

MIND TO MIND INTERACTION AT A DISTANCE

This experiment was designed to obtain physical proof of the existence of a type of unconscious telepathy between human subjects, and to determine the mental and/or environmental conditions which may favour the phenomenon.

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INTRODUCTION

For the entire past century until today, the definitions of the term “telepathy” given by most encyclopedias and dictionaries appear to be based on an inherent disbelief. The use of terms implying doubt in these definitions is constant and is clearly used to underline a wary detachment to this subject, which, although extensively studied with respect to its effects, has only rarely been analyzed for its more profound implications – those related to the protagonist, the human being, to his/her complex and (at least) dual nature, and the indivisible integration of **mind and physical body**.

The **Encyclopaedia Treccani**, for example, describes telepathy as “*A parapsychological phenomenon which supposes the possibility of the extrasensory perception of what another person is feeling or thinking...*”.

In the **Grand Larousse** it's defined as “*a psychological phenomenon [not ‘para’] which apparently entails direct communication between two minds, separated by a distance sufficient to prevent contact through normal senses.*”

Disregarding the conceptual, the term *telepathy* is derived from *tele-*, meaning “to or at a distance”, and – *pathos*, originally meaning “suffering” in Greek and denotes a quality that evokes emotion in another, traditionally from Greek tragedies.

Basically then, telepathy is an event in which a precise chunk of information seems to appear simultaneously in two or more subjects, sensorially isolated from each other and with no other method of communication other than *intuition*, regardless of their states of consciousness (awake, altered, or modified – such as sleep or hypnosis).

In the interdisciplinary study of psychic phenomena, predominantly carried out by the researchers of EVANLAB, the person is looked upon as a sub-system in a more complex phenomenal system.

This involves an interplay of person, information, and energy - with the person being an active subject rather than just a passive one - in a continuous feedback loop.

In this view we draw from the work of psychologist C. G. Jung, former student of Freud, and from his collaboration with Wolfgang Pauli, Nobel laureate in Physics, in an attempt to explain telepathy based on the principle of *synchronicity* (also called *entanglement*), a principle well-known in sub-atomic physics. Jung, aware of the existence of telepathy from his observation of numerous examples, needed a theory which in some way could explain what he was seeing in an ever increasing number of patients.

He arrived at the definition of thought transmission as being the manifestation of a Principle of Synchronicity, a physical law describing the processes of coincidences which appear related, although not by the traditional cause and effect relationship.

But what exactly is synchronicity, at its simplest?

Imagine a pair of sub-atomic particles with entangled spin (i.e. their *rotation*, a feature of particles and quantum systems in general); they maintain this defining characteristic even when separated by a large distance. When an observer measures the specific spin of one particle, the second particle's spin automatically and simultaneously becomes the opposite. This occurs instantaneously, without any chance of a cause-effect connection which would require the transmission of a signal (cause) that can't exceed the speed of light (due to the principle of relativity).

The simultaneous occurrence of these two events – such as the induced change in spin of one particle and corresponding instant change in spin direction of the other – can be defined as an example of synchronicity. The explanation for this phenomena is that the two particles are permanently entwined in a relationship.

The implications of this may be significant if we remember that:

- a) All matter, including that which has consciousness, is made of elementary particles which follow the laws of quantum mechanics.
- b) All matter in the universe was in the beginning confined to a small area in space (Inflationary Universe, Big Bang theory).
- c) There's a high probability that all the existing matter in the cosmos was once all connected and therefore, according to Bell's Theorem, is still connected today.

In order to confirm Jung's and Pauli's hypothesis in a strictly scientific manner, we decided to observe the brain's behaviour in the wake of various experiments carried out since the mid 1970s, but which suffered from methodological faults that we attempted to remedy. This allowed us to bypass subjective interpretations reported verbally and often susceptible to errors.

The ultimate objective was to test for bio-electrical similarities in the brains of two subjects who were in some way "connected" (as a way of imitating a state of entanglement, like the abovementioned atomic particles in a quantum physics setting). Attaining this objective would have ultimately confirmed the possibility of using this form of instant communication as a real means of telecommunication.

THE PILOT STAGE

Using an idea from theoretical physicist Francesco Salvadori as our starting point, and with both a working space (EVANLAB in Florence) and appropriate resources available (through a financial grant from the BIAL Foundation in Portugal), at the beginning of 2012 we decided to put our long discussions into practice and began a *pilot stage* for the study.

From the start, the achievement of this project was made possible thanks to the invaluable collaboration of Professor [Patrizio Tressoldi](#), and consequently with the University of Padova's Department of General Psychology.

The pilot stage was crucial for a number of reasons. In order for this project to be considered genuine scientific research, we had to devote months to optimize the experiment's environmental conditions (audio and visual isolation of spaces for the participants), choosing the best equipment, as well as where to place it and the necessary cables within the laboratory. Not least, we also had to perform many tests to establish the most rigorous and efficient scientific procedures to ensure the phenomenon's success.

Once all the above were perfected to our satisfaction, we were then able to specify an exact methodology which will be briefly described here.

PILOT STAGE: METHOD AND PROCEDURE

The most difficult aspect of an experiment of this type with a human being is establishing guidelines to follow in order to:

1. Obtain results which are as concise and meaningful as possible.
2. Obtain the same results in all experiments (obviously provided the experiment protocol remains the same; even a minor change in protocol will invalidate the experiment and its results).
3. Above all, ensure the experiment can be reproduced by any research group wishing to do so.

We proceeded in the following manner:

Five male participants with an average age of 35.5 and who have been friends for at least five years were chosen for the pilot experiment. All of them, through the practice of various disciplines (meditation, martial arts, etc), had learned to maintain a high level of concentration and mental focus. In addition, we selected two out of these five men and placed each one in a different room, separated by another smaller one, as well as two thick supporting walls and wooden doors, making the rooms lightproof and, to a large extent, soundproof (the laboratory's configuration including the participants is shown in Fig 1).

On each subject were placed three essential pieces of equipment: a WiFi electroencephalograph (Emotiv EEG); special goggles with two video monitors and an outgoing audio stereo channel with earphones; professional headphones (Zik by Parrot) with noise cancelling capability.

The equipment was controlled by three computers and monitored from the Control Room (Fig 1).

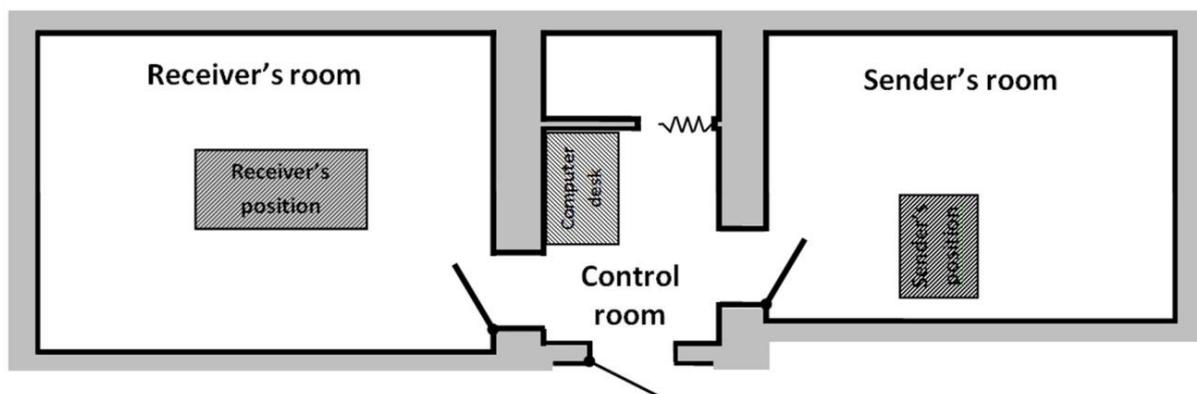


Fig. 1 - Schematic diagram of EVANLAB's laboratory.

Aiming to recreate in the laboratory a situation in which the thought/image of an important event was to be shared mentally between two people, we divided the laboratory area into the Receiver's Room, the Sender's Room and the Control Room.

In the Receiver's Room was subject B, who was to 'receive' the information generated by subject A, sitting in the Sender's Room. The Control Room was used to monitor the subjects' cerebral activity and run a software program created by EVANLAB's [Simone Melloni](#) which simultaneously acquires the EEG data and the Sender's degree of sensory stimulation.

Without any warning, an audio clip of a baby crying was played loudly (>80 dB) through Subject A's earphones. The session was comprised of seven identical segments, each segment consisting of alternating periods of stimulus and silence (total of 3 stimuli and 4 periods of 2 ½ minutes' silence), with the subjects kept unaware of the interval times.

The sound of a baby crying is ranked as being one of the top five most irritating and provoking sounds in the world (Cox, 2008); we therefore chose it in order to produce enough cerebral stimulation in subject A to register on the EEG. In fact, this sound causes a pronounced change in both the intensity and frequency of bioelectric cerebral rhythms, as well as being an innate danger signal with a strong emotional impact – something which we believe will favour psychic entanglement, otherwise known as telepathy.

Subject B, in complete visual and acoustic isolation, had no way of knowing (either through sensory channels or logical deduction) when a stimulus would be applied. In order to keep each subject focused on the other during the experiment, the monitor-goggles continuously displayed a photo of the other subject/partner. Only for subject A (who was given the audio stimulus and the task of mentally sending it to B), and only during the sound of the baby crying, was the image altered and a photo of a baby appeared alongside that of the receiver, B. This served to increase the intensity of sensory stimulation and deliberately produce a higher signal to noise ratio in subject A’s cerebral activity, in the hope of also increasing the intensity of information received (knowingly or otherwise) by subject B.

Subject B, whose only task was to relax and remain passively receptive, continued to view an unchanging photo of A during the entire experiment. See Fig 2 for a summary.

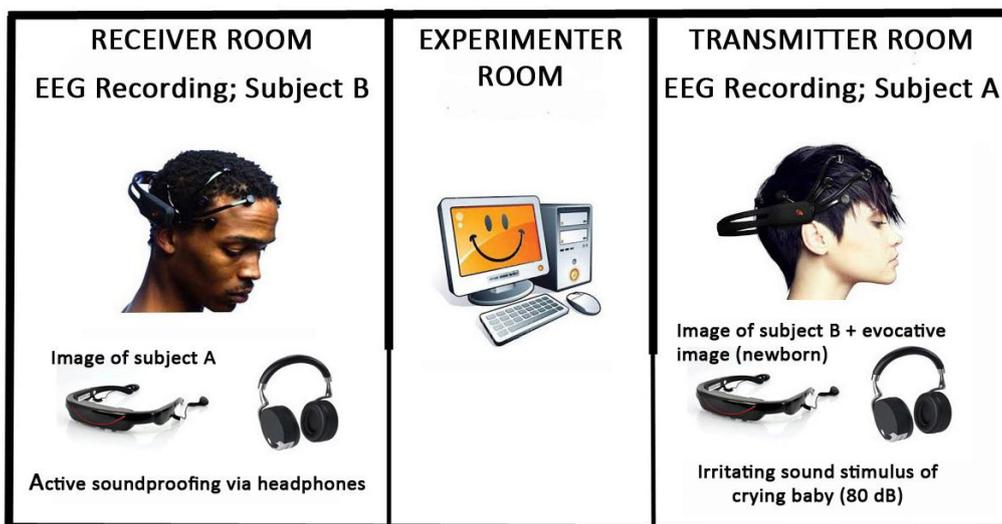


Fig.2 –Arrangement of subjects and equipment, with brief description of use.

A total of fifteen experiments were run, with other subject pairs arranged beginning with the sample of five (the subjects also swapping roles as receiver or sender), and a total of seven stimuli for each pair of subjects.

ANALYSIS OF PILOT STAGE

Each couple’s electroencephalographic activity was studied and analyzed using a Brain Scanner™ algorithm [Pasquale Fedele], a program with the ability to learn and which had been ‘taught’ to analyze this specific type of signal. It was able to identify the number of errors, coincidental events, and signal faults each time the irritating sound was played to subject A.

The two signal tracings were classified as ‘coinciding’ if, during the stimulus phase, the algorithm also identified a stimulus in the Receiver that was concurrent with the Sender’s evoked response. Analyses were also performed to determine a statistical correlation for the EEG signals.

The result was astounding. Table 1 shows a matrix of the total number of coincidental events and errors, with the sessions divided into segments (signal, silence). The overall results show that 78% of signals from each pair were coincidental, although in the first five signal/silence segments the number was well above 80%!

		<i>Detected signal</i>						Coincidences (%)	
		Silence	signal	silence	signal	silence	signal		
<i>Delivered signal</i>	Silence	15						100	
	Signal		15					100	
	Silence			14	1			93.3	
	Signal				13	2		86.7	
	Silence					12	3	80.0	
	Signal						6	17	40.0
	Silence							7	46.7

Tab.1 – Matrix of total coincidences and errors in 15 pairs, for each segment of the stimulation protocol.

Even a statistical analysis – on which the block-bootstrap method was applied with a random re-sampling of 5000 blocks of data – confirmed a high correlation between the sender’s and receiver’s EEG signals (approximately 0.60) in twelve subject pairs out of fifteen.

A statistically significant correlation was not obtained from the other three pairs, possibly due to the numerous other disruptive signals; it wasn’t always easy to obtain clear signals as this case demonstrates. It was necessary to perform a re-sampling by taking random blocks of single values obtained, because the particular characteristics of the signals did not allow for individual value re-sampling.

It’s possible that the decrease in the number of signal coincidences after the first five segments (around 10 minutes) detected by the categorizing algorithm is largely due to the algorithm’s inability to detect individual signals because of the subjects’ fatigue and the EEG’s background noise becoming more prominent.

CONCLUSIONS

The Mind Sync’s project pilot stage appears to confirm the theory that it is possible to identify signal coincidences in two subjects not connected by traditional means of communication, suggesting that it is also possible for two people to establish a purely MENTAL communication. The BrainScanner™ algorithm has been able to reliably verify a high correlation in the EEG stimulus/silence signal recordings in all fifteen subject pairs. Although in the first three phases (of a total of seven) the coincidences were at peak (100% of cases), and in the first five phases (silence-signal-silence-signal-silence) they were above 80%, eventual fatigue – and likely also equipment limitations – made it extremely difficult for the algorithm to distinguish coincidences in all but a scant number of cases (43% in the last two phases).

We believe the exceptional results achieved are due to the equipment’s high standard of reliability as well as the chosen subject’s attributes, particularly:

- a long friendship;
- The well-developed ability to maintain concentration and focus.

Pursuant to this very encouraging result, we decided to perform an official experiment so as to eliminate any criticisms regarding the experimental setting. The setting’s most critical aspect seemed to be the physical closeness of the two subjects. It was necessary to significantly increase

the distance between them while strictly keeping all other parameters unchanged, aiming to reduce the stimulus and silence times by improvements to the algorithm's analyzing capabilities. Thanks to our long and fruitful collaboration with the Department of General Psychology of the University of Padova, it was possible to conduct the same experiment with half the subjects in a laboratory in Padova while the other half were in EVANLAB's laboratory. This allowed numerous attempts at 'mental communication' between individuals separated by almost 200 kilometres. The big moment had arrived.

THE OFFICIAL EXPERIMENT

As in any respectable scientific research, a pilot stage is always followed by an official experiment to either prove or reject the initial hypotheses with enough scientific certainty. With the research protocol remaining unchanged (see above), it is only necessary here to describe the differences between the pilot and the official experiment because, although few, they are nonetheless important:

- As previously mentioned, the biggest difference is the distance between the two subjects: in the pilot, although visually and acoustically isolated, the pair were approximately 5 metres apart, but in the official stage the distance became almost 200,000 metres (195 km) – a distance greater by five orders of magnitude. Altering this factor was essential in determining whether or not the results of the pilot were independent of the physical distance, as well as preventing possible criticisms which would cast doubt on the Florentine laboratory's capabilities for complete visual-acoustic isolation.
- A second crucial modification, to counteract the possible suggestion that the Receiver can somehow predict the timing of the stimulus, was the random selection of periods of either three, five, or seven segments (silence-signal-silence-signal-silence-signal-silence), using a C++ algorithm. Therefore, each test could have presented one, two, or three irritating sound stimuli in a completely random manner.
- The initial period of silence was also varied randomly, ranging from one to three minutes and also determined by a computer program, making it impossible for any subject (or experimenter) to estimate when the first stimulus would occur.
- Furthermore, as we had hoped, the BrainScanner™ algorithm program was refined so that the sound stimulus was reduced from 60 seconds to 30, and the periods of silence from 150 seconds down to 60, making data collection faster and more efficient.
- Finally, the participants' characteristics were changed to seven people instead of five, and also including two women. The average age was 41.7 years.

More subjects also enabled us to perform a higher number of tests.

Overall there were nine tests performed using the first protocol (one sound stimulus and two phases of silence); eight tests using the second protocol (two sound stimuli and three phases of silence); three with the third protocol (three sound stimuli and five phases of silence), making a total of twenty tests with as many pairs of subjects.

These latter tests have effectively duplicated the previous pilot stage, whereby in every test each subject was fitted with an Emotive EEG headset with a computer connection (one computer in Padova and one in Florence), special goggles showing an image of the partner (195 km away), and Parrot headphones which are soundproof and through which the sound stimulus can be given to whoever has the role of (telepathic) Sender.

ANALYSIS OF THE OFFICIAL EXPERIMENT

The results have definitively confirmed our observations from the Pilot Stage.

The number of coinciding events in the participating subjects' EEG activities, as shown by BrainScanner™ in the twenty experimental sessions using three stimulation protocols, is very high: in total it was possible to identify 69 out of 88 events [**78.4%; 95% Confidence Interval (CI): 68.7 – 85.8, compared to 78%; 95% CI = 72 – 87 of Pilot Study**], specifically 26 out of 34 signals (76.4%; 95% CI: 58.4 – 87.5), and 43 out of 54 periods of silence (79.6%; 95% CI: 67.1 – 88.2). See illustration in Fig. 3.

It is interesting to note that for all three stimulation protocols the percentage of coincidences in the first three episodes (silence-sound signal-silence) as identified by BrainScanner™ is extremely high at 98.3%.

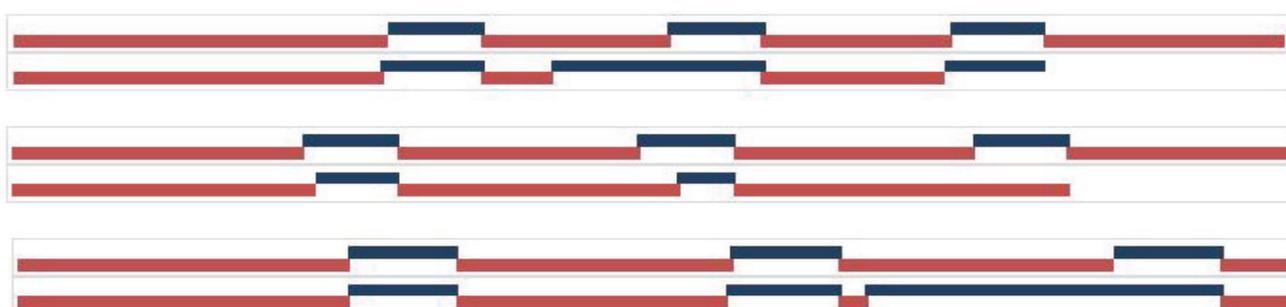


Fig. 3 – Three matrices showing coincidences between the stimulation protocol (from bottom, first, third, and fifth line) and recorded EEG activity of the Receiver's brain (second, fourth, and sixth line). The points where red changes to blue in lines 1, 3 and 5 are when the Sender was given the sound stimulus. Where red changes to blue in lines 2, 4 and 6 (representing an identical length of time), is when a stimulus was also detected in the Receiver's recorded EEG activity (totally sensorially isolated and almost 200 km from the sound source and the Sender).

CONCLUSIONS

Can these results be explained away by ascribing them to material factors? We were unable to find any, given that the large distance and the software's random generations excluded the possibility of influencing the Receivers, even subconsciously, because nobody could know the exact moments (at a distance of 195 km) when the sound stimulus would be applied (unknown even to the researchers sitting only a few metres from the Senders at that moment). Therefore this study appears to confirm the very real possibility of creating a type of 'connection' between the minds – and thus between the brains – of two subjects who know each other, even when far apart, and of doing it methodically by way of the procedures we have developed over time up to this level of reliability and repeatability.

The results of our studies therefore show that the theory of Quantum Entanglement of particle physics can similarly be applied to *consciousness*. Given two people who have some sort of tie as either acquaintances or friends and in a given period of time have their thoughts oriented towards each other, then if one's mind receives an emotionally strong chunk of information (creating a response in the brain), there is a high probability of a simultaneous activation in the other person (friend or acquaintance). The detection of this neurological activation depends of course on suitable environmental and psychological - emotional conditions, the ideal conditions being those

of the laboratory, with the subjects appropriately positioned effectively in a state of sensory deprivation.

We are certainly open to further analysis of our data, using other statistical means and signal analyzing equipment, and to our work being replicated by other research groups, so as to dispel doubts and uncertainties.

In the meantime we are continuing our experiments because it is our firm belief that further advances can be made and that we can accomplish this.