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Is There an Information Field in the Life World? Empirical Approach Using Electrophotonic Analysis

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Abstract: This paper presents a brief review of distant biological communication phenomena, information fields explained as a transduction of information without energy displacement, experimental requirements for testing this hypothesis with human beings using electrophotonic analysis, oxymetry and electromagnetic shielding. Finally, authors present preliminary results and future work on this new field of interdisciplinary research.

Key words: Semantic fields, electrophotonic analysis, quantum biocommunication, information field hypothesis test.

1. Introduction

Energetic phenomena in the life world are an argument of interest in several applied and theoretical fields with roots in biology, medicine and biomedical engineering, but also, in a more humanistic approach, gave birth to an environment of theoretical reflections, such as Meneghetti's semantic fields [1], Sheldrake's morphic resonance [2], Backster's primary perception [3], and more recently, research relating consciousness and quantum physics [4-6].

In biophotonics, researchers showed that communication between cells does not necessarily depend on chemical or electrical schemes, and this opened the way to study the role of electromagnetic waves [7-10]. However, what a few researchers started to ask is how such communication could be possible via electromagnetic waves considering significant distances and barriers. In other words: how is it possible that a very low intensity signal, subject to noise and decay, might enable such precise communications in the life world? For some scientists, there are already enough data to support the

hypothesis that this kind of communication is based on quantum phenomena [11, 12].

From an entirely different perspective, physicists have debated and tested for the last decades the breaches in the locality principle [12-16], without considering, however, that "instant communication" might also work within the life world, specifically with human beings [17]. The radical novelty of this paper resides in its repeatable and reproducible experimental design with physiological measurements and electromagnetic shielding proposed to implement a test of such phenomenon with human beings. A series of difficulties has yet to be overcome, but it is clear the fact that many scientists have been trying to codify this category of phenomena generically definable as "information field hypothesis" and no matter how complex these phenomena might look like, it is fair enough to suppose that something analogous to the quantum entanglement might exist in the life world. In order to avoid any conceptual confusion, the information field hypothesis will be herein described merely as "an information transduction without displacement of energy". Table 1 was reproduced from Han et al. [7] with additional articles reviewed by the authors to give a historical perspective of studies already conducted.

Corresponding author: Erico Azevedo, Ph.D., M.Sc. research fields: information fields, ontopsychology and knowledge theory.

Table 1 Evidence for electromagnetic or quantum biological communication (extracted from Han et al. with addition of experiments with human beings selected by the authors).

Researcher	Year	Organism	Method	What was detected
Gurwitsch	1923	Onion root cells	Quartz or normal glass separation	The number of mitoses increased
Honorton, Harper	1974	Human beings	Empirical research (Ganzfeld)	Blind assessment of correspondences between targets and mentation revealed successful identification of targets
Kaznacheev et al.	1980	Fibroblasts (human & chicken), monkey kidney tissue	Various separator materials tested (e.g. quartz and glass)	Transfer of effect of high dose UV irradiation
Grasso et al.	1991	Yeast cells	Air separation	The growth rate increased
Galle et al.	1991	Daphnia magna	Organisms in water environment	The intensity of electromagnetic radiation had a non-linear dependence on the population density
Galantsev et al.	1993	Mammary explants of lactating mice	Quartz glass separator	The level of TBARS changed
Albrecht-Buehler	1995	BHK, CV1 and 3T3 cells	Various separator materials tested	Orientation to detector
Kuzin et al.	1995	Raphanus sativus seeds	Quartz glass separator	Seed germination and development
Musumeci et al.	1999	Yeast cells	Quartz glass separator	The growth rate increased
Trushin	2003	Escherichia coli MC1061	Quartz glass separator	The growth rate increased
Yang et al.	2004	Palm and back hand of healthy people and stroke patients	Biophoton radiation	The left-right balance of biophoton emission was maintained for normal subjects in contrast to the severe imbalance for stroke patients
Zhang et al.	2007	Osteoblasts	Copper net separator	Proliferation promotion
Bonilla	2008	Litterature review	Litterature review	Theoretical study
Radin, Schlitz, et al.	2008	Couples of Cancer Patients	Double-blind study with physical separation	Receivers' skin conductance increased during intention epochs
Fels	2009	Paramecium caudatum	Quartz or normal glass separation	Cell division and energy uptake
Farhadi et al.	2010	Colon cancer CaCo-2 cells	Kept in a distant laboratory with separation by walls and doors	A significant reduction in total protein content, an increase in nuclear NFκB activation, and structural damage
Montangnier et al.	2011	Mycoplasma pirum	High dilution of DNA in aqueous solution, filtering, Rnase, Dnase, Protease and detergent application	Electromagnetic signals present in aqueous solution allowed original DNA sequences replication
Kudryaschov	2011	Human beings	Poligraph measurements with physical distance.	Physiological signals indicated distant influence with statistical relevance
Bazzo & Azevedo	2012	Human beings	Cell counting experiment prognosis based in <i>post hoc</i> image analysis	Outcomes of groups of cell counting were predicted correctly by three different analysts
Chaban et al.	2013	Dorsal ganglia of rat neurons (DRG)	Exposition to the presence of apoptotic DRF or neuroblastomic cells	Abnormal ATP fluxes mediated by capsaicine in normal DRG, supporting the hypothesis of a cell signaling not diffusible and physically disconnected
Tamulis, Grigalavicius	2014	Photoactive prebiotic systems	Computational simulation	Theoretical study
Hameroff et al.	2014	Litterature review	Litterature review	Theoretical study
Bandyopadhyay	2014	Human neuron cells	Empirical research	Identification of quantum vibrations inside the microtubules

2. Materials and Methods

For the purpose of a rigorous experimental design, three elements of Aspect's work [17] used for the demonstration of the physical entanglement were considered by analogy: (1) eliminating the hidden variable possibilities, understood as the ability of the emitter to give instructions to the receptor; (2) randomness in relation to the interference between emitter and receptor; and (3) ability to use a content akin to communicate the energetic state of a human being. The first requirement, in practice, means avoiding confusions with other kinds of communication—chemical, electrical, magnetic, written, verbal or non-verbal etc.¹ The second element implies that the interference between emitter and receptor needs to happen in a random way and, third, may be the most complex one, to choose in the human level an information or image capable to establish such communication. After careful theoretical and experimental tryouts, authors decided to support the usage of dreams.

An ETS Lindgren Series 81 faraday cage, designed for medical, industrial and governmental applications was used in all experiments. It is located in a different floor of the Electrical Engineering Faculty building, at Unicamp, about two minutes walk from a second laboratory, so that, during experiments, subjects were physically distant and electromagnetically isolated. Besides, couples were chosen among subjects living in different cities, which did not know each other previously.

Three different experiments were designed in order to test the information field hypothesis, but only one of them was implemented so far. Experiment was performed in pairs consisting of two subjects that preferably did not know each other, with total average measurement time of 20 (twenty) minutes. During the experiment, Subject A comfortably sits in a chair in

one lab while measurements are taken with a pulse oximeter, which gives as outputs pulse rate and the oxygen blood saturation, and a GDV-Kirlian system, that gives as raw outputs area of the captured image, intensity and energy of photons emitted by subject measured in Joules. Subject B sits inside the faraday cage, being measured with the same instruments. Before entering the faraday cage, Subject B writes down in a piece of paper the most recent dream he/she remembers, preferably from the night before the experiment. No information other than the description of the dream was written. Subject A received instructions to read the content of a folded paper in a random time between the 5th and 15th minute after the experiment started. This interval allowed ignoring initial and final minutes of measurements, since they might contain undesirable reactions of subjects due to excitement in the beginning and conclusion of the experiment. At the chosen time, Subject A performed a silent reading of Subject B's dream, being as open as possible to anything those images might provoke: emotions, fantasies, thoughts etc. The reading time should be about a minute, however, variations had to be allowed, owing to the variable length of dreams. Finished the first measure, subject A and B invert their roles. In control group, instead of reading the dream, subjects outside the cage read a technical text from a computer manual. With this experiment, authors expected to understand basic conditions and variables involved in the study, but mainly if there would be any statistical significance on behalf of a communication phenomenon between subjects, in spite of being physically distant and electromagnetically isolated. As a deeper understanding of the underlying phenomenon and its rules grow, other experiments will be conducted and other designs might emerge to face concrete challenges.

3. Empirical Results

In order to standartize analysis, the duration of

¹ Saussure, Kretschmer, Sheldon, Watson, Hinde, Argyle and Lowen.

reading, dream or computer manual, was called “T” and the total duration of experiment equals 3T. The first third with T duration was called “Before”, the second third, “Dream” or “Control”, and the last third, “After”. A total of 42 measurements were made: 36 in the experimental group, reading the dream of the subject inside the faraday cage, and 6 in the control group, reading a computer’s instructions manual. This lead us to a 12.456 sample size for pulse rate and

blood oxygen saturation, and 840 sample size for the GDV-Kirlian variables: area, intensity and energy. Correlations were calculated and further classified in four clusters according to their visual patterns, as shown in Fig. 2.

Fig. 3 presents the Area correlation for the three moments of experiment: Before, Dream (or Control), and after, normalizing the correlation for the moment before as “zero”.

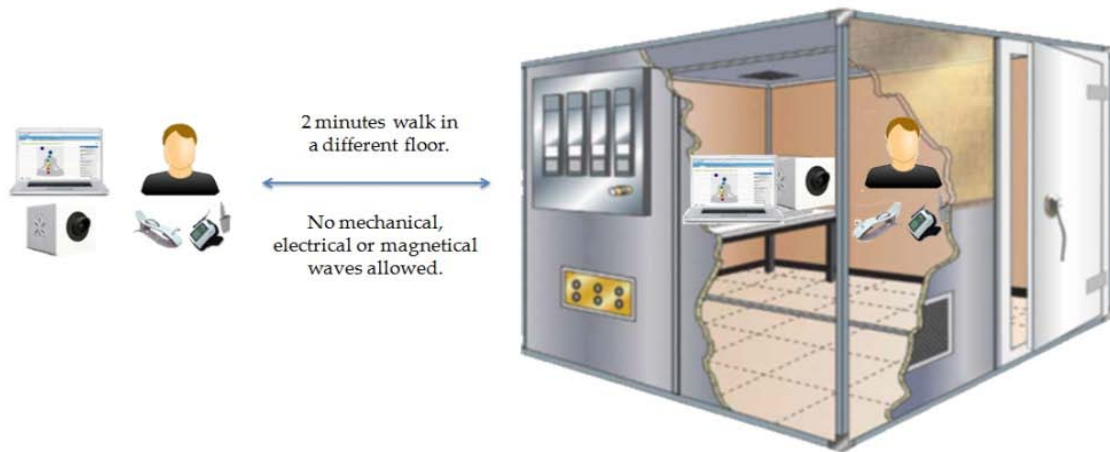


Fig. 1 Experimental design with ETS Lindgren 81.

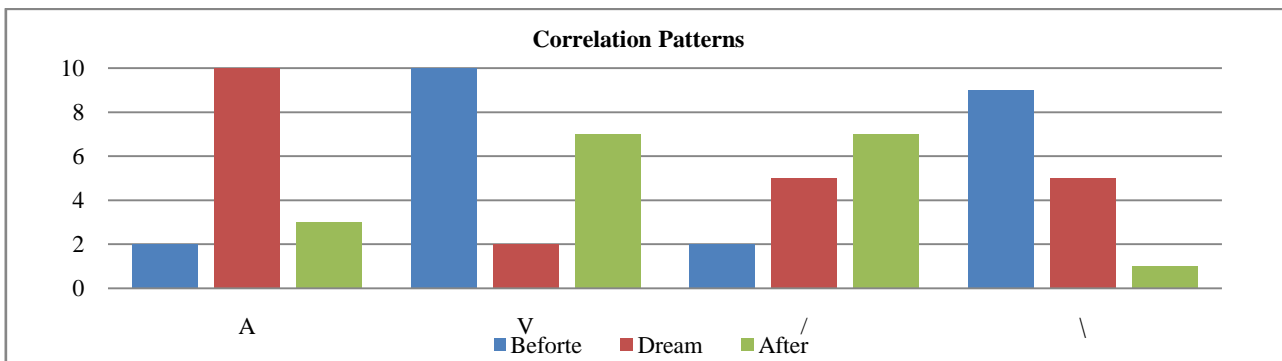


Fig. 2 Correlation patterns: “A”, “V”, “/” and “\”.

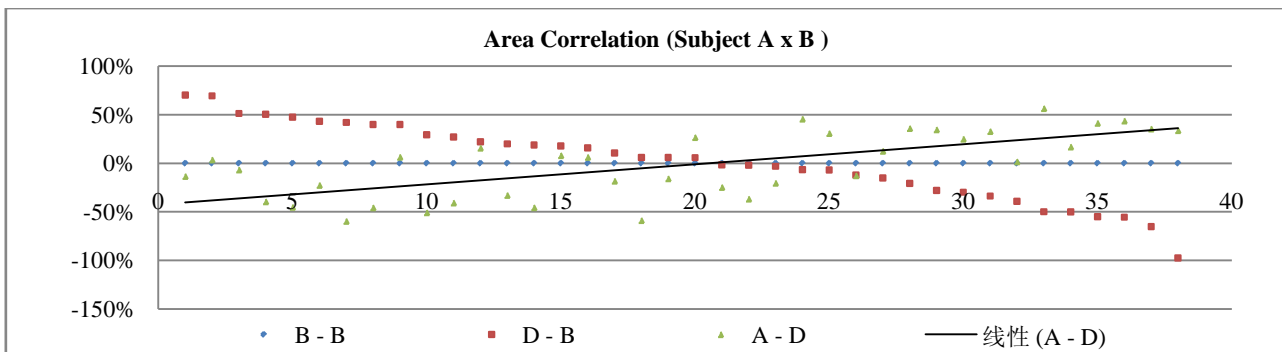


Fig. 3 Area correlation between subjects A and B considering before value as “zero”.

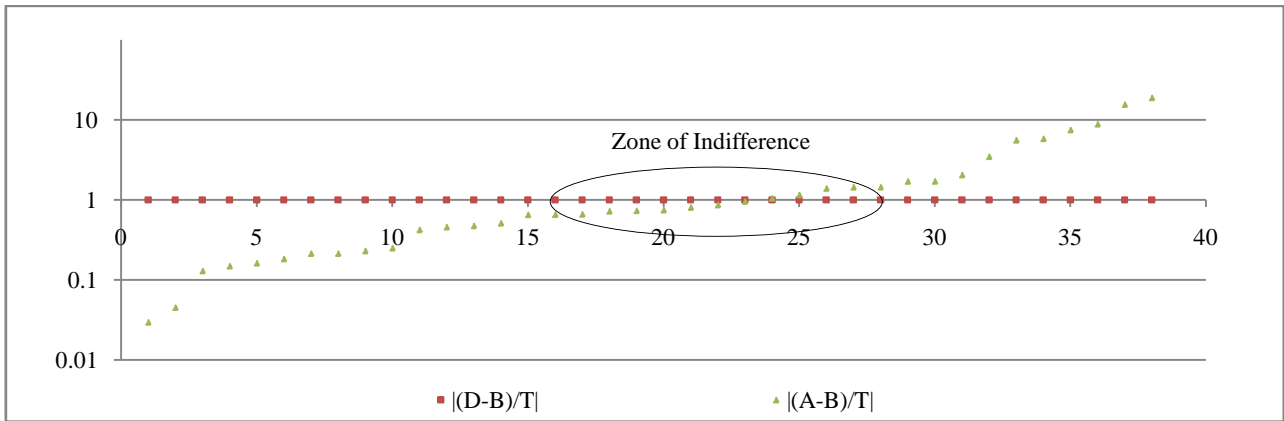


Fig. 4 Log of normalized area correlation, control group within circled area.

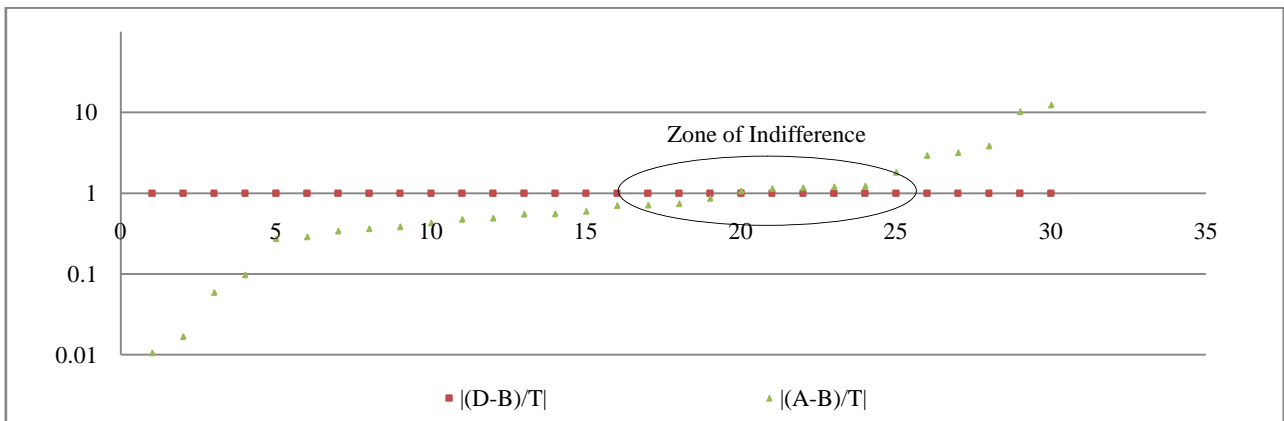


Fig. 5 Log of normalized energy correlation.

The graph raised the suspicious that there could be a kind of “bouncing” going on between subjects inside and outside the faraday cage, similar to the reflection mechanism that happens in energy transmission lines. Looking at the entire set of data, however, classified according to the moment of measurement (Before, Dream, Control, After), correlation between Area Inside and Area Outside, calculated with SPSS, is strong negatively (-.727) and significant at the 0.01 level (1-tailed) at the Control moment, while it is insignificant in all other moments. The same standard was found for Pulse Rate Inside and Outside, with a strong positive correlation (.749) in the Control moment and insignificant correlations in all other moments of experiment. Fig. 4 shows the same data set normalized and in log scale, highlighting what we called “indifference zone”: a region of data where subjects seemed to have no significant positive or negative physiological reaction. The interesting fact

regards control group, which lies almost entirely inside this indifference zone. This could indicate us only that during the Control moment signals were not deeply affected, that is, they should be expected to be alike those of anyone sitting at rest.

Similar graphs were obtained for Intensity, SpO2 and PR variables. However, when it comes to the Energy Correlation, results indicate a different behavior, showing a zone of indifference of almost 50% of the total sample. This could lead us to the important thought that, in fact, we may be facing a process in which there is only an information transfer, capable of changing the energy state of the receiver, but not an energy transfer process.

Since correlation could give us just a hint of what was going on, ANOVA tests were conducted using SPSS for all GDV-Kirlian and oximetry variables from subjects outside the faraday cage, significant at the 0.01 level (1-tailed), revealing that during the

reading moment, dream or computer manual, subjects outside the faraday cage presented a very slight alteration in their signals dispersion levels.

These results were expected, since reading should enhance subject’s concentration levels, having a natural impact in the ANS balance, which is, reducing the levels of dispersion of signals. The same analysis was conducted for subjects inside the faraday cage, revealing a complete unexpected reduction by more than half in the dispersion level of all variables measured with GDV-Kirlian and oximetry techniques, showing a distant impact in the ANS of subjects inside the faraday cage during the moment in which their dreams were being read, under electromagnetic shielding and physical distance.

In order to answer whether these groups were really distinct, Scheffé’s method was applied. Control was confirmed to be in a different group, with minimum level inside and maximum level outside. For SpO2 outside, Control moment had the maximum level and Dream the highest level in the second group, while inside the faraday cage, Control moment continues to be the maximum level and Dream inverts its position, being the minimum. A last statistical step was still missing: to cluster data with Scheffé’s method not only in the level of moments, but also in the level of groups. With no exception, Control Group was clustered differently than Experimental Group, indicating consistency with the rest of statistical analysis with p -value $\leq 0.01\%$. In order to give a more

intuitive perspective, Pulse Rate data were normalized for the 30 seconds before reading starts and the 30 initial seconds of dream reading, as shown in Fig. 7.

The normalized number of standard deviations for pulse rate demonstrates a strong impact in the curve of subject outside the faraday cage, but also a coherent reduction for the subject inside the faraday cage.

For SpO2, an interesting inverse mirror effect can be observed in Fig. 8, which can also be represented by the mean squared deviation graph, comparing Subjects A and B, in Fig. 9.

These combined statistical results confirm two important facts: (1) subjects that read the dream outside the faraday cage were deeply impacted, even if they had no technical knowledge about dreams or psychology, indicating the power of human inner images in the SNA balance; and (2) subjects inside the faraday cage were also impacted in their SNA balance during the reading of their dreams, which allow us to affirm the possibility of a five-sense-independent communication. The first result is not exactly a novelty, except for the empirical design and instruments used, since Freud, Jung and many others had already studied them in different manners. The real breakthrough consists in the second result and that for two main reasons: first of all, the faraday shielding confirms the hypothesis that there might be a thing such as an information transduction without energy displacement in the life world, as Husserl had foreseen in his philosophical theory and Meneghetti in

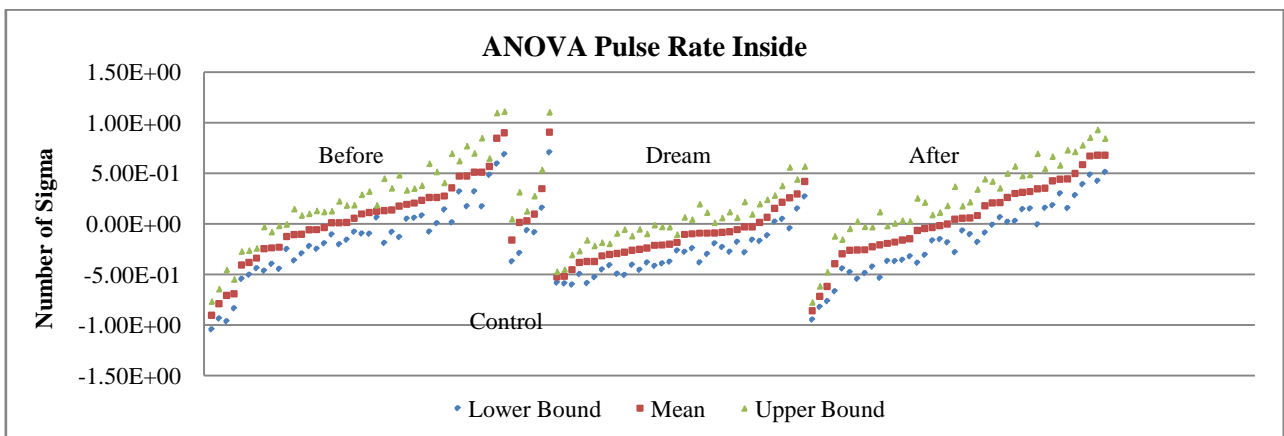


Fig. 6 ANOVA for pulse rate of subjects inside the faraday cage.

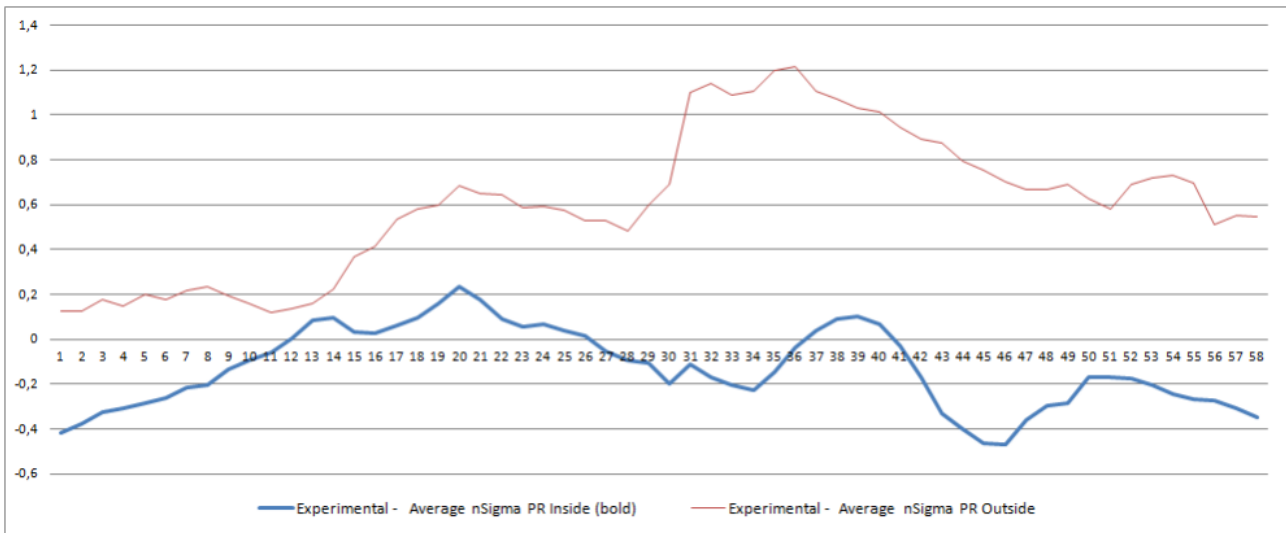


Fig. 7 Normalized pulse rate (nSigma) for experimental group.

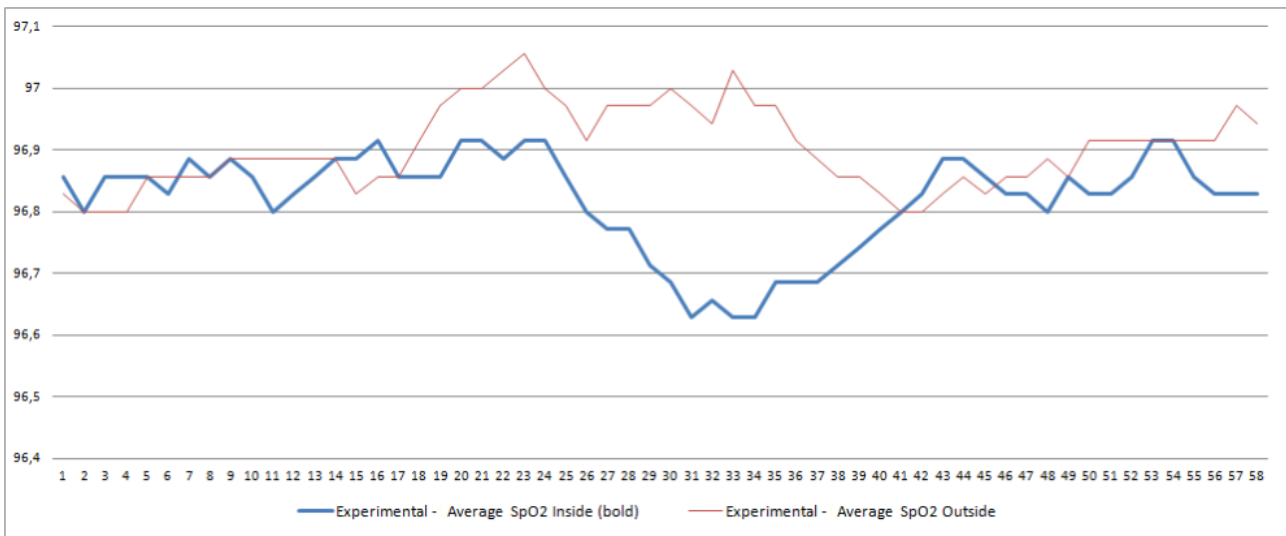


Fig. 8 Normalized SpO2 for experimental group.

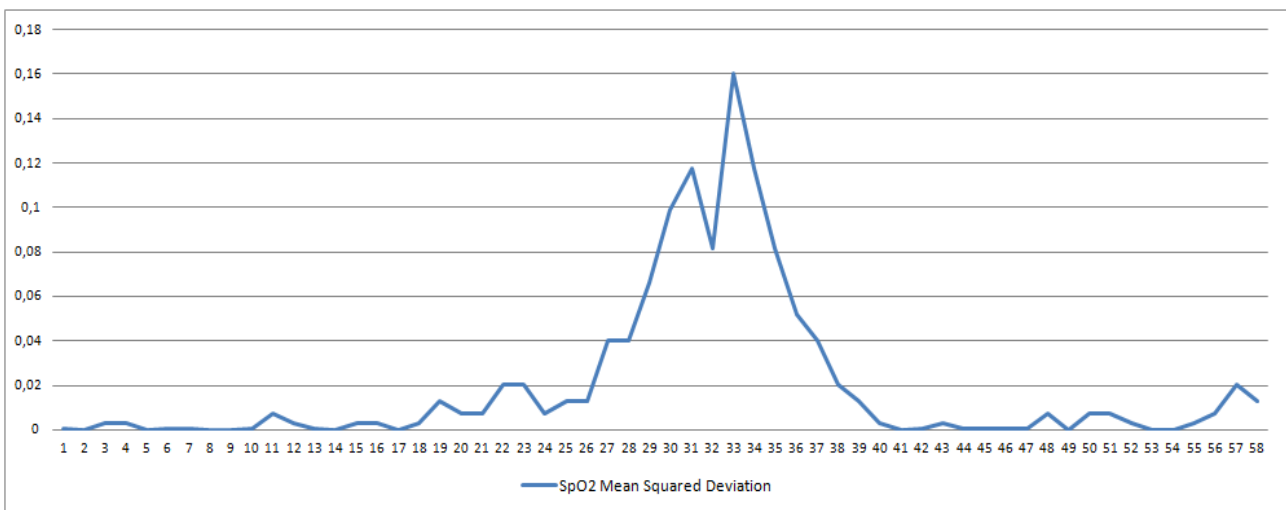


Fig. 9 SpO2 mean squared deviation between Subject A and Subject B for experimental group.

his clinical activities and precise phenomenological descriptions. Second and most important, it establishes a coherent theoretical milestone that allows building predictable experiments in a field marked until now by unpredictability, approaching physics, psychology and theory of knowledge. As it seems, the physical principle of action and reaction makes no exception in the human experience, as long as we include intentionality in the causality model, enlarging the present concept of physical reality. But how to justify this entire empirical approach? Let's see it in the following discussion.

4. Discussion

The experiments presented in this paper were all built based on decades of clinical experience reported by Meneghetti [18]. Based on his clinical evidence, he described a phenomenon he called "semantic field: informational transducer without energy displacement". In his theory, living individuations are seen as force-points in the interior of a continuous energetic dynamism. Using physical language, semantic fields can be described in a four step formalization process:

Subatomic level: polarization and vectorialization. There is no perception, but only a wave with its own signal; (2) The new induction polarizes the interested molecular complexes. A much trained consciousness is able to locate it; (3) The first emotional resonances and specific variations of feelings start to take place. A not careful man, for not having this knowledge, retains them as endogenous. An expert individuates its allogenic source: reads a variable, but still does not identifies it; (4) An emotion is formalized and, in a complete and compact way, polarizes the attention of the ego and produces a distinct excitement. At this point, an expert might choose and decide whether or not to accept or reject, but recognizes the motivational cause anyways. In the case one does not recognize the situation, might decide without exactitude. In this fourth step, there is the internal forum of the moral

sphere, since the consciousness is responsible and conscious; (5) Possibility of objective and concrete externalization, that might be effectuated psychosomatically or, in anyway, *ad extra* [1].

With the correct knowledge of the semantic field information, a human being is able to know either one's own concrete situation, or that from other realities with which he might be entering impact:

The form, or vector, translocates from an energetic content to another (...), the semantic filed is an information transducer, transfers a code, an image that, when arrives, structures in emotion any living thing and implies an emotional-organic variable. It does not transfer energy, but is with energy. Information transduction means that its module gives the form of the energy passage, but not the passage of energy. It is information that happens before all senses, emotions, before consciousness and before any symbol [1].

As a consequence, everything that we know is the result of entropathic² processes, that is, actions and reactions that are continuously processed inside our "living body", and these actions and reactions give place to the process of image in its levels: sensorial, decisional, intuitive etc. [19]. In order to understand this elementary language, it is necessary to use the living body as a knowledge channel, that is, to recover the capacity of reading all organismic variations, putting attention to the ENS (Enteric Nervous System).

This elementary knowledge experiences are typically lost due to the primacy given to sensorial perceptions, considered superior, such as vision and hearing, but also because of the influence of heuristics of judgment, as cognitive research has widely shown [20]. It is worth saying that our gastrointestinal, in two

² Husserl uses two German words to express the concrete human knowledge experience: *Einfühlen* and *Leib*. The first term designs the comprehension that captures the internal motivational dynamics of a human behavior from the variation of the living body (*Leib*) of the knower. It indicates a deeper level in the constitution of our consciousness, in which our living body interacts in the intentional level, thanks to the unitary form or the world as such.

extracts, myenteric and submucosal plexus, are covered by specific neurons, which synthesize and transmit—by muscles and mucosa—signals that provide the organismic position of a subject [21, 22]. The ENS works as an autonomous circuit, colligated by the vagus nerve to the central nervous system, which centralizes multiple afferences—not exclusively, however—from the viscerotonic to the central brain [23]. Neurotransmitters, specific proteins and cells, like those from the autoimmune system, benzodiazepines production and millions of neurons, superior in number to those of the spinal cord, guarantee a global autonomy of this brain [24, 25]. The ENS might be the main responsible for the exactness in the reading of the elementary interactions between human beings. Also the head brain would be exact had it not the constant influence of cultural stereotypes. The connection of all this with the knowledge theory is straight: the human being knows the reality through the mediation of the body and, in spite of this mediation being exact, at the conscious reflection moment, our stereotypes might alter the original perception. Besides, the ENS and the CNS live in a continuous interaction, particularly, during sleeping and dreaming and this fact could justify the millenary hypothesis that dreams really have a vital content that represents the present state of the dreamer [26-31].

Loomis, Harvey and Hobart, based on Ref. [32] consider that sleeping deprives individuals of the feeling of being a “self”, of being different from anyone else. The more the conscious thinking disintegrates, the more images come to the foreground, becoming experiences. In the dream, our judgments processes suffer a change, a translation from a conceptual sphere to another, from general to specific. To make an analogy, dreams could represent the equivalent of a “symmetry breaking” in the laws of human thought [33, 34].

According to Meneghetti’s knowledge theory, humans have knowledge experiences thanks to the

interactions of pure information waves, he called “semantic fields” and, through them, have direct access to the present energetic state and its variations. These variations remain as emotional resonances in the body, especially in the ENS, and, in the moment of dreaming, the ENS signals do arrive at a reflection level by means of images. There are three ways of seeing the information field: (1) when it is a pure wave, before any measurable external phenomenology (before the wave collapse); (2) when this information creates the organismic resonance, that is, produces emotional variations and its respective image projections (fantasies, intuitions, dreams etc.); and (3) when the information produces measurable external effects [1], and that’s why authors used the GDV-kirlian technique, since it captures subtle energetic variations [35].

In terms of physical and mathematical modeling, semantic fields (or information fields) could correspond to associated waves with zero ponderability relevance [19], what some authors has been calling in a general way of “zero point field” [36]. This means, if we suppose the space-time structure is a quantum fluid, that semantic field waves could be understood as vibrations in this fluid: we do not “see” them because we are totally inside the field, but our living body is modified by its variations. The Bohmian [37] approach could also be of great help to explain it: information is transferred within the wholeness, the universe, it happens within energy, but there is no transfer of energy.

As it is widely known in physics from the quantum entanglement experiments, information fields should act at any distance and practically instantaneously, what could serve as a physical basis to explain many human phenomena still considered to be extraordinary, but merely ordinary if seen with this new approach. In a last instance, Meneghetti’s theory can lead us to a fundamental principle of equivalence between information (image) and energy, and in turn, this implies that the last constituent part of the

universe is information and not a particle [38], a hypothesis many theoretical physicists or our time would not oppose.

5. Conclusions

Although this first approach deals with relatively small samples, the accumulated probability given by all precautions taken gives us good reasons to support further investigations regarding the information field in the life world as an electromagnetically independent phenomenon. Sophisticating equipments to measure ENS and SNA movements is also necessary. Further data will soon be published with measurements of 162 clinical interviews. However, considering the scientific challenge information fields represent, it is natural that in the present stage of research there are more questions to be answered and more experiments to be made, than definite answers to be given. Nonetheless, it is fair enough to state that a milestone has been established in the study of the principle of equivalence between image (information) and energy, a principle that needs to be taken seriously, if scientists want to progress toward a unified theory of reality.

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