The Quantum Hologram Theory of Consciousness as a Framework for Altered States of Consciousness Research

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Abstract

We can learn more about how our reality is made and what non-ordinary states of consciousness are by studying the Quantum Hologram Theory of Physics and Consciousness (QHTC). The QHTC says that consciousness is not local and that altered states of consciousness can help us understand how our minds work in more than one way. That's what Schrödinger thought. He thought that the quantum mechanical wave function was a field of consciousness. QHTC is based on holographic theories for human consciousness. These theories say that the brain works like a hologram and that it processes images into interference patterns that are then turned into virtual images, just like a laser hologram. These quantum waves can store a lot of information, which our brains use to make our three-dimensional world. This article says that this last theory should be the main framework for research on altered states of consciousness, and it talks about how to get data for analysis and how to get into an altered state for possible experiments.

Key Words: Altered States of Consciousness, Quantum Theory, Holographic Theory.

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Introduction

David Bohm and Karl Pribram pioneered the use of holographic theories to describe human consciousness and cognition. They postulated that the brain operates similarly to a hologram, following quantum principles (Talbot 1991). That is, the brain may be processing ordinary images into interference patterns that are then converted to virtual images, similar to how a laser hologram works. These quantum waves are capable of storing enormous amounts of information, which our brains use to create our three-dimensional reality (Pribram 1977, 1999). When he approached the phenomenon of particles he saw the issue in a completely different way. He concluded that the reason it all looked so strange was because science was trying to put the skin back on an orange after peeling it off. If they let go of the old paradigm of seeing everything as separate and instead saw space as one very large object, they could come up with another theory. He proposed that the universe was like a blanket waving in the wind, that it was one vast ocean, and that the behaviour of the particles fit perfectly within a holographic model.

Pribram's (1999) work led to the discovery of the limbic system, MRI, and PET scan along with advances in the understanding of the frontal cortex of the brain. He is most noted for his discovery of dendrites and non-local processing in the brain. Pribram performed some operations on animals. Rats were taught to go through specific actions to find a reward of food.

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Once the animal had mastered the activity a portion of their brains were cut away, and once they had recovered they were required to do the activity again. The doctors were astonished to discover that rats remembered how to obtain their reward. This experiment was repeated with more and more of the rat's brain being removed. In the end the rat only had a quarter of its brain remaining yet, was still able to remember how to work its way through the network of twists and turns to the reward.

Through research Pribram realized that once information traveled along the axons to the synapses it didn't stop. It continued to travel throughout the brain via fine hair-like fibers called dendrites. If we could view these dendrites, they would appear as plentiful as a full head of hair. The dendrites oscillated to create a wave pattern that rippled throughout the brain. Information was then picked up by other dendritic fibers and passed along to new ones. In this way memory was evenly distributed throughout the brain. Although function was situated in specific locations in the brain, memory, he learned, was universally everywhere in the brain.

Pribram & Bohm (Joye 2015), found that information is stored throughout the brain as waves. It is distributed at all levels. And, if it were looked at without the proper light, in this case concentration, it would look like a mishmash of nothingness. When he looked at the elements, Pribram realized the brain functioned much like a hologram. When Pribram viewed the brain as holographic, other questions were also answered. Now he could explain how the brain could continuously translate the vast amount of frequencies it received through the senses. It spoke to how rats could know where to find the reward, and also answered some long-standing neurophysiological questions about brain functions and working with people with brain injuries.

Stuart Hammeroff and Roger Penrose (Hameroff, 1994) (Hameroff & Penrose, 1996) extended Pribram's and Bohm's work by hypothesising that quantum activity within the neuron interacts non-locally with other neurons, enabling a "conscious event" when combined with the quantum hologram. Their theory has been used to explain altered states of consciousness such as near-death experiences (NDEs) and out-of-body experiences (OBEs).

Other scientists such as Paura (2017) and Maldacena (2005) support also the holographic paradigm. Maldacena proposed a solution that perfectly described how gravity could be in agreement with classical physics and superstring simultaneously. Maldacena (2005) suggested that if science viewed the universe as flat—not round as everyone thought—and, if the old idea of gravity was eliminated, then a new way of seeing gravity could be as one of the numerous dimensions of space; thus quantum gravity. When viewed from that perspective, quantum gravity slipped right in as smoothly as a greased pig. Maldacena's (2005) thought also fit perfectly with David Bohm's. If the universe was one flat element, then it fit that the universe represented a hologram.

Holograms have advanced faster than a speeding bullet in the last forty years. They have moved to Virtual Reality (VR), and now, with a bump of a hip, Augmented Reality (AR) is telling VR to move over. In the past VR created semi-realistic environments of objects before the viewer. Playing games using this technology gave participants the impression they were part of the action. AR has taken that sensation a step further. With AR creatures and environments in the games are not in front of players looking through a headset. Rather, the action appears to surround the player in life-like reality. The players are literally in the middle of the action. More and more of their experiments are forcing them to see our reality in terms of information. A reality based on information means a computed reality and a computed reality is popularly called a simulation or a virtual reality (VR). Calling our reality (our "physical" universe) "virtual" doesn't imply that our reality is any less real, it simply means that assuming (theorizing or modeling) our universe as a virtual reality is becoming a more scientifically productive way to understand experiments that indicate how our universe works. It is the experimentalists that are telling the theorists that our universe is acting more and more like it is a virtual universe. This idea of our universe being a VR has been alive and well on the far fringes of physics for over twenty years, but only in the last decade has it worked its way into the mainstream of the science of physics (Hammady et al. 2021).

Fredk (2003) explains that if our reality is virtual, then it must be computed in 'other' because a simulation cannot compute itself." This is elementary logic that implies that an elf "avatar" walking about in the World of Warcraft (WoW) VR game will never be able to open a door to a building

within the WoW game-world and find the actual server that is computing the WoW game sitting inside. In other words, the server simulating the WoW game must exist outside of the game that it is computing.

According to Campbell (2017), if one defines a particular virtual reality, one knows that the source of that virtual reality must exist outside of that virtual reality. The view from inside a good VR appears physical from the avatar's viewpoint because the VR must be computed according to a consistent rule set and those rules define what "physical" means. Because the server must send data to the consciousness and the consciousness must send data to the server, the server and the consciousness must share a common reality frame. Our "physical" bodies and our world map ("physical" universe) are virtual. The server that computes the virtual reality is located in our "physical universe." The server that computes our virtual reality (our "physical" universe) is located in (is a part of) what I call the larger consciousness system (LCS). We (you and I and all other conscious entities within the LCS) are pieces or subsets of the One Consciousness that I have named The Larger Consciousness System. Indeed, as required, our personal individuated unit of consciousness and the server that creates out VR ("physical" universe) do share a common reality frame as well as a common source – both are subsets or products of the LCS. Also as required, the LCS appears to be nonphysical from the perspective of an avatar in our virtual reality. Consciousness (the LCS), a natural, evolving, digital information system, is the fundamental One Source of everything (all the reality) we can know and experience (Campbell 2017).

Creating a virtual "physical" reality frame (universe) like ours: Our VR (our "physical" universe reality frame) was not programmed like WoW, it simply evolved. Here is how to evolve a virtual "physical" universe like ours: Inside a computer's memory, define a set of constants and initial conditions that simulate a relatively small ball of plasma at high temperature and pressure – conditions that resemble the pre-Big Bang configuration. Add to that a rule-set that defines all the possible interactions between all the fundamental components of the plasma (the superset of our physics). Now hit the run button, and let this dynamic simulation begin to change as a function of time (evolve) according to the rule set. Evolution is an open-ended process that continues on as long as there are useful new states to evolve into. We are all familiar with what happens next. The plasma expands, cools, and eventually forms suns and planets and solar systems like ours where life forms eventually begin to evolve into entities complex enough to have the potential to make choices (from the available array of possibilities that fall within their reach) about what to do next and how to respond to their environment. Up until this point, the total VR was made up of computer-generated entities that came about as a result of interactions in the simulated virtual world and the dynamics of probability and statistics looking at the possibilities in the rule-set. What was stable continued and what wasn't faded away. Note that this is a probabilistic simulation, not a deterministic simulation building things from the ground up out of particles.

Walter Schempp, a co-inventor of magnetic resonance imaging (MRI), developed a mathematical model called "Quantum Holography" in which he postulated that all information about physical objects is contained in the quantum fluctuations of the Zero Point Field (ZPF) (Schempp 1999). Indeed, Hal Puthoff and Bernard Haisch argued that the ZPF is a massive memory state (Haisch, Rueda & Putoff, 1997). Schempp developed a mathematical model to demonstrate how ZPF information can be recovered and reassembled as an extension of this concept.

Schempp devised a mathematical model called "Quantum Holography" in which the quantum fluctuations of the Zero Point Field (ZPF) included all information about physical objects. Walter Schempp was a co-inventor of MRI (Schempp 1999). Quite the contrary, according to Haisch, Rueda & Putoff (1997), the ZPF is an enormous memory state. As an extension of this approach, Schempp devised a mathematical model to show how ZPF information can be recovered and reassembled.

A reexamination of artificial intelligence's claim that the brain is primarily a classical computer has been inspired by Hammeroff and Penrose's (1994) work isolating the brain microtubules, which has made people want to learn more about how the human brain works at the quantum level.

Consciousness-altering experiences include near-death experiences (NDEs), out-of-body experiences (OBEs), and contact with Non-Human Intelligence (NHBI) (Hernandez et al.2018).

Hernandez et al. (2018) propose that the QHTC explains these altered states in a rudimentary manner. This article proposes this latter theory as the primary framework within which to conduct research on these altered states of consciousness and delves into specific techniques for data collection and induction in preparation for possible experimentation.

Quantum Hologram Theory of Physics and Consciousness (QHTC)

Mitchell and Staretz (2011) argue that the theory can account for abnormal information acquisition, such as that observed in remote viewing experiments. Typically, the location of a remote target object is decoded using given data, such as earth coordinates. Emissions from the remote object's holographic picture then resonance with a holographic representation in the viewer's consciousness, allowing the viewer to identify a feature of the object. Shempp's (1999) original, mathematical theories on QH were then refined by physicist Peter Marcer, who proposed that phase-conjugate-adaptive-resonance resonance (PCAR) is required for the brain to perceive objects in three-dimensional space as they truly exist. (Marcer and Schempp, 1999; Schempp, 1998) (Marcer & Mitchell, 2001). Figure 1 illustrates this concept.

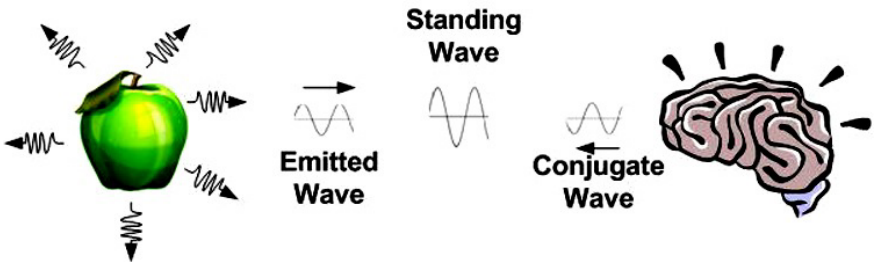

Figure 1. ZPF Information Recovered via PCAR by the Brain (Mitchell & Staretz 2011)

Mitchell and Staretz (2011) proposed a new model of information processing in nature, dubbed the Quantum Hologram theory (QH), that explains the origins of consciousness and how living organisms acquire and use knowledge. It elevates information's fundamental nature to the same level as matter and energy. Mitchell and Staretz (2011) hypothesised that the QH is nature's built-in information storage and retrieval mechanism, which has been in use since the dawn of time.

Mitchell and Staretz (2011) extended Schempp's (1999) work by positing that all the cells and organ systems of any biological entity, including the brain, evolved as a massively parallel learning computing system. Mitchell and Staretz (2011) proposed that quantum emissions from any material entity carry information about the event history of the emitting matter's quantum states non-locally. Recall that these quantum emissions take the form of electromagnetic waves with a wide range of wavelengths (or frequencies) and that the information associated with them is contained in both the amplitude and phase relationships of the emitted waves as interference patterns. These interference patterns can carry a wealth of information, including an organism's entire space-time history. According to the QHTC, these processes make use of a holographic mechanism for storing and processing information. Holographic circuits in the brain respond to information contained in the holographic image of a perceived physical object. The Quantum Hologram is the name given to the holographic image that is stored non-locally in the zero-point field. When an internal holographic representation in the mind of a being resonates with an external object's non-local emissions, the being recognises it. External holographic representations are accurate representations of the object in three-dimensional space. The process is analogous to how a bat or dolphin recognises an object when it receives the echoes of its sonar emissions. The classification and recognition of patterns in such a sonant loop is said to be "the foundation for all living organisms' most fundamental level of perception." The holographic information contained in the zero-point field can resonate with any brain tuned to do so via quantum entanglement.

Mitchell (1996) stated that perception and intentionality are the most fundamental aspects of consciousness. Mitchell (1996) makes a connection between creation and intentionality, which he

views as a critical aspect of consciousness. The evidence appears to indicate that each physical object (living or nonliving) possesses its own unique resonant holographic memory, which is non-locally stored in the Zero Point Field (Marcer & Schempp 1999).

According to Mitchell and Staretz (2011), we live in a universe that operates on the principles depicted in figure 2.

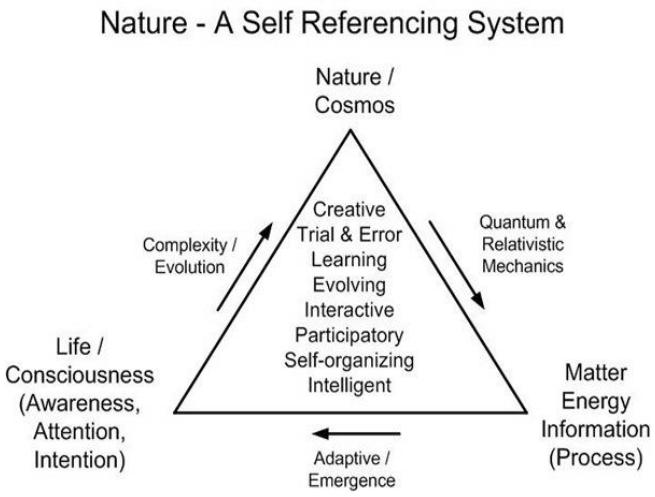

Figure 2. Nature's principles (Mitchell & Staretz 2011)

The Syntergic Theory of Grinberg-Zylberbaum (1997) supports also the QHTC. Grinberg, studied the interaction of the human brain and what we know as reality. He was interested in explaining how human consciousness was capable of perceiving and producing the phenomenon of experience. For this, Grinberg-Zylberbaum had to leave what he called the scientific myth and lean on various mystical Eastern philosophies such as the Jewish Kabbalah, and did extensive fieldwork investigating the cosmogony of the various shamanic traditions throughout the Mexican Republic. Derived from this experience, the Mexican scientist developed his syntergic theory. Greenberg proposes that reality as we know it is just the result of a distortion generated by our own brains in the quantum lattice.

According to the theory, the human brain can generate a hypercomplex field of interactions as a result of all of its neuronal elements being activated. The "neuronal field" is the name given to this interaction matrix. Unification of neuronal activity is one of the effects of its activation. The neuronal field is hypothesised to cause a distortion in the fundamental space—time structure, and the reality of our perceptions is the perception of this distortion. It explains that human beings interact with an informational matrix or informational field that encompasses and involves everything and that contains all the information in each of its portions. It is a holographic matrix, there are no objects separated from each other, but rather an extraordinary informational field of enormous complexity. According to Grinberg-Zylberbaum (1997), our brain interacts with that informational field that in quantum cognition is classified as a quantum field, current physicists speak of a zero-point energy field and Grinberg's Syntergic Theory (1997) calls it a syntergic field. According to this theory, the brain interacts with this field and from this interaction, as a result of brain processing, perceptual reality appears, which we perceive as we know it, that is, objects, shapes, colors and textures.

Grinberg-Zylberbaum (1997) expresses that: "the term experience is an inclusive whole, even of consciousness". Everything we feel, see, hear; all our emotions, bodily sensations, thoughts, images, are experiences. Grinberg-Zylberbaum (1997) no longer refers to technique, not memory or learning, not to psychological maturation or seniority. Consciousness is the experience of awareness. The neologism of syntergy arises from the word's synthesis and energy.

According to Grinberg-Zylberbaum (1997), quantum learning is the consequence of the interrelation of the individual with the environment and of their energy fields with each other, determined by qualitative-quantitative energy changes, generated in the central nervous system; giving rise to associations between the new chaotizing incentives and the existing fields, unleashing chaos in the middle of the field formed by the previous concepts, to generate a new conceptual field, through an entropic process.

Grinberg-Zylberbaum (1997) states that our personal identity has to do with the level of consciousness from which we operate. There is a correspondence between the levels of consciousness and ways of knowing and since reality is a way of knowing, then reality is a level of consciousness. Grinberg-Zylberbaum (1997) states that reality is not ideal, it is not material, it is not spiritual, it is not concrete, it is not mechanistic, reality is a level of consciousness and only that level is real. Grinberg-Zylberbaum (1997) continues to explain that although reality

is inexpressible, it is experienceable. Grinberg-Zylberbaum (1997) explains that reality and perception are the same.

The syntergic theory lead to the development of the transferred potential experiment of Grinberg-Zylberbaum (Grinberg-Zylberbaum et al. 1994). Grinberg-Zylberbaum believed that just as 2 particles that interacted in the past become entangled, a structural change in one affects the other as well, no matter how far away they are, human brains become entangled when their neural field interacts in highly synergistic circumstances. When 2 people meditate together, for example, the potential transferred between human brains, that is, telepathy was not a fantasy but a reality. Grinberg-Zylberbaum believed that just as when 2 water waves collide, they give rise to a 3rd wave pattern. The interaction between the neuronal fields gave rise to what he called a hyperfield (Grinberg-Zylberbaum et al. 1994).

QHTC and Altered States of Consciousness (ASC)

Hernandez (2018) argues that the QHTC, explains the nature of our reality and non-ordinary states of consciousness. Hernandez et al. (2018) argue that one of the keys to understanding "consciousness" is the analysis of ASC phenomena including near-death experiences (NDEs), out-of-body experiences (OBEs), and contact with Non-Human Intelligence (NHBI) (Hernandez et al. 2018).

Hernandez et al. (2018) hypothesise that all these occurrences are connected via a phenomenon known as consciousness and that advanced physics, specifically the QHTC, can begin to provide a basic understanding of the links between varied altered states of consciousness experiences (Mitchell 1999). Certain aspects of this phenomenon exhibit quantum-like holographic qualities, which correlate to several fundamental principles of quantum theory. These include: 1) Nonlocality, coherence, and instantaneous information exchange in a timeless and placeless dimension; and 2) Experiments demonstrating quantum entanglement-related phenomena that are unaffected by distance, such as "telepathy" (outside space) (Grinberg-Zylberbaum Delaflorc & Arellano, 1993) and "precognition" (outside time) that can provide information about future events (Paul 2019).

Consciousness is multidimensional and can exist in different realms at the same time. Everything that exists has a vibration that distinguishes it from other things (Valverde 2018). The vibration dimension has an ordinal scale, meaning that a given vibrational state is higher, the same, or lower than another state. Realms are regions in the multidimensional vibrations of consciousness that differ in their vibrational state. Altered states of consciousness appear to be related to the capacity of the human consciousness to access different realms. One of these altered states of consciousness is Near-Death Experiences. The idea that consciousness persists after the failure of the body is becoming more accepted as many people have reported NDEs when the body fails temporarily after potentially life-ending events (Long & Perry 2010, Greyson 2010).

The QHTC sums up how consciousness sees, learns, adapts, and evolves in its surroundings. This model is shown in figure 3. In this model, we show how establishing resonance (PCAR) between a percipient and a target object, the phase conjugate (mirror image) signaling paths connecting the two, can be labeled "perception" on the input side and either "attention" or "intention" on the output side (Mitchell & Staretz 2011).

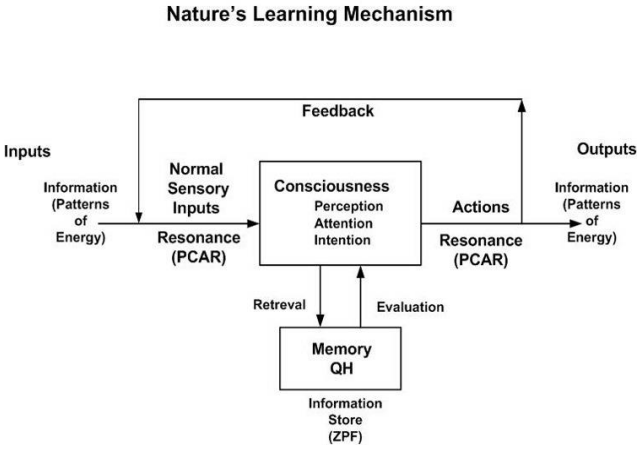

Figure 3. How Nature Learns (Mitchell, 2001)

The QHTC can be expanded to explain also quantum orientations during ASC. In theoretical physics, Penrose (1971) proposed a two-dimensional diagram capturing the causal relations between different points in spacetime through a conformal treatment of infinity (Figure 4). In theory, the manipulation of time and space requires a reorientation of quantum particles according to these principles. Grof (2000) found that altered states distort the perception of time and space when people experience them. The QHTC

uses the Penrose diagrams to explain how quantum particles can be realigned in ASC.

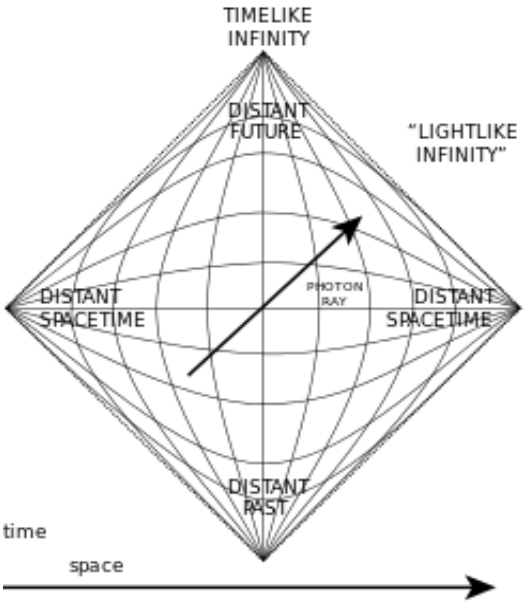

Figure 4. Penrose diagram of an infinite Minkowski universe

When we enter ASC, we enter a state that is not limited by time or space (Grof 2000). According to Hu and Wu (2007), gravity exists prior to time-space and is conscious. Quantum energy is a form of pre-time and pre-space energy that our consciousness uses to construct reality (Valverde 2018). Time is viewed linearly in a normal state of awareness, as illustrated in figure 5. We experience time as a linear progression of events in the past, present, and future.

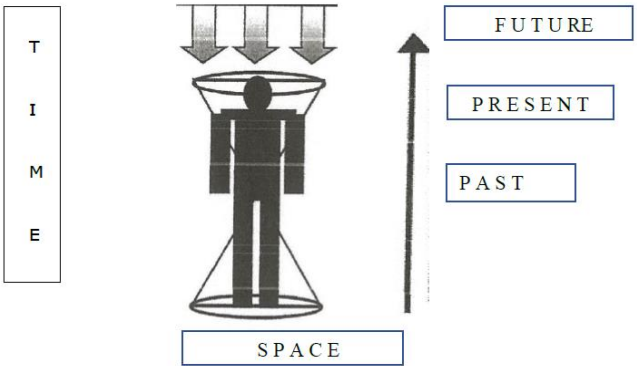

Figure 5. Normal States of Consciousness perception of time and space

The QHTC explains that in altered states, it is possible to shift the orientation of the quantum energy of the cosmos using the gravitational force on our plane, which is pure consciousness; this manifests the gravitational energy that nourishes the universe. These quantum particles align in changed states, allowing cosmic energy to pass through. (Figure 6).

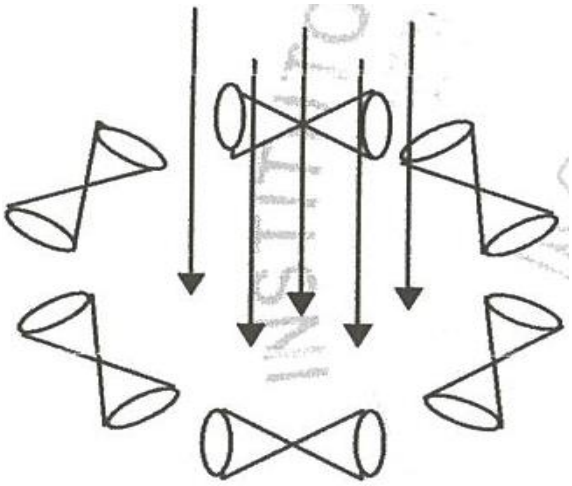

Figure 6. Quantum alignment in non-ordinary or altered state of consciousness

This assertion is borne out by Penrose's geometry theory (1971). Time and space are twisted in these states, and we view reality differently; time is no longer linear, and space ceases to exist. Figure 7 illustrates this.

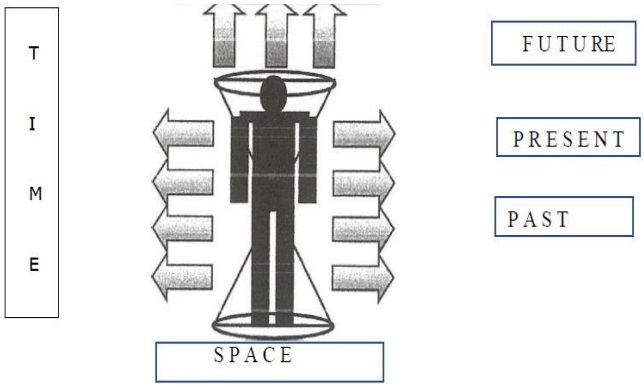

Figure 7. Altered States of Consciousness perception of time and space

Consciousness-altering experiences include near-death experiences (NDEs). Hernandez et al. (2018) propose that the QHTC explains untelligible aspects of consciousness such as non-locality. The Quantum Holographic Theory of consciousness explains that our consciousness can interact with the physical world because the interpretation of frequencies into what we know as reality. Near death experiencers report stories that seem to have quantum-like holographic properties that correspond with some of the basic principles from

quantum theory including non-locality and quantum entanglement.

QHTC and Potential Methods for Induction of Altered States and Data Collection for Analysis Purposes

Research into QHTC, requires the induction of ASC. Hypnosis has been used to induce ASC. Hypnosis works by putting the left hemisphere of the brain to sleep, or at least distracting it long enough to allow incoming data direct, unchallenged entry to the right hemisphere (Kihlstrom, 2005). Stimuli can reach the sensor and motor cortices of the right brain, which appropriately, according to the report, can elicit reactions ranging from left leg numbness to feelings of happiness and increased powers of concentration (Spiegel 2007).

Via concentration, transcendental meditation causes the individual to draw energy up the spinal cord, resulting in acoustical waves that go through the cerebral ventricles to the right hemisphere, excite the cerebral cortex, travel along the homunculus, and finally reach the body. The waves are an altered rhythm of heart sounds that cause sympathetic vibrations in the walls of the fluid-filled cavities of the ventricles of the brain. This shift in the body's vibratory state causes the individual to experience ASC. (Barmark & Gaunitz 1979).

Robert Monroe has produced evidence that specific sound patterns have identifiable effects on human capabilities. These include alertness, sleepiness, and expanded states of consciousness. He started having spontaneous out-of-body experiences (OBE's) in the 1950s with his binaural sounds (Wilson 1993). Binaural sounds are used to synchronize the brain into one frequency, these can be used to induce ASC for research purposes (Valverde 2015). With binaural sounds, the electrical brain patterns of both hemispheres can reach equal amplitude and frequency. This is called Hemi-Sync (Valverde 2015). If a subject hears a binaural frequency at the Theta level, it will shift from a Beta level to an ASC (Valverde 2015), which in many cases seems to be optimized when reaching Schumann's resonance frequency, which matches Earth's own frequency (7 - 7.5 Hertz) (Fillmon 2020). This resonance with the Earth's frequency gives a sense of oneness similar to Schrödinger's One Mind (Bruza & Ramm 2019).

Remote viewing experiments have been used by the CIA to understand the nature of consciousness (Puthoff, 1996). Quantum mechanical descriptions of the nature and functioning of consciousness have been developed to understand phenomena like remote viewing (Rausche, Hurtak & Hurtak 2016).

Self affirmations have also been used to induce ASC by programming the mind to induce these states (Stanojevic-Vitaliano 1995). The individual can program the mind to induce altered states by repeating mantras such as, "I am more than a physical body and deeply desire to expand my consciousness and elevate my vibrations".

Biofeedback and neurofeedback have been used to measure ASC (Valverde 2016) and to train the left hemisphere to visualize the desired result, recognize the feelings associated with right hemisphere access, and ultimately achieve ASC. With repetition, the left brain can reliably key into the right brain and strengthen the pathways so that it can be accessed via a conscious demand. The use of biofeedback has been successful to block pain and enhance feeling according to Miltner, Larbig, & Braun (1988). With neurofeedback, the researcher can measure if the individual is reaching Theta states of consciousness that are associated with ACS (Valverde 2016).

Gas discharge visualization (GDV) technology can also be used to measure ASC. Over 200 years ago, the glow of various sorts of objects in high-intensity electromagnetic fields was discovered and has since attracted the attention of psychology research group (Korotkov, 1985). However, it was not until 1995 that the development of gas discharge visualisation (GDV) equipment that elevated this type of research into a scientific level. Since then, the physical principles underlying the glow have been extensively researched (Korotkov et al. 2010), serial production of the devices has been established, and a set of software programmes for medical, biological, and materials research has been developed (Korotkov 2018). It has been demonstrated that the characteristics of a person's cutaneous covering's glow are essentially determined by the activity of the autonomic nervous system, with particular emphasis on the system of adaption levels. In addition to GDV, the acronym EPI (Electrophotonic Imaging) is used to refer to this technology. In the presence of altered states of consciousness, EPI/GDV bioelectrographic devices have demonstrated practical utility. The inquiry into awareness processes is an intriguing

part of EPI applications. Several decades of research have enabled the identification of bioelectrographic correlates of altered states of consciousness (ASC) (Bundzen et al., 2000).

EPI works by applying a mild, completely painless electrical current to the fingertips for a fraction of a millisecond. The body responds to this stimulus by forming a version of an "electron cloud" that emits photons of light energy. An optical CCD camera system captures the electrical "glow" of this discharge (which is invisible to the naked eye) and converts it to a digital computer file.

Each test generates a unique "Photonic Profile" that is compared to a database of hundreds of thousands of data records using 55 various parametric discriminates and charted for discussion and analysis (Korotkov 2018).
A scan is accomplished by applying a brief electrical current to the fingertips for less than a millisecond. In response to this stimulus, the object forms a version of a "electron cloud" consisting of photons of light energy. The camera system captures the electronic "glow" of this discharge, which is invisible to the naked eye, and then converts and transmits it back in graphical representations to show energy, stress, and vitality ratings.
Bundzen, Korotkov, & Unestahl (2002) used bioelectrographic signals, otherwise known as gas discharge visualization (Korotkov 2012) with individuals experiencing altered states to measure the presence of these states. Statistical study of GDV-grams from participants in altered states of consciousness revealed a significant difference in GDV parameters between these states and the normal state of consciousness. Indeed, the biggest changes in GDV characteristics measured occurred during the ASC transition. They occurred concurrently with the levelling of the brain's bilateral functional asymmetry. These changes may be regarded as a brief explosive activation of brain function during strong mental engagement in an ASC (subject concentrating on mental pictures or ideomotor repetition of psychomotor attainment). In summary, the discovered correlates and events suggest that an ASC alters both psychosomatic and psycho-energetic autoregulation.

QHTC and Quantum Ontology

Many authors have proposed using Quantum ontology to represent ASC such as NDEs. A quantum ontology based on QHTC can help to map experiences described in altered states of consciousness. These maps can help us to understand better the realities experienced in these states. Table 1 shows the constructs for the Quantum Ontology for altered consciousness experiences as proposed by Hernandez et al. (2018).

Table 1. Quantum Ontology in non-ordinary States of Consciousness (Hernandez et al. 2018)

Construct Element	Description
Thoughts sped up	Your thoughts are sped up
More vivid reality	Your senses are more vivid than usual.
Separation from body	You feel separated from your body.
Relief or Calmness	You have a feeling of peace or pleasantness.
Unusual Brightness	You see or feel as if you are surrounded by a brilliant light.
Encounter with mystical being or presence	You seem to encounter a mystical being or presence, or hear an unidentifiable voice.
Contact with deceased or religious spirits	You see deceased or religious spirits.
Past Events	Your past comes back to you.
Enter some other, unearthly world	You seem to enter some other, unearthly world.
Time seems to speed up or slow down	Time seems to speed up or slow down.
Sense of harmony or unity with the universe	You feel a sense of harmony or unity with the universe.
Sense of understanding everything	You suddenly seem to understand everything.
Multi-dimensional experience	Multi-dimensional experience seems real to you.
Timelessness	You perceive that time does not exist.

Conclusions

The article introduced QHTC as the main framework to conduct research for altered states of consciousness as it can be used to explain the nature of our reality and non-ordinary states of consciousness. In the article, The QHTC was

expanded to also explain quantum orientations during ASC and explain its state that is beyond time and space. The article also explored specific techniques to gather data for analysis and to induce altered states were discussed hypnosis, transcendental meditation and binaural sounds and self-affirmations. Technologies used to measure ASC were discussed including biofeedback. neurofeedback and gas discharge visualization (GDV) technology. This last technology has a great potential to hep us to model the consciousness from the quantum energy point of view. GDV has also great utility to study phenomena such as near-death experiences as we can gather empirical data for further analysis and validation of theories.

The QHTC theory has tremendous potential to explain how ASC can affect our experience, which would aid in our understanding of how our brains construct and interpret reality. This theory has also great potential to explain near death experiences and other paranormal experiences that seem to be related given their commonalities. A quantum ontology is presented as a research tool for this theory, ontological research paradigms are very well established for computer science research, biotechnology, and social science, this can be a framework for consciousness as covered in this article.

Future research would concentrate in the induction of ASC and collection of data with GDV, ontological analysis would help to associate ASC with the QHTC to understand better their relationships. A unification of the syntergic of Grinberg-Zylberbaum and QHTC would help to understand how the brain distorts reality based on the experiential perception of the observer. A level of consciousness seems to be relation to this level of distortion, future research should focus on how to measure this level of consciousness and distortion to understand the relationship between these two.

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