering their state of consciousness by binaural beats, thus positively affecting the recordings.

The EVP study

SUBJECTS

Eight volunteers without previous experience of EVP recording, with normal hearing and vision, free from acute illness were recruited (5 males, mean age 27,2, SD = 3,1; 3 females, mean age 23,6, SD = 3,6). Each person received 100 Swedish crowns for completion of the study.

MATERIALS

Auditory stimulation: Binaural beats were presented to the subjects through headphones (Häger FJ601). The cassette tape contained pink noise in the frequency spectrum of 40 – 320 Hz, as well as carrier tones with amplitudes 15 dB over the amplitude of the pink noise. A 300 Hz tone was presented with a 24 Hz binaural beat. The tape recordings, as described by the subjects sounded like the monotonous roar inside a propeller-driven airplane or waterfall. The binaural beats were very difficult to distinguish from the background, and none of the subjects reported hearing them (see also Lane et al., 1997). Four of the subjects received binaural beats, while the other four only listened to white noise.

The EVP recording device: A Panasonic RQ-2102 tape recorder was used with a TDK Ferric Normal Audio Cassette 90min.

EEG recording: Gold-plated electrodes were fixated according to the international 10-20 system with electrode paste at mid-line (Fz, Cz and Pz), the mastoid bones (A1 and A2) and above right eye (Fp2) with a ground at the forehead. EEG was recorded at 375 Hz through a 0.02 to 30Hz band pass filter. Impedances were in most cases kept below 5 kΩ. Beta wave activity (see figure 2) was assessed by a Thornton Associates Inc. EEG amplifier connected to a strip chart recorder (TYPE 462).

DATA COLLECTION

The subject was seated comfortably in a chair in a room previously used for EVP recordings, and was instructed to listen to white noise through headphones until a red diode light mounted on the wall indicated

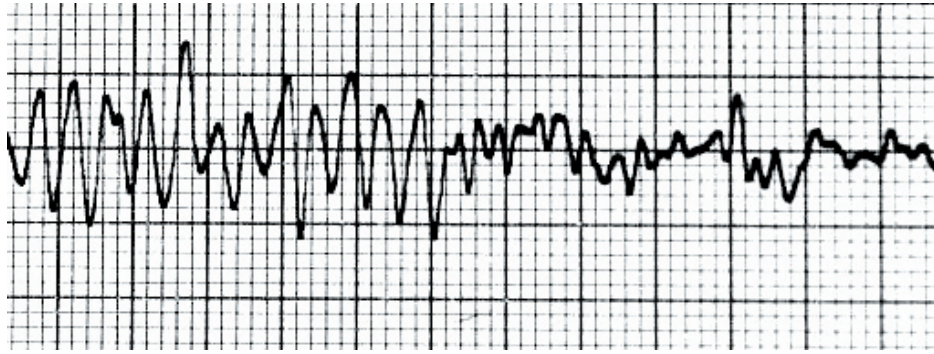


Figure 2 – EEG from one channel of the transition from Alpha to Beta waves.

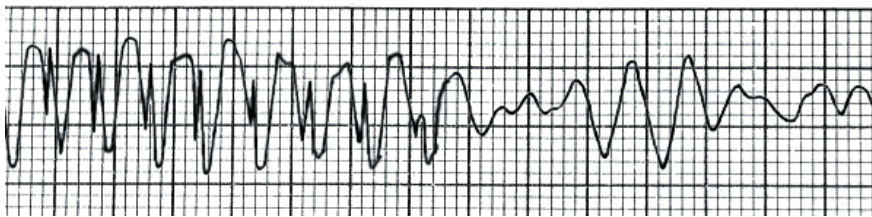


Figure 3 – EEG recorded from subject 7 during recording session.

them to stop. They should then remove the headphones and press RECORD on the tape recorder. If the subjects heard voices through the recorder, they were told to initiate a dialogue with the mediated communicator. Once the session began, the experimenter left the room.

The subject received binaural beat stimulation through headphones until the EEG indicated beta activity (approx. 15 minutes). The experimenter lit a red diode light to indicate that the subject should proceed to the recording. If no communication was initiated during a half-hour period, the session was aborted.

Results and analysis

The tapes were analysed by two independent EVP experts who transcribed sentences, in-

dependent words and non-word syllables. A total of 33 sentences, 14 independent words and 114 non-word syllables were recorded by the four subjects who had received binaural beat stimulation. The recordings from the control group contained no sentences, 6 independent words and 41 non-word syllables, resulting in a significant difference in all three variables.

Subject 7: Special note must be taken for this subject who, after a seven minute binaural beat stimulation, removed the headphones and began to speak nonsense words into the recorder. The EEG activity changed radically, fluctuating between Theta waves and spikes similar to those recorded during a petit mal epileptic seizure (see figure 3) or lucid dreaming (see La Berge, 1990). After the session, the subject described the experience as euphoric, 'like seeing the world through a different set of eyes'.

Discussion

Using Binaural Beats to induce an altered state of consciousness prior to contacting a communicating entity through EVP recordings seem to be a method superior to recording without preparations. The results support the 'newness' or 'state of consciousness' theories that states that EVP recordings are affected by the person conducting the recording. Based on these results, further studies can be conducted to optimize recordings and introduce EVP to a broader scientific community.

As described above, one of the subjects differed from the others in terms of mediumship. Without speculating too much, the Binaural Beats seemed to affect her in such a way that the subject and not the recorder became the mediating vessel. Further research is certainly needed to investigate this matter.

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