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On Psychoholographic Interference of Subliminal Sensitivity Signals and their Diagnostics

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Abstract

This paper discusses the method of psychoholographic interference of subliminal sensitivity signals, which solves the issue of obtaining reliable psychology-related information.Using the PsyScanner non-local holographic resonance method, the authors reveal the means and manner of possible acquisition of information from the human iconic memory. The study includes an analysis of the preparation of the Russian national cross-country skiing team for the 2010 and 2014 Olympic Games.

The methods of non-local holographic resonance PsyScanner were developed to solve these problems in practice; their use in practical activities has been successful for more than 15 years, including application in sports training. The PsyScanner non-local holographic resonance methods were highly efficient in elite sports (used in training of three Olympic champions and four World champions), recovery of seriously ill people (oncology, cerebral palsy, strokes of various origins) and business.

Keywords:cognitive psychology, holographic principle, human psyche, iconic memory, non-local holographic resonance, “PsyScanner”, “Encoder”, cognitive control

1. Introduction

The problem in question appeared as a topic of cognitive psychology in the late 50s and early 60s of the last century.While studying the processes of initial processing of information, the young American psychologist George Sperling found that when a signal hits the auditory sensor, it is kept for a very short time and then filtered. At that, the brain begins to process information already at the receptor level, separating significant signals from minor ones. The theory proposed by Sperling was based on quantitative methods used in quantum physics to describe subatomic microprocesses.

Sperling’s general intention was to help the hard of hearing people - to improve sound quality by using the principles of auditory synchronization.The conducted experiments gave facts about the universality of this approach and its applicability not only for the auditory sensor, but also for the visual one.

2. Materials and Methods

A few years later, one of the patriarchs of cognitive psychology Ulric Neisser described this phenomenon in his book “Cognition and Reality” (1981).Neisser gave it a name - iconic memory. He argued that “it is indeed

possible to "extract information" from the stimuli presented within a very short time" (Neisser, 1981).

Speaking about the length of the time interval during which information can be retrieved,Neisser noted that that depends on several factors. for example, on brightness and contrast.«…Even a microsecond may be sufficient under optimal conditions»(Neisser, 1981)(Let us note that a microsecond is one millionth of a second).

Neisser pointed out that on average, more or less complete extraction of this information takes about 0.5 - 2 seconds, again depending on the "vision environment".Assessing this phenomenon Neisser in general summed up that "in any case, there is no doubt that it is the presence of an icon that allows us to see short tachistoscopic stimuli" (Neisser, 1981).Neisser notes another interesting detail about Sperling's experiments. He writes that "a signal presented shortly after the stimulus is turned off may still allow the testee to pay attention to one part of the "iconic image" (Neisser, 1981).

Boris Velichkovsky, a Russian psychologist, gave more details about experiments with iconic memory in his book "Modern cognitive psychology" (Velichkovsky, 1982). In particular, Velichkovsky wrote: "Thus, the approach to a huge number of visual phenomena was based on a very simple idea - the initial stage of information processing is a two-dimensional and static picture ("visual image") of physical stimulation, which decays with time, in about a third or a quarter of a second. There appear questions about the localization of the exact time characteristics and the content of iconic memory" (Velichkovsky, 1982).

The question about the means and manner of possible acquisition of information from the human iconic memory became a point for discussion in this research.We believe that the physical basis of iconic memory is a holographic image of an object that appears almost instantly (considering the speed of propagation of a light wave in air) according to human standards.

The term "holography" appeared in 1947, when the Hungarian engineer Dennis Gabor proposed a new way of recording light interference.At that time, this discovery was perceived only as another proof of the wave properties of light. But later it turned out that holography is not a kind of photography, but a new scientific discovery. The process of restoring a volumetric image was called holographic at Gabor' suggestion.

When creating holograms, Gabor recorded the interference of waves coming from a monochromatic light source and light reflected from an object.The interference pattern was recorded onto a photographic plate placed behind the object. A mercury lamp was used as a light source.The object wave (reflected from the recorded object) was aligned with the reference wave at a certain angle, and the interference pattern was recorded on the plate. The plate was then developed and bleached, which resulted in a three-dimensional image of the object.

A very important point in obtaining holograms was that the object's hologram itself was an integral formation, a kind of superposition of many geometric points that make up the object.In the late 40s-early 50s, scientists ignored Gabor's discovery. But not all of them did. Two outstanding researchers of the middle of the last century - the Nobel Prize laureate physicist David Bohm, whose book on quantum physics was called the best in quantum physics by A. Einstein, and neurophysiologist Karl Pribram - used the idea of the holographic effect and put forward an incredible stunning hypothesis. They made a scientific assumption on how matter can emerge from "emptiness" and also how it is possible to materialize an object based on the image created by the brain.

3. Results

The methods we propose for recording information and psychological impact result from this interesting psychological phenomenon and advance it in practice.These methods are based on the following logic. With the help of special software, we enter into a computer the semiotic information corresponding to the iconic image that is already developed in a person; then we present this information for a very short time interval and record the reaction of the psyche to such a presentation. At that, the psyche reacts by building a complete image, which can be fixed (with special programs) as a certain motor response of the person and interpreted.

Using the method of psychoholographic interference of subliminal sensitivity signals, we study the psyche and make subsequent corrections, helping to get rid of unnecessary habits, etc. This method of psychodiagnostics and psychocorrection was called "the system of non-local holographic resonance".

The application of point nano effects allowed studying the mental phenomena of non-local holographic resonance, which recreate a complete picture recorded by the appropriate instrumentation.The studies of the non-locality of the human psyche made it possible to conclude that the phenomenon of amplification of signals coming from subliminal human sensations is an important condition for the appearance of holographic resonance (Eysenck, & Sargent, 2001).

For psychodiagnostics, we use the PsyScanner toolkit, and for psychocorrection - the Encoder toolkit (Lebedev, &Kuznetsov, 2019). In the tests with PsyScanner, we applied point informational nano-microinfluences on the research object. The PsyScanner toolkit recorded these point effects and determined the rate of reaction to subliminal images in the "researcher - measuring procedure – testee" system.The soft- and hardware systems PsyScanner and Encoder have been successfully used for about 15 years in personnel selection, assessment of the employees' preparedness in personnel services, as well as training of elite athletes both in and outside the Russian Federation (Lebedev, &Kuznetsov, 2019b).

The main advantage of non-local holographic resonance over other methods and techniques is high productivity. In 20 - 25 minutes, the testee is given about 2500 questions, to which he or she answers truthfully at a subconscious level. As a result, the information hidden in the subconsciousness become evident, which helps to reveal the true motivation of actions, intentions and causes of behavior. It usually takes a psychologist more than six months to obtain such volume and quality of information. By the end of such a long period, the received information undoubtedly becomes outdated (Lebedev, &Kuznetsov, 2019c).

Together with the Psychological Institute of the Russian Academy of Education, we conducted a research in which we compared the data obtained using a polygraphic research and the data obtained using the method of non-local holographic resonance (PsyScanner). The results were completely correlated, while the time spent was not comparable: 2.5 - 3 hours for the polygraph and 8 - 10 minutes for PsyScanner(Lebedev, &Kuznetsov, 2019a, 219b).

The examples of practical application of non-local holographic resonance in elite sports are the following.

1. The first experience of working with elite athletes was received in December 2003 - January 2004, at the Department of Athletics of the Russian State University of Physical Culture; the work was carried out within 1 month. In the information letter on the results of the work, the head of the Department of Theory and Methods of Athletics, Candidate of Pedagogical Sciences Arakelyan concluded: "We consider it

expedient to conduct a full-scale study, which is especially important on the eve of the Olympic Games."

2. In May - August 2008, on the instructions of the leadership of the Russian Sports Committee, research work was carried out in terms of preparation of fencers E. Lamonova and A. Frosin for the Olympic Games; as a result, E. Lamonova became an Olympic champion.

3. The Russian national sprint team in cross-country skiing was trained in August 2009 - February 2010. The results are: N. Kryukov got a gold medal, A. Panzhinsky – a silver medal, A. Petukhov and N. Morilov - bronze medals, M. Devyatyarov - 8th place, N. Korostyleva and I.Khazova - bronze medals.

4. The sprint team of the Russian Federation continued training from May 2010 to February 2017. Their results were: N. Kryukov became a three-time World champion, a silver medalist of the 2014 Olympics, a multiple champion of the World Cup stages; A. Petukhov became a World Champion, a silver medalist of the World Championship, a multiple winner of the World Cup stages; N. Morilov – a multiple winner of the World Cup stages; N. Matveeva – a silver medalist of the World Championship, a multiple winner of the World Cup stages.

5. At the request of the leadership of the Kazakhstan Cross-Country Skiing Federation, from 2017 to 2020, PsyScanner was used in training of the Kazakhstan national cross-country skiing team. The response of the Federation was a letter of gratitude that mentioned successful and effective work with the sportsmen.

6. The methods of non-local holographic resonance are now actively used in the preparation of the Russian national teams in short track, figure skating, cross-country skiing, rowing and biathlon.

4. Discussion

A hologram is a complex and "strange" phenomenon, the recording of which on an information medium has a "miraculous" property: no matter how small the volume of the medium is, it will still contain information about the whole (Loktyushin, 2013).In the book "Holography for the curious" (Akilov, &Shevtsov, 2018), researchers of the holographic phenomenon A. Akilov and M. Shevtsov give an interesting example with similar holographic properties in living objects. "Let us take a starfish as an example. It has a certain holographic effect - if you cut off some part of it, this part will grow back. Moreover, a new starfish can even grow from a cut off part. The genetic code of a starfish is embedded in each of its parts" (Akilov, &Shevtsov, 2018).

Today, many scientists suggest that our brain may also work on the principles of holography. After all, if you try to find an external analogue of a psychic image, the first thing that comes to mind is comparison with a hologram. David Bohm and Karl Pribram went even further - they suggested that the entire material world is a hologram (Cox, & Forshaw, 2016).

In an interview with the journal Psychology Today, Pribram clarifies: "We cannot say that the world is a complete illusion and there are no objects in it, the point is different: if you manage to penetrate the depths of the universe and look at it as a holographic system, you will come to a completely a different reality - one that will help to understand what has not yet been explained in science, namely: paranormal phenomena and synchronicities - amazing coincidences that have an internal connection" (Talbot, 2004).

In this work, we are interested not in the whole universe, even if it is arranged on the principles of holography, but in a very narrow and specific question: is it possible to find fundamentally different psychological methods of diagnostics and correction, apart from those already existing today?

In physics, there is the concept of "quantum entanglement". In simple words,

it is a phenomenon in which a correlation between two synchronized subatomic particles is maintained when the known physical interactions between them are excluded (Mensky, 2007).

We would like to emphasize that the psyche is not just the ability of living organisms to reflect the surrounding world in the form of an image; the psyche is a special reality of our world, existing together with matter, or, in some cases, independently from it.

In psychology, there is a theory of subliminal (supraliminal) sensitivity; its cases are known and not new. The problem discussed in this paper is much more complicated. Subliminal sensitivity is a sensation. Sensation may occur, but perception (it arises at the level of consciousness) is absent. Namely, there is no conscious response to reflection. These cases in psychology have long been described (Eysenck, & Sargent, 2001; Deryabin, 2009).

In our measurements, we definitely record a subliminal conscious reaction, the one that happens very quickly and without the testee's knowledge of it. How is it possible?

The theory of holographic resonance helps to clarify this situation - the theory of reconstructing an integral picture of an object from its fragmentary part.

Let us come back to the history of holography. Probably, after all, the discoverer of the principle of interferometry for obtaining color photographs was Gabriel Lippmann (1845 - 1921). In 1892, he conducted successful experiments with the registration of color images on black and white photographic materials, for which he was awarded the Nobel Prize. In fact, he was the first to register the phenomenon of “standing water” on photosensitive emulsion (Gisin, 2016).

In 1958, the Soviet physicist Yuri Denisyuk, independently of Gabor's research, also came up with the phenomenon of interference of the reference and object waves and gave it the name “the phenomenon of reflecting the optical properties of an object in the wave field of radiation scattered by it.”

Denisyuk's method was based on a feature of new holographic plates used by him, covered with a special high-resolution photographic emulsion. The peculiarity of Denisyuk's plates was their ability to partially reflect and partially transmit the light flux. This allowed Denisyuk to create interference from the merging of counter streams of light. Denisyuk received his first hologram on December 3, 1959. All that happened in the pre-laser era (Feigin, 2010).

To make the picture of the described phenomenon more complete, we will turn thoughts to the USA and tell about one interesting discovery made there at about the same time as the appearance of holography.In the USA, in the late 1950s, there were reports about the use of the phenomenon of subliminal reflection of information by the psyche for the purpose of manipulating people's behavior (Schubert, Strobach, &Karbach, 2014).

This technology was called “subliminal impact”.The term “subliminal” was first used in psychology in William James's The Varieties of Religious Experience back in the late 19th century. “Subliminal” translated into Russian means “subconscious”, “extraconscious”. In this sense, James was one of the first well-known psychologists who supported Freud at that time.

In the autumn of 1957, moviegoers in the US state of New Jersey, in the city of Fort Lee, watched a film called “Picnic”.In many places, the film contained previously inserted single frames with advertising calls to buy popcorn and Coca-Cola. Advertising calls were inserted every 24 frames, hence they were later called “25th frame”. All this was allegedly done by one little-known advertising specialist; his name was James Vykeri.

The audience could not consciously

notice the "insert", because a single frame was in the field of visual perception for a very short time.The marketing company, which seemed to be engaged in this ad and developed a plan for the entire experiment, later stated that the sales of popcorn and Coke in the cinema during the break jumped sharply.

After newspaper reports on the effect, others also tried to use this technique.However, soon followed an explosion of public outrage. Law enforcement agencies became interested in the case and began an investigation. Hysteria in society, as always, was whipped up by journalists and the yellow press.

The general meaning of their statements was as follows: if this technique can force a person to eat popcorn and drink Coca-Cola, then what are the guarantees that it will not be possible to manipulate public opinion during the parliamentary and presidential elections (Dubrov, & Pushkin, 1989).

In 1958, the American Foundation for Advertising Research officially demanded that Vykeri repeat the experiment and provide its results and the method itself. Vykeri tried to repeat the experiment several times, but every time something interfered and the experiment did not work out.Vykeri reported that his first experiment lasted six weeks and involved several thousand subjects.

One inquisitive student, future psychologist Stuart Rogers from New York, went to the scene to investigate what had happened in person. Upon arrival at Fort Lee, Rogers was surprised to find that the management of the cinema did not know anything about the experiment, and the provincial cinema itself was so small that the 50 thousand spectators indicated by Vykeri could not fit in it for six months. There were reports that subsequent repetitive attempts to repeat the Vykeri experiment were unsuccessful.The general conclusion was that people wanted to believe and therefore did believe in the effectiveness of this phenomenon and behaved in accordance with the results announced by Vaykeri(Soutschek,Strobach, & Schubert, 2013).

There were other opinions - for example, that the Vykeri experiment was never carried out and all this was a grandiose hoax.In 1962, Vykeri himself admitted that he did not have enough experimental data for the corresponding statements.The excitement gradually subsided and the problem was forgotten for a whole decade.

In the early 1970s, it was remembered again. In 1973, William Friedkin released "The Exorcist" movie in the United States. He made inserts into the film with the image of "death masks" to scare the viewer more. The appearance of the term "25th frame effect" belongs to this period.

A new excitement began around the old problem, although American psychologists argued that there was no evidence of a subliminal effect.Despite the denial of the problem by science, the first commercial products appeared in the United States in the 1980s, allegedly using elements of subliminal exposure. They were associated with the impact on people suffering from bad habits: smoking, drinking, drug addiction. There were sound-containing products to relieve stress, irritation or depression with the help of soothing messages recorded at the subliminal level and superimposed on music and sounds of the surrounding nature evoking a certain mood. In the United States in the late 1980s, in order to combat theft in supermarkets, they began to include, along with ordinary well-audible music, a barely audible and rapidly repeating whisper like: "Don't you dare steal! We see everything, you are being watched. You will be caught." The number of thefts is said to have dropped dramatically.

At about the same time, a number of American psychologists tried to

diagnose the effectiveness of subliminal technologies once again. (Hommel, Ridderinkhof, &Theeuwes, 2002). Their conclusions were unambiguous: "Subliminal recordings did not in any way affect the change in those processes in the psyche at which they were aimed at."The attempts to verify these technologies were repeated. The general conclusions of psychologists were as follows.Firstly, the subliminal impact cannot affect the general line of human behavior, i.e. change the direction of behavior.

Secondly, the subliminal effect can, at least, affect the person's assessment of certain events, still without direct change in the human behavior.Thirdly, subliminal influence affects the emotional background of performed actions and, in general, the mood of both an individual and a group of people. There's no denying that it already matters. Similar studies were carried out in the USSR and then in the Russian Federation.

The pioneer of this direction in Russia was Igor Smirnov (Abakumov), Candidate of Medical Sciences. He wrote an interesting book "Psychoecology" about his research. According to the author, it presented "a computer psychosemantic analysis and psychocorrection at the "unconscious level." This was perhaps one of the very few studies on this topic in Russia. (Smirnov I., Beznosyuk E., Zhuravlev, 1995; Smirnov, 2003).

The main principles of Smirnov's teachings were as follows. The basis of "psychoecology" is the idea of the role of semantic (informational) factors in the processes of life. As a person's consciousness develops, the role of semantic factors increases. Hence, the basis of the mental activity of the human brain is a semantic stimulus (word or image). The second signaling system is a system of semantic symbols of a predominantly verbal nature.

According to Smirnov, any stimulus that can be perceived by the psyche and is capable of causing any reaction is semantic. These considerations lead to the first conclusion that any perceived stimuli are stored in memory not in the form of an independent semantic element, but only in the aggregate of associative bonds with other elements.

Any informational stimulus, any change in the internal or external environment entail a change in mental activity. If the stimulus is completely new, then the reaction to it will be defensive-orientational: an increase in the level of wakefulness, readiness for action, active analysis of the stimulus action consequences.The meaning of a stimulus, which can be, for example, a word or a visual image, is its connection (association) with a specific change in the emotional state.

Hence, there is the second important conclusion: having identified a group of meaningful words that generate emotions for a particular individual, it becomes possible to change his mental activity and behavior by presenting these words to him or her in a certain way.

The significance of a word is measured by the number of associative bonds with other words. The basic semantic core of any personality is the so-called accent locus of latent information (ALLI). A person is never aware of his ALLI, under no circumstances.

According to Smirnov, ALLI contains peculiar "reference points" that allow understanding the principles of the psyche reaction of a particular person to different stimuli.Let us go back to the 25th frame effect phenomenon. It exists due to subliminal perception. And subliminal perception is possible due to holographic reflection and the ability of holograms to restore their integrity based on their part. At that, a "part of the hologram" can be not only a spatial object, but also a temporal one.

"A part of the whole" is a spatial-temporal concept, not merely a spatial one.For example, to be reflected in sensations, an object must be included in

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the coordinate system “near – far” and “large – small”.

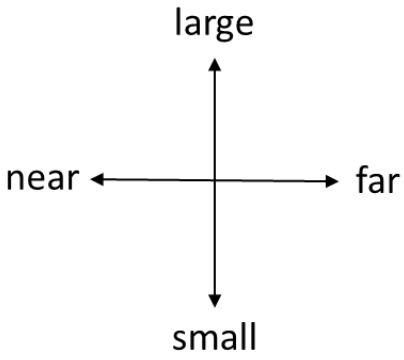

Figure 1. Coordinate system “near – far” and “large – small”

An object must match the “capabilities” of human receptors to be perceived in terms of its spatial characteristics. We cannot see an excessively small object, nor can we see an excessively large object (the universe). We also cannot see an object too far away or too close.

To see means to realize that the object is in the zone of the person’s perception at the moment of seeing. An invisible object can be “seen” using various technical devices. The matter under consideration is not about the play of the imagination, but about the possibility of real perception.

It is quite possible that certain states of our psyche are sometimes capable of performing the role of such technical devices, allowing us to construct an “invisible” image based on its holographic fragments (Goldberg, 2015).Alongside the spatial characteristics of the external objects perception, there are also temporal ones.

The temporal axis of perception "fast-slow" also exists and determines the perception features; it also has holographic characteristics.Thus, in order for an object to fall into the perception zone, it must correspond to certain parameters of space-time perception.

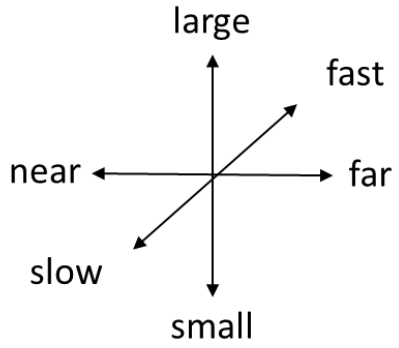

Figure 2. Parameters of space-time perception

Throughout this perceiving system, there is a concept of subliminal sensitivity.For example, a normal human does not see the flight of a bullet, this is a very short-term process. But it can be captured on high-speed video.People, being in unusual states of consciousness (extreme, meditative immersions), often talk about the effect of “time stop" or time slowdown. In such states, a person is aware of fast-paced processes, “sees the flight of a bullet”, etc.

Subconscious temporal perception “captures” some fragment of a fast-moving process and then restores the entire object as a whole according to the laws of holography (Delone, 2008). More than a hundred years ago, Max Planck argued that electromagnetic waves propagate as parts, in portions (quanta). Light is both a wave and a particle (photon) with energy equal to a certain number (h - Planck's constant) and is calculated by the formula:

$$E = h \cdot v, \quad \text{(Eq. 1)}$$

where V is electromagnetic oscillations frequenct.

The human brain is complex enough and is not yet fully understood by researchers.It is quite possible that human beings have some feature similar to what in radio engineering is called a “coherent oscillator” - device for internal amplification of an external weak signal.

This sharply increases the sensitivity in the area of subliminal perception.

Thus, the perception of a very weak input signal can be explained and not any miracle or mysticism.The brain is a special light-sensitive medium capable of registering the interference structure of two coherent wave fronts.It is known that in holography, an object wave can be used as a restore in the reconstruction of reference signal wave front. This property of holograms is very important for a short-term presentation of a stimulus, when our consciousness "does not see" it.

In this regard, the fields of hologram application are very diverse. For example, Russian researchers created an original system of multi-frame cine-holography of fast processes (Ostrovskaya, 2016). The "interferometric reflection of fast processes" while registering the "world invisible for the consciousness" happens in the human psyche.

Physics began research woks on holographic interferometry in 1965. Probably, it is time for psychology to start studying the "psychoholographic interferometry of fast-moving processes", which explains to psychologists such an interesting and obscure phenomenon as "the 25th frame effect".

5. Conclusion

We can assert that the principle of the holographic nature of the human psyche moves from a theoretical plane to a practical one in all spheres of human life. Theoretical conclusions of psychoholographic interference of subliminal sensitivity signals and their diagnostics receive their practical justification.

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