Speculation on *Shaktipat* as "Spooky Action at a Distance"

Juan J. Rios

ABSTRACT

This paper is a speculative inquiry into the operation of the mechanism for conferring *shaktipat* over a distance that may be an example at the human level of what physicist Albert Einstein termed "spooky action at a distance." The spooky action referred to by Einstein is the transmission of information between two objects in a reality outside space and time that occurs in the non-classical world of quantum mechanics. This paper does not explain the mechanism by which "spooky action at a distance" works. The evidence presented in this paper only points towards the potential conclusion that a mechanism may exist for transmitting the effects of human intention like *shaktipat* onto living systems that is consistent with "spooky action at a distance."

Key Words: *shaktipat*, entanglement, guru, Siddha Yoga, intention

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"Quantum Mechanics is magic"
Greenberger as cited in Mermin, 1985, p. 38

Introduction

Once upon a time in Austin, Texas I had a magical experience. A friend asked for my photograph to show to his guru, Gurumayi Chidvilasananda, whose followers believed that a look, thought, or touch from the guru confers *shaktipat*, the spiritual energy of kundalini. I gave him my photograph and forgot the incident. Without ever having seen the guru and with no expectation on my part, nor knowledge of the guru's intentions to transmit *shaktipa*t, somehow, while the guru was in New York City, she may have transmitted *shaktipat* energy that targeted me in Austin. I refer to *shaktipat* as energy because, to me, the experience felt as if my brain had been charged like a battery causing cosmic consciousness information to sparkle through my mind, transporting me outside the boundaries of an everyday common sense reality of space and time. Apart from the experience, what intrigued me was the mechanism by which the guru's conscious intention transmitted energy/ information that targeted and influenced me, despite the vast distance separating us and the lack of any classical means of contact between us.

Shaktipat May be an Example of "Spooky Action at a Distance"

> Albert Einstein coined the phrase "spooky action at a distance" to describe the counterintuitive phenomenon in which particles appear to instantaneously influence each other even when they are kilometers apart. Today, scientists call it quantum entanglement, and it forms a cornerstone of the quantum world (Sanders, 2010, p. 27).

This paper speculates that the operation of the mechanism for conferring *shaktipat* over a distance may be an example at the human level of what physicist Albert Einstein termed "spooky action at a distance." The spooky action referred to by Einstein is the immediate transmission of

Corresponding author: Juan J. Rios
Address: 5472 Buggywhip Drive, Corpus Christi, TX 78415
e-mail ✉ icaruswind7@gmail.com
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information between two objects in a reality outside space and time that occurs in the non-classical world of quantum mechanics. The implication is that the transmission of information between two objects cannot be described by common causes between the objects, and also the transfer of information cannot be described by classical means of communication (Salart *et al*., 2008, p. 861).

"Albert Einstein disliked quantum mechanics. At the top of Einstein's list of complaints was what he called "spooky actions at a distance" (Cramer, 1997, p. 12). As explained in this paper, Einstein used the term in a derisive manner because quantum mechanics predicted the transmission of information between two entangled bodies via a mechanism that operated faster than the upper limit of the speed of light in his special theory of relativity. Einstein believed that a mechanism that operated faster than the speed of light was *spuchlich* (spooky). To be clear, "Einstein had no difficulty accepting that affairs in different places could be correlated. What he could not accept was that an intervention at one place could influence, immediately, affairs at the other" (Bell, 2004, p. 144).

However, contrary to what Einstein believed, laboratory experiments discussed in this paper strongly suggest "spooky action at a distance" is apparently how the quantum world operates. Despite Einstein's derisive use of the term, "spooky action at a distance" is used today by quantum scientists and researchers into mind-matter interactions and is used interchangeably with the term "entanglement." In this paper, the term "spooky action at a distance" and "entanglement" are both used to describe the possibility that, at the macro level of human interaction, two bodies may be able to influence each other across space and time in a non-classical manner.

Relationships Extending Curiously Throughout Space and Time

> All that remains, like the smile of the Cheshire Cat, from *Alice in Wonderland*, are relationships extending curiously throughout space and time. These connections were predicted by quantum theory and were called "spooky action at a distance" by Albert Einstein. One of the founders of quantum theory, Erwin Schrödinger, dubbed this peculiarity *entanglement* (Radin, 2009, p. 1).

"According to quantum theory, quantum correlations… simply happen, somehow from outside space-time, in the sense that there is no space-time explanation for their occurrence: there is no event here that somehow influences another distant event there" (Salart *et al*., 2008, p. 861). At the human level, there may also be many examples of correlations that simply happen in the sense that the correlations cannot be described by common causes between living systems, and also the transfer of information cannot be described by classical means of communication between the living systems. There are numerous studies on the transmission of information between human brains and the effects of human intention on distant living systems that may be due to a mechanism consistent with that of the phenomena of "spooky action at a distance" because the information transmitted between the living systems appears to occur in a reality outside space and time. For example, correlations at a distance were studied between the brains of human subjects separated inside semi-silent Faraday chambers that determined the brain may have a macroscopic quantum component. The authors stated the following:

> Our results cannot be explained as due to sensory communication between subjects (since the subjects were separated during the experiment and located in two semisilent, electromagnetically isolated chambers)… This means that neither sensory stimuli nor electromagnetic signals may be the means of communication (Grinberg-Zylberbaum *et al*., 1994, p. 424).

In another example, Radin *et al.* (2015) provided "a broad overview of 'distant healing intention' (DHI) therapies, i.e., intentional healing modalities claimed to transcend the usual constraints of distance through space or time" (p. 67). The authors made the following statement on possible physical mechanisms for DHI:

> Given the well-accepted evidence for quantum nonlocality, which demonstrates the existence of "spooky action at a distance" (as Einstein described it), and especially the growing evidence for quantum coherence effects

> in living systems, possible physical mechanisms for DHI are no longer inconceivable (Radin *et al*., 2015, p. 67).

Therefore, the possible physical mechanism for the transmission of information between human brains or living systems may be consistent with "spooky action at a distance" provided there are no common causes between the living systems, and the transfer of information between the living systems cannot be described by classical means of communication.

Problems in Applying Western Science to *Shaktipat*

Explaining *shaktipat* at a distance in terms of a quantum mechanics theory presents several problems. As a non-classical theory, "quantum mechanics… exhibits many effects that are counter-intuitive. This is because in our everyday life we experience a classical (macroscopic) world with respect to which we define 'common sense'' (Plenio *et al.,* 1998, p. 431). Also, "science is beginning to reconcile with the concept of 'spooky action at a distance' within fundamental physics, but so far the idea that [it]…might also exist in living systems, and be pragmatically useful in some way, evokes as much contempt as it does serious interest" (Radin *et al.,* 2008, p. 235). As a result, classical fundamental physics, which is beginning to accept "spooky action at a distance" and plain old "horse sense" does not allow for the possibility that human conscious intention may be able to transmit energy/information, much less a spooky, mystical experience like *shaktipat*, over a distance.

To compound the problem, in western science "there are no well-accepted theoretical reasons to expect that mind can directly interact with matter" via human intention where "*intention* is defined as a mental state directed at achieving a goal" (Schlitz *et al.,* 2003, pp. A32-33). Despite the lack of a well-accepted theory as well as a lack of interest in western science, other cultures have studied the interaction of mind directly affecting matter over a distance by human conscious intention. For example, Leder describes the following:

> Diverse cultures have formulated detailed accounts of other "subtle" energies…that are thought to bridge the divide between matter and mind…such subtle energies can be directed by conscious intent, altered, and transmitted. For example, Hinduism has long recognized *shaktipat*, the sending of psychospiritual energy from a guru to a disciple…over a distance (Leder, 2005, p. 926).

Qualification

This paper does not explain the mechanism by which "spooky action at a distance" works because "to date scientific investigations have failed to elucidate a mechanism for…the effects of human intention on living systems" (Lake, 2014, p. 15). Both my experience of a possible *shaktipat* transmission that I will describe in a qualitative manner and the published quantitative laboratory evidence presented in this paper suggests a mechanism may exist for transmitting the effects of human intention like *shaktipat* onto living systems that is consistent with "spooky action at a distance."

Focus and Outline of Paper

While this paper speculates that the mechanism by which human conscious intention transmits energy/information like *shaktipat* across space and time may be consistent with "spooky action at a distance," the focus is not on the types of "subtle energies" that cause a *shaktipat* experience. In the following section, a brief history of Einstein's "spooky action at a distance" debate is examined to provide an idea of what Einstein meant by using the term "spooky." Next, laboratory evidence is discussed demonstrating that Einstein's "spooky action" may operate in macro systems as well as micro-systems. Based on laboratory results, the assumption is made that "spooky action" may also operate at the human level if the brain is considered a macro aggregate of particles. Following this is an account of my experience to provide subjective evidence of a possible correlation between the guru's intention to confer *shaktipat* and the transmission of the energy/information that I experienced. My experience is compared to core qualities that may be common to some transcendent experiences to determine if my experience could have been *shaktipat*. If so, my experience could be one example of "spooky action at a distance" in the transmission of *shaktipat*. Next, there is a discussion of how it is possible to validate, in the laboratory, the mechanism for transmission of

energy/information despite the absence of a testable theory. Finally, research in several areas is reviewed where human conscious intention is apparently responsible for transmitting energy/information that affects a distant subject.

"Spooky Action at a Distance" Debate

> It was Schrodinger who recognized entanglement as "not one but rather *the* characteristic of quantum mechanics, the one that reinforces its entire departure from classical lines of thought"… Einstein interpreted its spooky action at a distance as the symptom of the incompleteness of quantum theory (Keller, 2012, p. 5).

"Spooky action at a distance" (called entanglement by Schrodinger) is the keynote phrase in a famous, still ongoing, debate initiated by Einstein over whether quantum mechanics was a complete theory. In a well-known coauthored paper by Einstein, Podolsky and Rosen (1935) known by the acronym as the EPR argument, Einstein stated his uncertainty: "We are thus forced to conclude that the quantum-mechanical description of physical reality… is not complete" (p. 780).

One of Einstein's concerns was that quantum mechanics predicted the transmission of information between two entangled bodies via a mechanism that operated faster than the upper limit of the speed of light in his special theory of relativity. To Einstein, a mechanism that operated faster than the speed of light was a spooky action because "no reasonable definition of reality could be expected to permit this" (Einstein *et al*., 1935, p. 780). "He would try and fail for the rest of his life to exorcize the spook, which after all seemed to violate relativity" (Keller, 2012, p. 5). However, in time, Einstein was eventually proven to be mistaken in his belief that a mechanism for the transfer of information could not operate faster than the speed of light, and "subsequent experiment... repeatedly demonstrated that… the universe allows 'spooky action'" (Schlitz *et al*., 2003, p. A33).

In the quantum mechanics world, the influence of particle A on particle B can be explained in the following manner: If two quantum particles A and B, with linked properties, are separated and the spin of particle A is measured at a location then the information of the measurement is instantaneously transmitted to particle B. The information, transmitted faster than the speed of light, influences the spin of particle B, and, for some unknown reason, particle B always spins in the opposite direction in relation to particle A. Physicist Karen Barad explains it as "the entangled state of A and B is read as a single entity, no matter how far apart is B from A" (as cited in Keller, 2011, p. 7). It is as if entanglement is quantum glue holding the interacting quantum particles together (Hu *et al*., 2007, p. 8).

However, Einstein's position was "that which really exists in B should …not depend on what kind of measurement is carried out in part of space A; it should also be independent of whether or not any measurement at all is carried out in space A" (Mermin, 1985, p.39). The spooky action of particle A influencing particle B through a mechanism that operated faster than the speed of light was one of the reasons for Einstein's belief that quantum mechanics was an incomplete theory. In a 1947 letter to another physicist, Max Born, Einstein stated, "I cannot seriously believe in it because the theory cannot be reconciled with the idea that physics should represent a reality in time and space, free from spooky actions at a distance" (Born, Einstein Letters, 1916/1955).

However, outside of Einstein's concept of a classical reality in time and space is apparently how the universe operates in certain cases, and, in time, laboratory experiments established that the speed of light was indeed exceeded when one quantum particle influenced another in the transfer of information. As one example, Salart *et al*. (2008) stated that "the configuration of our experiment allowed us to determine…a lower bound for the speed of the influence…the speed of the influence would have to exceed that of light by at least four orders of magnitude" (p. 861).

Although Einstein considered quantum mechanics a correct theory and even nominated Heisenberg for the Nobel Prize in Physics, which Heisenberg won in 1932 (Bernstein, 2005, p. 1004), Einstein nevertheless regarded it as an incomplete theory until the end of his life, and his concerns about "spooky action at a distance," was just one reason Einstein considered quantum mechanics an incomplete theory. However, regarding his concerns about spooky actions, "experiments have now shown that what bothered Einstein is not a debatable point but the

observed behavior of the real world" (Mermin, 1985, p.38).

Many experiments in quantum mechanics have been designed and further replicated showing that Einstein's "spooky action at a distance" operates at the micro level (Witze, 2010, p. 25). Also, recent experiments in quantum mechanics at the macro level (Vedral, 2011) indicate that large groups of atoms, can become entangled and exhibit "spooky action." Even two spatially separated, millimeter-sized diamonds at room temperature exhibited motional entanglement between vibrational states suggesting "that entanglement can persist in the classical context of moving macroscopic solids in ambient conditions" (Lee *et al*., 2011, p. 1253).

Speculating on Macro "Spooky Action at a Distance" at the Human Level

If laboratory data indicates that macro groups of particles can become entangled, there may be a possibility that entanglement (i.e. "spooky action at a distance") also operates at the human level if the brain is considered a macro aggregate of particles. If two human brains can be considered particles with properties similar to quantum particles A and B then one brain may be able to influence another brain via the "spooky action at a distance" mechanism that allows particle A to influence particle B in quantum mechanics theory. Michael Persinger, professor of Behavioral Neuroscience at Laurentian University, has led the way in the application of laboratory research to what could be labeled "mystical experiences." He has obtained laboratory evidence for a correlation between brain activity and the transmission of human conscious intention whose mechanism for transmission may be consistent with Einstein's "spooky action." A paper he coauthored argues that a human brain may under certain conditions be thought of as a single particle:

> The human brain can be considered a large aggregate of particles that under certain conditions may behave as a "condensate" or a single global brain state (functionally a "particle")... Two brains… might be entangled by processes as quantifiable and as experimentally reproducible as those displayed by pairs of particles (Persinger *et al*., 2010, p. 786).

A More Complete Picture than Laboratory Data can Provide

Even if two human brains behave like particles A and B in the laboratory, the quantitative laboratory data cannot provide a complete picture of a transcendent experience like *shaktipat*. Waldron (1998, p. 103) has stated that transcendent experiences are sometimes referred to as mystical experiences. In my case, it is my opinion I had a transcendent experience that may have been mystical, and, if so, it could be defined in the following manner:

> …one specific type of mystical experience, which was termed cosmic consciousness…by the nineteenth century physician Robert Maurice Bucke…'The prime characteristic of cosmic consciousness is, as the name implies, a consciousness of the cosmos, that is, of the life and order of the universe" (Smith and Tart, 1998, p. 98).

Because "these experiences take the percipient beyond his or her own known boundaries of knowledge, experience, and understanding" (Waldron, 1998, p. 104), a qualitative method must be used to capture the wholeness of the intensely personal subjective quality of the experience and not an objective quantitative method. The disadvantage of using only quantitative research methodology to describe a transcendent experience like *shaktipat* may be inferred in the following statement by Anderson and Braud (2013):

> Quantitative methods emphasize "objective" third-person accounts to the disadvantage of "subjective" first-person accounts; some methods (e.g., experiments) tend to be used in artificial contexts that may not be relevant to the real life contexts in which experiences and events naturally occur. Such methods can overly simplify and trivialize experiences by reducing what is studied to what is readily measurable, losing much of the richness and personal meaning of experiences (p. 243).

Therefore, before discussing the quantitative laboratory experiments demonstrating that entanglement may also operate at the human level, a subjective account of my experience is provided within the context of my life in Austin,

Texas. Next, my experience is compared against a list of core qualities that may be common to some transcendent experiences to determine if my experience could have been *shaktipat*. If so, my case could be viewed in terms of a guru conferring *shaktipat* by transmitting human conscious intention over a vast distance via a mechanism that is consistent with the phenomena of entanglement/"spooky action at a distance."

Background to My Experience

In Austin, Texas in the 1980s I could be described as a lackadaisical spiritual seeker. I causally sampled the smorgasbord of spiritual disciplines and gurus offered by one of the most liberal cities in the country. I adhered to no particular discipline except for Iyengar yoga, which I practiced three times per week, because I liked the athleticism of that particular style of yoga and its community of practitioners, who became my friends. Also, I did not practice a particular meditation style and merely closed my eyes while meditating. In my time in Austin, I had no extraordinary experiences while sampling the various spiritual disciplines. Occasionally I would lunch with a friend who raved about Siddha yoga and kept encouraging me to go to a lecture, which I never did. He asked for my photograph to show to his guru (Gurumayi Chidvilasananda) in New York for an upcoming weekend workshop. I gave him the photo and forgot about the incident.

Two weeks later, I went to sleep early on a Friday night, woke the next morning and went about my early morning routine before I started to meditate. As soon as I closed my eyes to meditate, it immediately felt as though my mind had expanded to encompass the entire universe, and limitless possibilities unfolded before me. My brain felt like a battery that had been charged. The intensity of the charge dissipated over a four-hour period, and I gradually reentered my everyday state of consciousness. I had never had this type of experience before and have not had it since. A week later I saw my friend who stated that his wife, whom I had not met, had shown my photo to Gurumayi Chidvilasananda in New York City on the same Friday night while I slept in Austin.

Because of the timing of my experience, which occurred after I woke from my Friday night's sleep, I am assuming my experience was correlated to the guru viewing my photograph on Friday night while I was sleeping. Since I did not use drugs and was not under any intense emotional stress, nor did I devoutly practice any spiritual discipline, I am also disregarding these potential explanations for the experience. So, in the next section, I compare my interpretation of the experience against a list of core qualities that some transcendent experiences may have in common to determine if my experience could be classified as transcendent and therefore might have been *shaktipat* conferred by the guru. If it was *shaktipat*, the mechanism by which the guru conferred *shaktipat* on me over a vast distance may be consistent with "spooky action at a distance" because the mechanism cannot be described by common causes or classical means of communication between us.

Comparison of My Experience to Core Qualities of Transcendent Experiences

Waldron (1998, p. 105) compiled the below list of 12 qualities that in the author's opinion may be common to transcendent experiences. Part of the list is based on the work of William James, who wrote the classic *The Varieties of Religious Experience: A Study in Human Nature.* In addition, the author lists eight more qualities that may be a part of a transcendent experience. For each quality listed below in italics, I provide my observations and feelings of the experience.

- *Ineffability - the inadequacy of words to express the extraordinary quality of the experience:* Yes, this applies because it is impossible for me to describe the experience except to say that I had a sense of all the pieces in the universe fitting together into a perfect whole, and I could see the endless possibilities of the universe stemming from that perfect whole.
- *Noesis - receiving knowledge by direct and instantaneous perception*: Yes, this applies because, as soon as I closed my eyes to meditate, I had direct knowledge of the intimate details of the perfect wholeness of the Universe. However, as the *shaktipat* charge faded and the experience gradually diminished, I lost the knowledge.
- *Transiency - the typically momentary quality of the experience*: Yes, this applies because the experience lasted for approximately four hours. It felt as if my mind had been charged like a battery. In the first two hours, I felt the full effect of the charge, and, during this time, I was oblivious to time and my surroundings.

However, after the first two hours, outside stimuli gradually began to be felt in my body while I was in the meditative posture and my legs began to feel cramped. I left my meditation posture and moved around the apartment doing tasks like cooking breakfast. As I went about my routine, the gradually diminishing charge of the *shaktipat* experience still played out in my mind for about another two hours.

- *Passivity-having little or no control over the experience*: Yes, this applies because I had no control over the experience nor did I feel as if I could direct the outcome toward a goal. I just went with it like a twig in a rushing stream. However, although it was intense, I did not feel anxious because everything that happened felt natural and normal. I did not have a feeling of undergoing anything exceptional or special.
- *Unity - the feelings of being in unity and harmonious relationship with everything in existence*: Yes, this applies in so far as I experienced the universe with all the pieces fitting together in a harmonious whole and from that whole all was possible.
- *Numinousity - feelings of mystery, awe, and a sense of the sacredness of the experience*: No, I did not have a sense of sacredness, mystery, or awe, nor did I feel that God or any other supreme being played a part in the experience. I felt that perceiving the perfection of the universe was a natural and obvious experience like casually nodding my head and acknowledging the wind on my face by saying "yes, this is the way it is; there's no need to get excited about it."
- *Loss of ego - the sense of having no personal, personality, or ego boundaries*: In the sense that I was completely lost in the experience for the first two hours before outside stimuli intruded and made me aware of my body then this would apply.
- *Time/space change - the experience of time and space altering their usual parameters*: In the sense that I was completely lost in the experience for the first two hours so I was not aware of space or time then this would apply.
- *Perceptual change/vision/audition - internal or external visionary or auditory experience, impressions of bright light, sense of "presence"*: Yes, this applies. If I was able to describe the experience in visual terms, when my eyes were closed, it would be like bright lines of energy forming patterns and the patterns transmitted knowledge of the perfection of the universe that needed no further explanation. In my "non-ordinary state[s] of consciousness," I had an "instant intuitive understanding of the various levels of meaning of these symbols" (Grof as quoted in Ferrer, 2011, p. 13). However, the *ineffability* of the experience inhibits my attempts to describe it.
- *Affect change - the experience of positive feelings such as joy or ecstasy, as well as the possibility of negative or mixed feelings*: No, I did not experience any intense feelings, not even a feeling of wonder. As soon as the experience was over, I did not dwell on it. Instead, I went about my usual mundane routine. Shortly thereafter, I casually mentioned the experience about three times but not in any intense exchanges of conversation. Also, in the intervening years, I did not think back on the experience except in the last few months prior to writing this paper. Perhaps because the experience felt perfectly natural, I did not dwell on it.
- *Transformation - feelings of having been reborn or transformed, and viewing life from a new and expanded perspective*: No, I did not immediately have these feelings. After the experience, I felt I was the same person that I was before the experience. However, a couple of years later I quit my job and enrolled in the Himalayan Institute to obtain a degree in Eastern Philosophy. But, I stayed at the institute for only two months before resuming my career as an environmental scientist. Less than a year later after resuming my profession, I moved to Emeryville, CA and lived a few blocks from a Siddha yoga ashram, but I never had the slightest desire to attend even though Gurumayi Chidvilasananda would sometimes lecture at the ashram. However, one of my primary goals for the last 20 years has been to attend a school like the California Institute of Integral studies (CIIS). The excuse I used that prevented me from enrolling was financial considerations. I finally attended CIIS after I decided to retire from my profession.
- *Paradoxicality - experiencing a unity of opposites where traditionally we have experienced dualism*: Yes, my experience was one of perfection and wholeness with no boundaries and, in this respect, I experienced a unity of opposites.

Speculating on Entanglement between the Guru and Me

From the preceding account and by a leap of imagination beyond the classical common sense world, it may be possible to speculate that "spooky action at a distance" works at the macro human level under extraordinary circumstances outside the everyday classical world of communication. In my case, it can be assumed that when the guru saw my photograph, we became entangled through some as yet undetermined means. Even though there was no classical physical contact between us and we were separated by over 1,500 miles, we may have become connected by a "quantum glue" (Hu *et al*., 2007, p. 8). In this entangled state, the guru was able to influence me by transmitting energy/information. The act of looking at my photograph, coupled with the guru's conscious intention, may have transmitted *shaktipat* that specifically targeted me, as a felt sense of energy/information somehow found its way from New York City to Austin, Texas. Viewed in this context, conferring *shaktipat* may be considered a "spooky action at a distance" because the mechanism for the transfer of the guru's influence on me over a vast distance cannot be described by common causes between us nor described by a classical means of communication between us.

Validating the Mechanism for "Spooky Action at a Distance" in the Laboratory

Can laboratory data of observed transmissions of energy/information between entangled humans validate a mechanism for "spooky action at a distance"? John Bell's Theorem (Bell, 1964) had mathematically demonstrated how Einstein's concerns about "spooky actions" could be tested. This led to many quantum mechanics experiments (Witze, 2010, p. 25) that showed, contrary to what Einstein believed, "spooky action at a distance" is the way nature is observed to work. According to Bell:

> …if nature behaves in accordance with the statistical predictions of quantum mechanics then 'there must be a mechanism whereby the setting of one measuring device can influence the reading of another instrument, however remote'. Experimental results, while not being totally conclusive, are such as to point towards this conclusion being valid (Josephson and Pallikari-Viras, 1991, p. 198).

While Bell was referring to the micro world of quantum mechanics, if Bell's reasoning also applies to the macro level of human influence at a distance as discussed in Laboratory Research section of this paper, the following may be stated:

- Positive laboratory data only points towards the conclusion that a mechanism exists for the transmission of energy/information over a distance by human intention that is consistent with the phenomena of "spooky action at a distance.
- Positive laboratory data is consistent with "spooky action at a distance" if the transmission of energy/information over a distance cannot be described by common causes between the transmitter and the receiver of the energy/information and if there are no classical means of communication between the two.

The Absence of a Testable Theory in Western Science

Experimentally observed results demonstrating the transmission by human intention of energy/information over a distance cannot be interpreted within a generally accepted quantum theory of consciousness that explains the phenomena being investigated. "Ironically, even if quantum-based theories…eventually do mature from metaphor to genuinely predictive models, they are still not likely to provide intuitively satisfying descriptive mechanisms…because quantum theory itself fails to provide such mechanisms for physical reality itself" (Bem *et al.,* 2015 p. 35). Nevertheless, laboratory data is useful because "in spite of the absence of a testable model of quantum level events in consciousness, reports of beneficial outcomes following…changes in…living systems following 'directed intention' may provide useful concepts for investigating phenomena associated with human consciousness" (Jonas as cited in Lake, 2014, P. 15).

Laboratory Research on "Spooky Action at a Distance"

That humans exhibit connections outside of space and time that could be consistent with "spooky action at distance," in the sense that there are no common causes or classical means of communication between subjects, may have been substantiated by empirical evidence. In 2005,

Richards *et al.* reported that "studies reporting the existence of anomalous correlated brain signals in pairs of physically and sensory isolated humans have appeared scarcely but consistently in the scientific literature for the last 40 years" (Richards *et al*., 2005, p. 955). The following provides a brief overview of some of the most recent laboratory data focusing on human physiological correlations due to energy/information transfer between humans at a distance that appear to operate via a mechanism that may be consistent with "spooky action at a distance."

Persinger has conducted extensive laboratory research to obtain quantitative evidence of macro-entanglement of biological systems (Persinger, 2008a, b). His website (Persinger website, accessed date May 2016) lists many of his over 200 peer reviewed papers which include studies on entangled states between humans. One such experiment (Ventura *et al*., 2014) indicated Theta bandwidth brainwave coherence between humans separated by distance without both members of the pair being aware that a distant healing process (Reiki) was occurring. In another experiment, the brains of separated subjects demonstrated "excess correlation" or entanglement at a distance of over 300 km (Burke *et al.,* 2013). A more recent experiment (Scott *et al*., 2015; Rouleau, 2015) indicates that excess brain correlation ("spooky action at a distance") operates across the Atlantic Ocean. Hu and Wu (2015), quantum consciousness researchers who reported on the cross-Atlantic work of Scott and associates, provided a review of over 20 references in their paper covering entanglement contributions made by other researchers in a variety of fields.

Dean Radin, who has performed extensive research into mind-matter interactions, is Chief Scientist at *the Institute of Noetic Sciences* (IONS) and is the author or coauthor of over 250 peer-reviewed scientific and popular articles and several popular books. As stated in his website, for about 30 years, he has spent the majority of his professional career "probing the far reaches of human consciousness, principally psi phenomena, using the tools and techniques of science." Two websites (deanradin.com and noetic.org) provide many research papers on the topic of distant mental influence. For example, a meta-analysis of experiments on distant intention effects related to healing concluded that "under some circumstances persons can intentionally interact or connect from a distance with each other" (Schmidt, 2012, p. 529). Another study (Achterberg *et al.,* 2005) uses functional magnetic resonance imaging (fMRI) technology to demonstrate that sending thoughts over a distance by human intention is correlated with activation in certain areas in the subjects' brains. The paper concludes: "These findings, plus the current study correlating brain activity in two sensory-isolated humans do not fit the classic model of physics and can be interpreted as consistent with entanglement at the macroscopic level" (p. 970).

On telepathy, Maudlin (2014, p. 4) quotes Einstein as saying "It seems hard to sneak a look at God's cards. But that he plays dice and uses 'telepathic' methods (as the present quantum theory requires of him) is something that I cannot believe for a moment." Maudlin goes on to state, "Note the second part of Einstein's concern: not merely that God plays dice but that he 'uses 'telepathic' methods'. This is, of course, the 'spukhafte Fernwirkung' ('spooky action-at-a-distance') that Einstein is also known to have railed against" (p. 4). As Maudlin's paper makes clear, Einstein's use of the phrase "telepathic methods" of course means "spooky action at a distance." In a 2014 paper titled "Telepathic Entanglements: Where are we Today?" de Peyer provides a review of the field of telepathy and discusses "Freud's conflictual beliefs in telepathy" (p. 109). A further analysis of Freud's accepting telepathy as psychoanalytical rather than occult phenomena is in Hewitt's 2014 paper, in which the author states the following about telepathy as a form of communication bridging spatial distances between people:

> Freud regarded telepathy as a form of communication. The word derives from Greek and refers to both distance [*tele*] and feeling, or a sense of being touched [*pathein*]. The concept suggests the communication of affects so powerful that they bridge spatial distance between people (Hewitt, 2014, p. 106).

The systems scientist Ervin Laszlo (2009) has discussed his collaboration with William Braud at the Mind Science Foundation on the effects of distant mental intention on living systems which they termed DMILS. Their goal was:

> …to develop a protocol that would allow us to study the correlation between the one person's intention and another

> person's physiology…The idea…was to simulate an experience in the laboratory that would allow us to study psychic healing, only working with healthy people who would serve as models for understanding what happens in the 'real world' (p. 166).

The reason for scientists' skepticism regarding data on humans exhibiting connections outside of space and time that may be consistent with "spooky action at distance" is probably best summed up in a statement by Ventura, Saroka and Persinger (2014). The difficulty for neuroscientists to accept the results "might be analogous to attempting to rationalize how a visually compromised flying mammal (a bat) in complete darkness avoids collisions with objects before the understanding of ultrasound" (p. 12). In the future, perhaps by the weight of laboratory data alone, western science may become interested in distant human mental intention directly affecting matter, and the western world view will gradually shift. As the world view shifts, an explanation for the mechanism of transmission for energy/information like *shaktipat* may be found in a new paradigm.

> If too much information has amassed that cannot be reconciled with the current world view, some start to construct a new image of the world. If they are successful it will be possible to use the new model. This would then amount to a paradigm shift (Walach, 2013, p. 71).

Conclusion

Is it naïve to believe the transmission of *shaktipat* may be due to a mechanism similar to "spooky action at a distance?" Conjecturing that quantum physics can explain mystical experiences like *shaktipat* simply because quantum particles separated across space and time can influence one another in a "spooky" manner may be considered pseudoscience, sacrilege, or speculation, depending on one's outlook. As the previous paragraph pointed out, in the past scientists did not understand how bats, in complete darkness, could avoid collisions with objects. The bat's behavior produced curiosity that prompted speculation among scientists and eventually scientists began to understand ultrasound. Similar speculation may provide useful concepts for investigating "spooky" phenomena like *shaktipat*, and eventually scientists may be able to rationalize and understand the experience. Stripped of its spiritual mystic, an understanding of the transmission of *shaktipat* may one day prove to be beneficial to more than just the few who have had the experience.

Einstein believed Quantum mechanics was an incomplete theory and even downright spooky because the quantum world behaved in a counter intuitive, non-classical manner, not at all the way one expects the everyday world to work. However, in time, the nonsensical predictions made by the mathematics of quantum theory were proven to be correct by laboratory experiments. Despite the weirdness predicted by quantum equations, today quantum theory is poised to sprout new industries like quantum computing that will spur a great technological leap forward. And what is the basis for this great advancement? The leap forward is based on an action at a distance that is a "spooky connection, a so-called entanglement that effectively serves to wire together the qubits in a quantum computer" (Gershenfeld and Chuang, 1998, p. 67).

Einstein was wrong. Outside of Einstein's concept of a classical reality in time and space is apparently how the universe operates and "spooky action at a distance," a derisive term used by Einstein, is the mechanism for the transmission of the data in a quantum computer, and may also be the mechanism for the transmission of *shaktipat*.

For now, the mechanism by how *shaktipat* is transmitted over vast distances without any apparent classical means of communication between the participants is a mystery that may lie hidden inside the enigma of quantum mechanics. Richard Feynman (1982), a Nobel Laureate known for his work in quantum mechanics, provides the following opinion:

> We have always had a great deal of difficulty understanding the world view that quantum mechanics represents. At least I do, because…I haven't got to the point that this stuff is obvious to me…every new idea…takes a generation or two until it becomes obvious that there's no real problem (Feynman, 1982, p. 471).

While the problem of explaining the mechanism that transmits *shaktipat* may remain a mystery for a few generations, the reason why transcendent (holotropic) experiences like *shaktipat* enter our lives is explored by Grof (2003), who wrote: "Holotropic states tend to engage something like an 'inner radar,' that automatically brings into consciousness the contents from the unconscious that have the strongest emotional charge and are most psychodynamically relevant at the time" (p. 58).

In conclusion, the question of the relationship between quantum mechanics and *shaktipat* is fundamental to this paper because the answer to the question could determine whether foggy mystical experiences are a grist substantive enough for the analytical mills of quantum mechanics. If not, mystical experiences that transport us outside the boundaries of our everyday common sense reality of space and time in the classical world we inhabit may forever be doomed to the world of philosophical speculation and the even foggier domain of pop culture popularizations. The answer perhaps lies in the historical roots of quantum mechanics.

In a 2009 paper published in the *European Journal of Physics*, Harvard historian Juan Marin outlines his thesis that "a European controversy over a 'mystical' hypothesis, one assigning the mind a role to play at the material level of reality, shaped much of the debate over the interpretation of the quantum equations" (p. 807). In his paper, Marin lays out the case that terms like "mysticism" were used by the founders of quantum mechanics as early as 1927, and he discusses the role of each founder in the mysticism controversy that played an important part in the early history of quantum mechanics.

For example, physicist Wolfgang Pauli, who received the Nobel Prize for physics after being nominated by Einstein, was influenced by the philosopher Arthur Schopenhauer, who in turn was influenced by Eastern mysticism. Marin quotes Pauli as stating "I do not believe in the possible future of mysticism in the old form. However, I do believe that the natural sciences will out of themselves bring forth a counter pole in their adherents, which connects to the old mystic elements" (p. 810). On the other end of the spectrum, Einstein criticized the popular mystical trends in his time like Theosophy and Spiritualism as being the symptoms of weakness and confusion. Marin's paper argues that the reason Einstein was so adamantly opposed to "spooky action at a distance" was because it implied the introduction of subjective elements like mysticism into quantum theory. As a counter point to Einstein's position, "in their correspondence with Einstein, Max Born and Pauli criticize his 'philosophical prejudice' against the so-called supernatural 'creation' 'outside natural laws' and quantum mechanics' 'spooky [*Spuchlich*]' method" (p. 813).

Apparently quantum mechanics sprouted roots in soil rich with the nutrients of mystic musings. Marin's (2009) paper concludes with the following statement which, in my opinion, is appropriate for this discussion on *shaktipat* and a possible relation to "spooky action at a distance" in the world of quantum mechanics: "In order to fully understand even the fundamental equations of physics, we must not forget the history of those philosophical and cultural ideas that composed the European soil in which these equations have their roots" (p. 820).

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