Religious Experience from a Neuro-Psychological View

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Abstract. The search for the basis of religious experience among neurological processes in the brain has resulted in a widespread debate within, as well as outside the academic world. The aim of this paper is to analyze to what extent a neuro-psychological theory could explain the phenomenon of religious experience. To clarify what the neuro-psychological studies of the present paper mean by the concept of religious experience, the concept has been divided into three different types: The *Erlebnis* or RErl type, the *Erfahrung* or RErf type and the ideological type of religious experience or RIT type. Furthermore, the present paper is focused on the work of neuro-psychologist M. A. Persinger [1997, 1993, 1992, 1991, 1987, 1985, and 1984]. In his studies, Persinger indicates that mystical experience (RErl) has its seat in the right hemisphere of the human brain, whereas (religious) ideology (RIT) is related to the left hemisphere. Consequently, the hemisphere in which the (religious) experience is taking place seems to label the type of experience. Persinger, interested in the powerful effects of religious experience (of the RErf type) on human beings, asserts that if we could understand the neuro-cognitive processes involved in experiencing religiously, such processes might be copied for clinical use in order to improve psychiatric therapy for curing depression. Thus, Persinger studied and compared people practicing religious meditation with people who did not, and also studied the results of PET scanning on the experiences of schizophrenic and epileptic patients. PET scanning measures the metabolic activity in the hemispheres, ranging it on a scale from under normal to over normal activity. This paper will account for the relevance of comparing these two apparently different studies and for the problem arising

when drawing hasty conclusions. Religious experience is then compared with the experience of pain because, neurologically, pain, like religious experience, is said to be caused by processes in the human brain.

Keywords: Religious experience, religious *erlebnis*, religious *erfahrung*, (religious) ideology, neuroscience, neuropsychology, pain, PET, reductionism, partial reductionism, transcendental meditation, epilepsy, schizophrenia.

Introduction

Studying various perspectives of religious experience, I learned that they convey different knowledge about it, i.e., they reduce religious experience to the part of the experience that is of interest to the perspective in question. I have called such reduction "partial reduction," a type of reduction, that, in my opinion, is unavoidable. Furthermore, as I see it, this form of reduction does not have to be erroneous, nor does it have to reduce religious experience to something it is not. On the contrary, it might, in fact, catch some element, some important part of the experience.

I propose that partial reduction does not only count for religious experience, but for all kinds of experience. For instance, anybody who has been (or is) deeply in love, recognizes the hopelessness of describing this experience, no matter how much one tries and wants to. Nevertheless, this does not mean that we do not appreciate beautiful love poems; on the contrary, that is the point I would like to make. An erroneous form of reduction is, according to me, when it is claimed that the experience is but what it has been reduced to, for example, a religious experience is but neuro-activity. Then, one has expressed something inexpressible.

The Phenomenon of Religious Experience

For the sake of clarity, and since neuro-psychological studies refer to the concept religious experience for all kinds of religious experience, the concept has been divided into three different types. Because the English language does not use different words to distinguish one religious experience from another, I have chosen the German words "*Erlebnis*" and "*Erfahrung*"[1], a distinction that proved to be fruitful.[2] The three types then are: Religious *erlebnis* (the RErl type), religious *erfahrung* (the RErf type) and finally (religious) ideology (the RIT type). RErl is the religious experience per se, the very moment of

experiencing, the non-interpreted experience, the religious experience act or activity in itself; in other words, the religious experience that C. G. Jung calls a *Numinosum* (see below). RErf is a RErl furnished with an interpretation, i.e. a partially reduced religious experience. RErf develops over the years and may become very comprehensive and complex. RIT does not necessarily include RErf. Even RIT persons are converted people but mostly not because of eventual RErl, but by way of logic and rational thinking. In other words, RIT people are convinced about the truth of their (religious) ideology because that is what they have reasoned out. They are, for instance, convinced that, from a social as well as a health perspective, their religion or ideology is most advantageous to them and everybody else. Thus RErf includes RErl while RIT may include RErl even though this is not essential. RErf then may include both RIT and RErl.

Furthermore, the concept of extra-normal experience is used for experiences usually referred to as paranormal, supernormal or supernatural since I do not consider such an experience to be abnormal. What makes it in need of an extra attribute, is, in fact, that it does not fall within the realm of the traditional concept of normal, as it is described by today's natural sciences.

Neurology, Neuro-physiology, Neuro-psychology, Neuro-technology, Neuro-phenomenology, and Neuro-theology

Human thinking requires a reason for the existence of religious experience. We want to know its cause. This is the reason why there has been an explosion of inquisitiveness for the psychological and the spiritual during the last 20 years. It seems that today, we particularly want to know which neurological mechanisms that underlie or cause religious experience. Then how should we understand somebody who testifies having experienced Jesus, or a Yogi trying to explain his or her experience of timelessness and of being one with the universe? What exactly do these people try to mediate?

Some neurologists and neuro-psychologists regard religious experience (as well as other experience) as being nothing but neuro-activity. It is then asserted that the activity in the brain is changed in such a way that the apprehension of reality is distorted. This distortion can be caused by brain damage or illness, or by way of actively blocking certain functions of the brain (as during deep meditation). The blocked functions are, for example, those that would normally make us feel independent of the rest of the world;

functions not yet activated in the new-born baby's life.[3] Some neurologists maintain that the religious experiences of St. Birgitta of Sweden, St. Paul, St. Theresa of Avila, Swedenborg and Joan of Arc, could be due to the illness epilepsy.[4]

Carl Gustaf Jung, on the other hand, says that we indeed experience everything through the medium of the psyche, but that it would be unreasonable to deny the existence of our spirit, even though there is no way to prove it. Jung calls initial religious experience *Numinosum* (RErl) and maintains that organized religious confessions, rituals and dogmas (RIT/RErf) are secondary. *Numinosa*, Jung writes, can be so powerful that they will destroy the experiencer if he or she does not have the adequate religious frame to encapsulate the *Numinosum*. If such a frame is not available, the experiencer, according to Jung, may become mentally deranged. St Paul's experience on his way to Damascus is a typical example of such *numinosa*.

Testimonies by people having had religious experiences have become of interest not only to psycho-analyzers, cognitive psychologists, social psychologists, psychologists of religion and health psychologists, but also to neuro-psychologists. Nevertheless, for religious experience to be of interest to neurosciences, it has to be measurable. The question then arises whether religious experience can be measured and, assume it can, what exactly is measured and how, and what are the results of such measurements.

Neuropsychological Investigations and Experiments

PET (Positron Emission Tomography) studies makes it possible to observe which parts of the brain that are active during (religious) experience. Since it is not obvious how it would be possible to PET-scan people exactly when they are experiencing RErl and because PET scanning requires radioactive substance to be injected into the patients, which might influence the experience,[5] Persinger had to study the brain activity of schizophrenic and epileptic patients.[6] Furthermore, Persinger maintains that there is nothing unusual about studying the exception in order to find the rule.

PET studies of this kind show that the themes of the experiential phenomena are correlated with the functions of the parts of the brain most metabolically active during the experience (here RErl-alike). A computer screen then shows the metabolically active parts of the brain in colors. For example, the most active parts could be colored in red, the second most active

parts in yellow, the third most active parts in green, the fourth most active parts in blue, etc. According to neuroscience, brain activity is considerably reduced during depression, especially in the frontal areas. Consequently, (following the color range example above) the color shown in the PET picture would be merely green with some small yellow, and some blue parts. If the color turns out to be black, there is no activity at all - i.e. the brain is dead. An increase in activity, Persinger writes, can result from, either direct stimulation, damage to, or decreased functions within inhibitory (*nedsatta*) regions of the brain. Furthermore, according to Persinger, right hemispheric intrusions are experienced as sensed presence and are described as impressions, entities, cosmic consciousness, spiritual beings, etc. (RErl).

He also states that these experiences, reflecting the major function of the right hemisphere, are maximally affective and minimally linguistic, and more often interpreted as unpleasant and fearful than as pleasant and secure. This seems to be in line with Jung's thesis that *numinosa* are powerful and terrifying. Moreover, according to Persinger, similar intrusions may also be associated with sudden knowledge, or with changes in the self-concept defining religious conversions. He is interested in the effects of religious experience upon religious beliefs as well as their influence on the historical human faculty, and maintains that there are negative sides of religious beliefs or ideologies, such as the phenomenon of extreme fundamentalism, as well as positive sides, such as the ability to help people overcome their anxieties and depressions. Thoroughly, left hemispheric religious beliefs (RIT-caused beliefs) and the accompanying self-esteem, are linked to egocentrism in contrast to thorough right hemispheric religious beliefs (RErl-caused beliefs), that are linked to allocentricism. From this, Persinger draws the peculiar conclusion that if egocentrism (rather than allocentricism) is a left hemispheric process, then brains that are particularly left lateralized for linguistic processing, are more probable to endorse items such as "If my religion (my God) told me to kill, I would do it in Its (God's) name."[7] Persinger continues that they are also more likely to believe that they enjoy a special capacity for survival or that they are chosen ones.

Comparing 221 university students used to meditating (65% to 70% Transcendental Meditation-TM) with 860 non-meditating students, Persinger discovered that students who meditate display a significantly wider range of complex partial epileptic-like signs. In other words, meditating people seem to reform their brain. Could this be the reason why the confusion with the illness epilepsy is possible when making a far to hasty judgment about the

religious experiences of, for example, saints? The meditators reported that they frequently experience vibrations, hear their names being called and experience extra-normal/religious phenomena (i.e. they undergo RErl). The number of years of meditation practice proved to be significantly correlated with the incidence of complex partial epileptic-like signs and sensed presence (RErl).

Due to the significant importance that people attribute to religious experience, Persinger wants to find a possibility to use it in a clinical way. He therefore constructs the neurological model called "vectorial hemisphericity," showing three metabolic activity states of the left and right hemispheres, respectively: Below normal, normal and above normal. The true meaning of below normal, normal and above normal, is purely neuro-psychological. Normal simply denotes what is neuro-psychologically understood as normal activity of certain parts of the brain. In an experiment (based on the vectorial hemisphericity model), Persinger analyses the experiences evoked by artificially stimulating the left and the right temporal lobe of a person by way of magnetic waves. When stimulating the right temporal lobe, the person underwent a fear-like experience. This, however, was not the case when the left temporal lobe was stimulated. Extra-normal/religious (RErl) experience and fear/anxiety are thus canalized by the right temporal lobe. Persinger also discovered that by subsequently stimulating specific regions of the brain, inter-hemispheric intercalation occurred.

Left and Right Hemispheres Together

According to Persinger, RErl mostly occurs during morning hours (in the awaking state), or while a person is distressed, anxious or depressed, whereas during normal dreaming, such experience is not only common but rather normal. It is a well-known fact that writers, musicians and artists frequently have this kind of experience during the period between midnight and 4 a.m., when right hemispheric intrusions are said to be encouraged. According to Persinger, these intrusive experiences involve both temporary above-normal left hemispheric activity and temporary above-normal right hemispheric activity. Thus, these experiences involve the part related to extra-normal or religious experience (RErl) as well as the part of the brain related to rationality and logical thinking (RIT), together forming a RErf.

Now, assume that Dave, a writer and also a religious person, wakes up at 2 am in the morning. While undergoing a religious experience of the RErl type,

which he defines as having a communication with an angel, Dave, because of the activity in his left hemisphere, carefully writes everything down with the intention to publish his notes (RErf). Could this not have been the circumstances under which, for example, John wrote the Apocalypse? The fact that there is no fear but only positive effects involved amazes Persinger and becomes one of his motives for finding a way to make the process clinical.

Clinical Use

Assuming that pleasant/positive mood is associated with a normally functioning left hemisphere whereas anxiety/negative mood is associated with an activated right hemisphere, could be useful in psychiatry of anxious depression. Persinger's investigations show that people experiencing RErl and being able to place it in an adequate frame of reference (i.e. the RErl becomes a RErf, i.e. both left and right hemispheric activity are involved), do not experience fear as they normally would due to the right hemispheric activity. Accordingly, and provided that his study holds, clinical manipulation of the left temporal lobe might reduce the anxiety from which anxious-depressed patients suffer.

Nevertheless, it is hard to believe that this would implies that these patients become religious, or that what they experience during magnetic wave therapy the left temporal lobes, is a religious experience as such. It is hard to believe that magnetic wave treatment could become a shortcut to religious belief. Even though Persinger's neuro-psychological reports are enlightening as to the role of our brains during religious experience, they do indeed have considerable gaps. Nevertheless, to what do we assign the content of the experience (RErl)? Who or what is the cause of RErl? Neurons? It is said that believers from different religions experience certain common religious phenomena, for example the feeling of timelessness, divine love and being one with, etc. From where do these phenomena come? If religious experience may be reduced to the human neuro-system - why then, is there not only one religion and only one culture?

Moreover, even though the fact that believers of different religions experience common religious phenomena could be interpreted as if there were only one religion, it does not exclude the conceivable existence of a Divinity and the possibility of there being communication between this Divinity and the human beings. Assume that God exists and that God, as the Bible says, calls every human being on this planet, why then, would God only

reveal God-self in terms of one language, culture or religion? When people witness that they have experienced Jesus, they do not mean that they have experienced the phenomenon, which in their culture goes under the name of Jesus. Nor do they mean that their temporal lobe received secondary visual and auditory transmissions from the hemispheres that they define as Jesus. What they mean is, in fact, that they have experienced more than all that.

The Experience of Pain

According to Michael Tye, anyone with a complete understanding of the term pain and a perfect awareness of the physical facts of it, can still coherently ask why such-and-such brain processes or functional states feel the way pain does or why these processes are felt at all. Neurologically, the experience of pain is caused by the cerebral (neo) cortex in the brain. As with religious experience, neuro-sciences have provided us with important information on the role of our brains in experiencing pain.

These physical and functional stories, however, are incomplete. According to Tye, a person born without the capacity to feel pain, and kept alive in a very carefully controlled environment, will not know what it is like to experience pain. In other words, this person will never have the relevant perspective. No matter how much information this person is provided with as to the functions of our brain, its neuro-system as well as its chemical system, he or she will never fully comprehend what the feeling of pain is like.

As Tye points out, to be completely understood for what it is essentially in itself, each such phenomenal state S, will require the adoption of one particular point of view or perspective, i.e. the perspective provided by undergoing S. Furthermore, this is so whether or not the state of pain is physical or mental, or both. Tye stresses that it is the person introspecting her or his phenomenal states that forms the conception of what it is like being in that state at that particular time.

Now, religious experience has a similar neuro-logical basis as the experience of pain. Thus, anyone who has a complete understanding of the term religious experience and is fully familiar with the parts of the brain involved when experiencing religiously, and/or which bodily reactions that are involved, can still coherently ask why such-and-such brain processes or functional states are the way religious experiences are, or why these processes are at all. Also, they both have in common that the experience has to know

what such an experience is like. Let us assume (per impossible) a person, who is born without the capacity of experiencing religiously, but who thoroughly learns everything about religious experience in every existing religion. Even though this person might behave as if he or she has frequently undergone such experience, and even if he or she has become very skilled at pretending, he or she will not know what it is really like to experience religiously. Furthermore, they both have the same phenomenal state S so, to be completely comprehended for what it essentially is, the adoption of one particular point of view or perspective, i.e. the perspective provided by undergoing S, is required.

However, in my point of view, such perspective is not possible to adopt, because, experiences, religious or not, are particularly subjective, depending upon our individual neurological, biological and physiological uniqueness. What I mean is that my headache can never be exactly the same as yours. Therefore I propose that what is required, is the adoption of the perspective provided by undergoing an "S-like-experience." In my doctoral thesis, such perspective I have labeled "the closest you can get perspective.' I do, however, assert that such experience is needed to truly understand experiences, not least religious experience.

Conclusion

The problem is, without doubt, the nature of religious experience and the fact that partial reduction is unavoidable. Nevertheless, neuropsychology has contributed significant information as to which parts of the brain that are involved in experiencing religiously, but clearly, they are not the only parts involved.

Notes

1. The Dutch words *'belevenis en ervaring'* or the Swedish words *'upplevelse och erfarenhet'* would also be applicable, but maybe less familiar to an international readership.
2. The division made is quite different from other more established ones, for example, John Smith in Experience, Analogy and Religious Insight, and Wayne Proudfoot in Religion and Inquiry in William James.
3. See also C. M. Bache, 1981.
4. Though epilepsy is not to be equalized with RErl, there are similarities. The difference between 'normal' people undergoing RErl and epileptic patients is that for "normal" people, these periods of undergoing RErl are rather brief, while epileptic persons have some kind of 'constant' intruder, always ready to intrude into the left hemisphere. Even schizophrenic patients have, at least in the beginning of the disease, experiences similar to religious experiences. The primary difference between, for example a poet, who temporary experiences extra-normal intrusions, and a schizophrenic patient, is that, whereas the poet can conceptualize about the universe or God and remain intact, the schizophrenic patient is lost into confusion, and is ultimately deprived of his concept of boundaries.
5. To measure metabolic activity accordingly is made possible by way of injecting some radioactive substance, for example carbon 11, into the patient. Depending on what radioactive substance that is injected, different parts of the brain can be studied.
6. Only later, and by way of SPECT (Single Photon Emission Computed Tomography) Newberg et al. showed that it is possible to scan people experiencing the peak moment during meditation.
7. Persinger 1997, 1993. I suggest that, in accordance to Persinger's own definition, he would also have to include: in the name of the president, union, etc.

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