Exploration

Explanation of the Maharishi Effect by Holographic Principle

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Abstract

Large groups of people meditating together appear to result in changes in the behavior of the general population that have a statistically significant correlation, but cannot be explained in terms of any known direct interaction. Attempts have been made to explain these correlations in terms of the phenomenon of quantum entanglement. An argument presented here generalizes this explanation to the holographic principle of modern physics.

Keywords: Maharishi Effect, quantum entanglement, holographic principle, explanation.

Background

Scientific experiments reveal that we all remain connected at some psychological level although not physically linked with any known direct interaction. Our best scientific understanding of this connection is the phenomenon of quantum entanglement. Braden has presented numerous examples to corroborate this assessment [1]. The Late Lewis Thomas reported another example in his book *The Lives of a Cell* [2] stating that a single termite with 50,000 neurons in its brain could hardly be expected to do anything much less think. But when they are in a colony of tens of thousands of termites, however, they succeed in building structures having beautiful arches and symmetrical columns. Also, medical researchers in Sweden showed that the heart rates and respiration rates of a small group of people chanting synchronize in short order [3]. This is certainly interesting but even more interesting is the phenomenon where the effect of group activity such as meditation is manifested in those who are not participating. This effect goes by the name the *Maharishi Effect*, named after the late Maharishi Mahesh Yogi. This paper presents the rationale for how the holographic principle of modern physics explains the Maharishi effect.

The Maharishi Effect

The Maharishi effect is defined as the influence of coherence and positivity in the social and natural environment generated by the practice of the Transcendental Meditation™ and TM-Siddhi programs [4]. The late Mahesh Yogi proposed that the square root of one percent of the population practicing the Transcendental Meditation technique would produce measurable

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improvements in the quality of life for the whole population. For the world population of 6 billion, that works out to be about 8,000 people in continuous round-the-clock meditation 24x7. This phenomena has come to be known as the Maharishi effect.

The Maharishi University of Management website reports that the TM-Siddhi program was practiced in large groups on numerous occasions and the first statistical analysis of the effects was published in 1987. These results showed a decrease in total crimes in Metro Manila, and in total crimes in the Union Territory of Delhi. The *p* values, the probabilities of the observed changes happening by chance of these three effects were 0.01, 0.005, and 0.001, which are excellent for results in social science. Experiments in the Middle-East revealed similar benefits. In 1993, the Maharishi Effect was put to the test under the careful scrutiny of a distinguished review board in Washington, DC. The maximum decrease in violent crimes was found to be 23.3%. The statistical probability that this result could reflect chance variation in crime levels was less than 2 in 1 billion ($p < .000000002$). This article explores how this phenomena can be explained with the holographic principle of modern physics.

Ours is a Holographic Universe

According to the idea of a holographic universe, all the three-dimensional structure of the universe, including everything we can perceive with our five senses, is holographically generated from bits of information encoded on a two-dimensional surface that bounds the universe, which may be referred to as a holographic screen from the perspective of an observer at a central point of view of that bounding surface. The empty space that surrounds the observer cannot be conceptualized as a geometric space with a definite dimensionality or curvature. This idea is pictorially shown in Figure 1, where each pixel on the screen, about a Planck area in size, encodes a bit of information in a binary code of 1's and 0's. Everything we see, feel, hear, and touch in three-dimensional space as well as time emanates from a two-dimensional surface, which in some sense is like the projection of images from a physical hologram. Just like a 2D holographic film creates an illusion of objects in 3D that we know in fact are emanating from a 2D surface, it is all an illusion (*maya*).

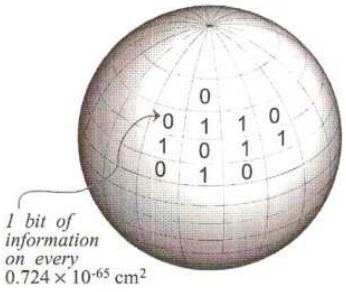
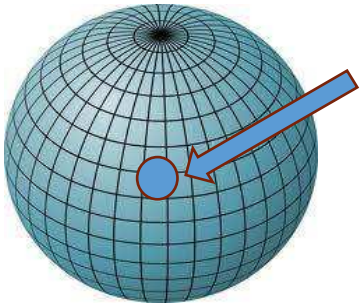


Figure 1. Holographic Principle

At the Big Bang event, the size of the universe was about a Planck length (10^{-33} cm) in diameter. Since then, space has been expanding at an exponential rate due to the expenditure of dark energy. The observer's cosmic horizon is a spherical surface as depicted in Figure 2 and the observer is at the central point of view which is the singularity in the sense of the big bang event. The observer's cosmic horizon is the bounding surface of space at which the accelerated expansion of space is occurring at the speed of light relative to the observer.

That is, at the observer's cosmic horizon, space appears to be expanding away from the observer at the speed of light as depicted in Figure 3. Since nothing can travel faster than the speed of light, the cosmic horizon is as far out in space as the observer can see things in space. The observer's horizon is its holographic screen. The empty space surrounds the observer and extends to the holographic screen but it cannot be conceptualized as a geometric space with



definite dimensionality or curvature. **Figure 2**. The Holographic Universe

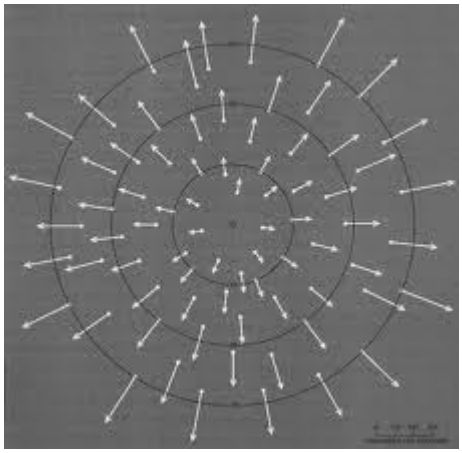


Figure 3. Accelerated Expansion of Space

Observational Tests of Holographic Cosmology have been recently published [5, 6]. Among eminent physicists who accept the holographic principle as the most fundamental scientific concept in physics are Nobel Laureate Gerard 't Hooft and Leonard Susskind. There is general agreement among physicists who work in string theory [7] and most physicists who work in loop quantum gravity [8] that the holographic principle is our most fundamental principle, which is

not dependent on any particular theory. The holographic principle is probably our best guide in terms of unifying relativity theory with quantum theory. As both 't Hooft and Tom Banks have argued [9], the holographic principle is automatically in effect when non-commutative geometry is applied to a bounding surface of space, which in the sense of relativity theory is an event horizon that arises in an observer's accelerated frame of reference [10]. String theory, loop quantum gravity, and all possible theories of quantum gravity are probably special cases of non-commutative geometry. The only possible way to put the quantum in space-time geometry is to express space-time coordinates as non-commuting variables. These non-commuting space-time coordinates give rise to the bits of information encoded on a bounding surface of space that we call entropy, and which in some sense is like the bits of information encoded on a computer screen.

The Holographic Principle Explains the Maharishi Effect

The Maharishi Effect is an example of quantum entanglement as are the examples of connectedness cited earlier in the paper. The particle physics or quantum field theory explanation for quantum entanglement is complex but the holographic principle explanation is relatively simple. Basically, the n bits of information encoded on a holographic screen, or an event horizon, where the value of n is specified as n=(Screen area)/4(Planck area), which for a cosmic horizon with a radius of about 15 billion light years is $n=10^{123}$, are given by the n eigenvalues of an SU(n) matrix [10]. Since an SU(n) matrix can always be decomposed into SU(2) matrices, and an SU(2) matrix encodes two bits of information like a spin variable that can either point up or down, like a switch that is either on or off, an SU(n) matrix encodes n bits of information in a binary code of 1's and 0's, just like the n pixels on a computer screen. Since the n eigenvalues of an SU(n) matrix are all entangled with each other, quantum entanglement is automatically in effect. In quantum theory, the nature of quantum entanglement arises from the eigenvalues of a matrix, as the holographic principle makes perfectly clear.

The observer's holographic screen encodes all the bits of information for everything the observer can possibly perceive in its world, and those bits of information are all entangled. Everything perceivable in the observer's world is composed of a configuration state of information encoded on its screen and those perceivable things are like holographic images projected from the observer's screen to its central point of view. In the example of a group of meditators affecting the local crime rate, all the meditators in the group are entangled with all the criminals and everything else in the observer's world. Different observers can share information to the degree that their respective holographic screens overlap, like the kind of information-sharing we see in the internet, which is only a network of screens. This kind of information sharing with overlapping screens, like a Venn diagram, is depicted in Figure 4.

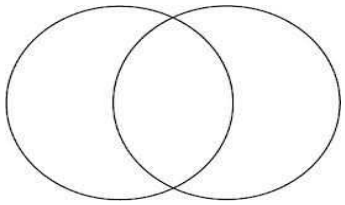


Figure 4. Overlapping Bounded Spaces

Each observer is at the central point of view of its own bounded space, and every observer is psychically connected to every other observer to the degree their screens overlap and share information. That information-sharing is obviously more powerful among the loved ones, but it potentially exists with everyone as long as their screens overlap. That is how powerful the psychic connection can potentially become. We are potentially psychically connected right now to everyone or anything we can perceive in our own world as encoded on our own holographic screen. The use of the adjective potentially emphasizes that this kind of information-sharing relies on the observer's focus of attention. The more the observer focuses its attention on the connection, the stronger the connection becomes. That's why a psychic can solve a crime even though the psychic has never met the victim or the criminal. The connection relies on the psychic's focus of attention. A good psychic can focus his/her attention on anyone, as long as there is a potential for information sharing. When the group of meditators focused their attention on bringing down the crime rate in the DC area, they became psychically connected to all the criminals in the area. Unbeknownst to them, the criminals must have felt loved due to this psychic connection, and so they were less inclined to commit crimes. Everybody behaves better when they feel loved.

The observer's focus of attention brought about by meditation promotes information-sharing among overlapping screens, but the screens overlap whether they share information or not. When we fall asleep at night, our screen continues to overlap with the screens of other observers, but we don't share information with them because we have withdrawn the focus of our attention and have become disconnected. Our focus of attention is what keeps us connected. There are three necessary conditions for information sharing: 1) Entanglement of information which is automatically in effect on a holographic screen because of the way the screen is constructed as non-commutative geometry is applied to an observer's horizon or bounding surface of space, 2) Overlapping screens of different observers, which is basically a consequence of dark energy or the accelerated expansion of space that always expands relative to an observer's central point of view and that gives rise to each observer's cosmic horizon, and 3) The observer's focus of attention that allows for or promotes information-sharing among the screens of different observers and allows different observers to become psychically connected. If the observer withdraws the focus of its attention that psychic connection is broken as happens when we fall asleep. In neuroscience this state is called a disconnection, and is described as a severing of

sensory input to the observer. In the sense of the holographic principle, it is a cessation of information sharing.

This severing of the psychic connection and cessation of information-sharing among observers as an observer withdraws its focus of attention is also a withdrawal of the observer's investment of animating emotional energy that animates its world. Information sharing and animation of the observer's world are always linked. The withdrawal of the observer's focus of attention brings both to an end, just as the observer's focus of attention on its world allows both to go forward. If the observer's focus of attention becomes emotionally biased, the way the observer's world is animated also becomes emotionally biased through the expression of biased emotions, which leads to feelings of disconnection since this emotional bias is an interference with the normal flow of energy through its world that animates all things in its world. If the observer's focus of attention remains unbiased, the observer's world is then animated in an unbiased way, which leads to feelings of connection as the flow of energy through all things in its world come into alignment. This alignment of the flow of energy is a natural consequence of the entanglement of information in a holographic world, which is in full effect as long as no interference in this normal flow of things arises from emotional bias in the observer's focus of attention.

The Global Consciousness Project is a fascinating example of information-sharing and the holographic principle. It involves an experiment that Princeton Professor Roger Nelson and his team of researchers direct [11]. Under the auspices of this project, over one hundred electronic random number generators (RNGs) have been installed in different parts of the world of which fifty to sixty are operational at any given time. Under normal circumstances the RNG network

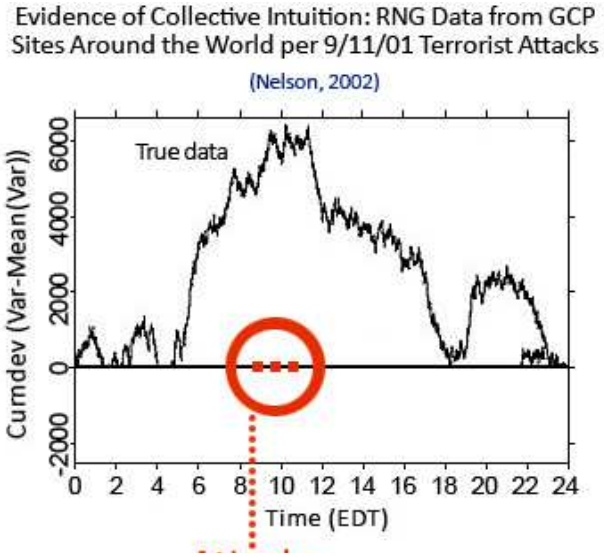


Figure 5. RNG data became less random at the time of 9/11 attacks

produces a completely unpredictable sequences of zeros and ones but when the collective human consciousness becomes coherent/synchronizes because of a great event, good or bad, natural or

man-made, the network of RNGs outputs becomes structured, i. e., it becomes less random. The researchers peg the probability that the observed effect being due to chance at one in a billion. Figure 5 depicts the RNG output at the time of the September 11, 2001 terrorist attacks on the World Trade Center in New York. Notice that the changes in the RNG output at the time of the attacks are rather large. An even more intriguing observation is that the changes in RNG Output occurred several hours before the attacks as though human consciousness knew things that it was not consciously aware of.

The second example involves Dr. Rebecca Martin, a healer, educator, and a certified hypnotherapist who has a PhD in Psychology. Dr. Martin and the second author have been collaborating in scientific experiments for several years. On August 27, 2015 an experiment was conducted at Dr. Martin's home to assess the effect of chanting meditation on the photonic energy of her subjects. The photonic energy of the group was measured with a scientific device that is based on the Gas Discharge Visualization Principle (GDV). It was developed by a Russian scientist over fifteen years ago. The GDV device was approved by the Russian Health Ministry for use as a routine medical diagnostic device in hospitals and doctor's offices over fifteen years ago. Additional information on the device and its uses may be found in References [12] – [14]. The measurement is noninvasive, painless, and takes only a couple of minutes.

The meditators consisted of five people undergoing healing plus the healer. The group was meditating in the living room and the second author had set up the GDV device connected to the laptop in the kitchen. The second author was not participating in the practice and the sound of chanting could not be heard in the kitchen. Table I presents the before and after energy measurements of the group. The optimal energy levels of apparently healthy subjects is 55 Joules. Notice that the energy levels of everyone in the group is lower but that is not unexpected given that they are unwell and that chanting has not brought about an improvement. Table II presents the energy data of the second author. The second author is a long-time meditator and his energy levels had been in the mid to high-fifties range. Table II shows that his energy levels were substantially lower on the day of the experiment indicating information-sharing. So much so that driving home after the measurements that night, he nearly had two road accidents before he became alert to what was going on. The author's energy level remained low until the following morning only to rise to the normal range after his own meditation.

Table I. Energy data of Participants

Identifier	Energy, J Before	Energy, J After
1	50	45
2	47	46
3	46	46
4	38	46
5	53	55
6	53	54

Table II. Energy Data of Second Author

Energy, J Day of the Experiment, Before	Energy, J Day of the Experiment, Before	Energy, J Next Morning Before	Energy, J Next Morning After
48	47	46	59

Dr. Marin provided another example that is illustrative of the holographic principle and information sharing. She said her healing focus group, now numbering about a dozen participants, has continued to use "Stanford and Huna" approach to remote healing of individuals. She generally receives 40 to 50 requests for inclusion in their monthly sessions. One result from her work was scientifically documented from start to finish: A request from a 50 year old female with numerous large, non-passable kidney stones. She called on the evening of the healing session, asking for assistance, as she was scheduled for surgical removal of the stones the next morning. She was simply included in the list of names of those requesting aid. The next morning she called Dr. Martin to say that she believed she had passed a fragment of kidney stone in her urine. She then called her surgeon to report her passed fragment, who told her that may be possible, although due to the size and number of the stones, he did not believe she could avoid the surgery. He did, however, offer to take an X-ray before the surgery; the X-ray showed that all the stones in her kidney had fragmented. Yet, her surgeon still believed the surgery was essential. When the kidney was surgically opened and examined, all the kidney stones had completely dissolved and were not visible.

Discussion & Conclusions

The emotionally unbiased animation of the observer's world that occurs as the observer focuses its attention on its world in an emotionally unbiased way may be how the benefits of transcendental meditation can occur for the meditators but also how the benefits can extend to the larger number of people in the society who are not meditating. When an observer's world is emotionally animated in an emotionally unbiased way, the normal flow of energy through that world is in full effect, which leads to feelings of connection. These feelings of connection are a natural consequence of how energy normally flows through a holographic world as a consequence of the entanglement of information in that world. The benefits of meditation are feelings of connection that we call unconditional love that arise for both the meditators and whoever the meditators focus their attention on in an emotionally unbiased way. These feelings of connection tend to bring us back into alignment with the normal flow of things, which may be how meditation not only can affect the meditators, but also the behavior of the world at large. This paper together with the companion paper, Consciousness and the Thermodynamics of Life [15], offer a complete explanation of the holographic principle at the level of modern physics and its connection to consciousness.

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Maharishi Mahesh Yogi is no longer with us but Baba Shivanand Ji and Gurumahan Paranjothiar (and other yogis) have been conducting programs all over the world for human welfare. These programs offer ample evidence of connectedness and information-sharing. The second author has extensive GDV results on himself that corroborate the concepts reported in the paper.

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