

SOMATIC MEMORY IN NON-ORDINARY STATES OF CONSCIOUSNESS

CHRIS LYONS, B.Sc., M.B., B.S., MRCP

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1. INTRODUCTION

Our normal waking consciousness, rational consciousness as we call it, is but one special type of consciousness, whilst all about it, parted from it by the filmiest of screens, there lie potential forms of consciousness entirely different. We may go through life without suspecting their existence; but apply the requisite stimulus, and at a touch they are there in all completeness, definite types of mentality which probably somewhere have their field of application and adaptation. No account of the universe in its totality can be final which leaves these other forms of consciousness quite disregarded. How to regard them is the question – for they are so discontinuous with ordinary consciousness.

William James, 1902.

1.1 SOMATIC MEMORY AND NON-ORDINARY STATES OF CONSCIOUSNESS

The concept of somatic memory is a fairly recent one and has only appeared in the scientific literature in the past ten years, where it has been found to be useful in the understanding and treating of post-traumatic stress disorder (van der Kolk, 1994, Rothschild, 2000). The phenomenon to which it relates however has been recognised for rather longer, having been known about by individuals using non-ordinary states of consciousness for the purposes of healing and personal growth for three to four decades (Grof, 1980). The purpose of this study has been to look at the experience of somatic memory recall in these individuals, and to examine the possibility that its occurrence might represent a deeper than normal healing process.

1.2 NON-ORDINARY STATES OF CONSCIOUSNESS

1.2.1 Historical Roots - Shamanism

Although the use of altered or non-ordinary states of consciousness for the purpose of healing is not widely recognised in the western world, it is perhaps the oldest method known to humans, and has its roots in shamanic traditions that go back to Palaeolithic times between twenty and forty thousand years ago (Eliade, 1964, Walsh, 1990). Tart has defined an altered state of consciousness as "a qualitative alteration in the overall pattern of mental functioning such that the experiencer feels his (or her) consciousness is radically different from the 'normal' way it functions" (Tart, 1972, p. 95). Grof distinguishes between states brought about by organic brain damage or toxic psychosis and what he calls non-ordinary or holotropic states, pointing out that the former produce confusion and disorientation and are of no value, whilst in the latter consciousness is not grossly impaired but altered in ways that facilitate healing and heuristic insights. Within this latter category he would include shamanic, psychedelic or visionary states, meditative and hypnotic states, and the states encountered in 'near death experiences' (Grof, 1988, pp. xii-xiii).

Shamanic practices have been found in every part of the world from Siberia to the Amazon, and in the majority of cases the central feature of the practice has been the use of altered or non-ordinary states of consciousness (Eliade, 1964). Walsh has stated that "Fully 90 per cent of the world's cultures have one or more institutionalized altered states of consciousness, and in traditional societies these are almost without exception sacred states." (Walsh, 1990, p.159), and Weil has suggested that the "desire to alter consciousness periodically is an innate normal drive analogous to

hunger or the sexual drive.” (Weil, 1972). It has been argued that many of the world’s religions had their origin in individuals who had access to non-ordinary states. Walsh states “It is this direct, personal, transformative experience of the sacred that defines the mystic and that properly allows shamanism to be called humankind’s first mystical tradition”. He suggests that the substance ‘soma’ frequently referred to in the Rig Veda, one of India’s oldest texts, was likely to have been a vision-inducing substance prepared from mushrooms, and he goes on to state that it is only when the transmission of the practice fails that “direct experience is replaced by belief”, which leads to the “ritualization of religion”. (Walsh, 1990, p.160 -167). Others have suggested that the dawn of western civilisation in Greece was influenced by the visionary experiences of those who attended the mystery schools such as the one at Eleusis. This annual event endured for over a thousand years and amongst its initiates counted most of the prominent individuals of the ancient world, including Plato, Cicero and Marcus Aurelius (Wasson, Hoffman & Ruck, 1998).

A great many techniques have been used to induce non-ordinary states. Tart has suggested that the induction process has three stages beginning with a destabilization of the initial state, which can be achieved through sensory methods, such as intense drumming, music, or flickering lights; physiological methods, such as fasting, exposure to extreme heat or cold, or sleep deprivation; and chemical methods, such as ingesting visionary plants or psychedelic substances. The next stage is a re-patterning stage of transition, which is dependent upon such things as the belief system, and physiological and mental state of the individual, as well as the environmental conditions in which the practice is taking place, usually referred to as ‘set and setting’. In the final stage of the induction consciousness re-stabilizes into the new state. Tart

has also suggested that the process is learnable and can be improved with practice – that once the individual has become familiar with the altered state, entering into it becomes progressively easier (Tart, 1983). Walsh has added that the ‘set and setting’ of the induction process act to bring about ‘perceptual release’ whereby subtle objects become more easily recognised as stronger stimuli (or one’s perceptual response to them) is withdrawn (Walsh, 1990, p.167). Thus the typical traditional shamanic ritual would be held at night; the shaman would have prepared himself for a day or more by fasting, going without sleep, sex or even water, or by exposing himself to the intense cold of an icy winter or the intense heat of a sweat-lodge; and finally ingesting psychedelic substances whilst engaging in prolonged rhythmic stimulation.

Rhythmic stimulation through drumming, chanting and dancing is widely recognised to alter consciousness, and is used in virtually all cultures from the whirling dervishes of eastern Sufi sects to the rave parties of the western youths. Shamanic rituals invariably involved drumming, which, when performed at about 200 beats per minute appears to act physiologically to facilitate a trance-like state (Walsh, 1990, p.174). Furthermore, by shutting out extraneous sounds, loud drumming can help sharpen concentration and focus the mind on the intended purpose.

The use of psychedelic substances is extremely controversial at the present time, largely as a result of their widespread casual, recreational use during the sixties (Grof, 1980, p.13). But as Walsh has said of psychedelics, “we make no distinction between socially disruptive and sacred drug use” (Walsh, 1990, p.116). The importance of these substances in indigenous cultures however is widely recognised. Harner writes

of his experience of ayahuasca, a brew made from the South American vine

Banisteriopsis:

For several hours after drinking the brew, I found myself, although awake, in a world literally beyond my wildest dreams....Transported into a trance where the supernatural seemed natural, I realised that anthropologists, including myself, had profoundly underestimated the importance of the drug in affecting native ideology (Harner, 1973).

Much of the debate on psychedelics centres around whether the effects are authentically mystical, and whether the benefits derived from the experience are enduring. At the present time, whilst most of these substances are illegal, it isn't possible for studies to be conducted to address these questions. However, in 1962, prior to them being banned, a study, which has now become celebrated and known as the 'Good Friday experiment', was conducted at Harvard University, in which a group of divinity students were given either psilocybin or a placebo during the Good Friday service. According to the author of the study, Walter Pahnke, "the persons who received psilocybin experienced to a greater extent than did the controls the phenomena described by our typology of mysticism." (Pahnke, 1963, p. 220 in Doblin, 1991). Furthermore, when the participants were followed up twenty four to twenty seven years after the original experiment, "all psilocybin subjects participating in the long term follow-up, but none of the controls, still considered their original experience to have made a uniquely valuable contribution to their spiritual lives." (Doblin, 1991).

One of the participants in the 'Good Friday experiment', Huston Smith, has written of psychedelic experiences:

There are, of course, innumerable experiences that have no religious features; they can be sensual as readily as spiritual, trivial as readily as transforming, capricious as readily as sacramental. If there is one point about which every student agrees, it is that there is no such thing as the drug experience per se.... This of course proves that not all drug experiences are religious; it does not prove that no drug experiences are religious. (Smith in Walsh, 1990 p. 170).

In summing up his position Smith stated: "drugs appear to induce religious experience: it is less evident that they can produce religious lives." (Smith in Walsh, 1990, p. 171). Walsh is in broad agreement with this position stating that "some drugs can indeed induce genuine mystical experiences in some people on some occasions", adding that "they are more likely to do so and more likely to produce enduring benefits in prepared minds." (Walsh, 1990, p. 173).

1.2.2 Grof

Stanislav Grof was one of the pioneers in the use of psychedelic substances for psychotherapeutic purposes. As a psychiatrist, initially trained in the Psychoanalytic tradition, he conducted many hundreds of sessions using LSD as a psychotherapeutic agent, firstly at the Charles University in Prague and later at the Maryland Psychiatric Research Centre in Baltimore, USA. As a result of this work he came to believe that the existing models of the psyche, based as they were solely on the biographical past of the patient, were inadequate to explain the data that was emerging, and so went on to develop his own cartography of the psyche, which, in addition to the biographical,

included perinatal and transpersonal dimensions. (Grof, 1975) Subsequently, together with Maslow and Sutich, he became one of the founders of transpersonal psychology.

He has written:

Several profound personal experiences with psychedelic substances and clinical observations of their effects in psychiatric patients attracted my attention early in my professional career to the remarkable healing and transformative potential of non-ordinary states of consciousness... This work convinced me that psychedelics – if used properly and judiciously under expert guidance – represent extraordinary tools for psychiatry and psychology. Instead of inducing drug-specific states like other pharmaca, they function more like unspecific catalysts or *niveau* of the human psyche, they reveal its deep contents and intrinsic dynamics. (Grof, 1988, p. xi).

When LSD became illegal and all research involving it had to cease, Grof, together with his wife Christina, went on to develop a non-drug method of accessing similar non-ordinary states, which they came to call Holotropic Breathwork™. Of this he says, “the entire spectrum of experiences observed in psychedelic sessions can be induced by various forms of non-drug experiential psychotherapies.” (Grof, 1988, p.xii), and goes on to say:

The findings from psychedelic explorations are directly applicable to other situations in which consciousness is altered by various non-pharmacological means. They throw entirely new light on the material from history, comparative religion, and anthropology concerning the ancient mysteries of death and rebirth, rites of passage of various cultures, shamanic procedures of all times, aboriginal healing ceremonies, spiritual practices of various religious

and mystical traditions, and other phenomena of great cultural significance.

(Grof, 1988, p.xii)

The cartography of the psyche that Grof developed extended beyond the 'recollective-analytical' level utilized in Freudian psychoanalysis to include two additional levels which are transbiographical. These he termed the *perinatal level*, which is simultaneously related to the unborn foetus's experiences in the womb and the twin phenomena of birth and death, and the *transpersonal level*, which, Grof states, "can in principle mediate experiential connection with any aspect of the phenomenal world and with various mythological and archetypal domains." (Grof, 1988, p.xvi)

Grof's *perinatal level* consists of what he calls the four Basic Perinatal Matrices (BPM's), which are related to the foetus's experience in the womb and the birth process. BPM1 relates to the foetus's experience of the womb prior to the onset of labour. It is characterized by feelings of undisturbed comfort, where all needs are met - an 'oceanic' feeling of innocent (but ignorant) bliss; represented in mythology by the Biblical Garden of Eden. In BPM2 the situation changes as the onset of labour brings powerful contractions which crush the foetus and cause considerable discomfort and alarm. Yet at this stage the cervical os has not dilated and so for the foetus there is no way out. This stage is characterized by feelings of hopelessness and despair, of being trapped without the chance of escape. It is the template of depression, and when relived in therapy conjures up images of sadistic torture and concentration camp scenes. In BPM3 the foetus continues to be crushed by uterine contractions, but now the cervix has dilated and there is the possibility of escape. The dynamic is now quite different, and changes from hopelessness and despair to the struggle to survive - the

fight for life. The struggle is a real one, of course, and even in our age of modern obstetrics not all infants survive it. When re-lived in therapy, this stage produces images of gigantic battles and titanic struggles – of blood, gore and excrement, which are all part of the foetus's experience during this stage. In the final stage of this process, BPM4, the infant emerges from the birth canal into the world, the struggle for survival having been won – birth or rebirth, new life, delivery and deliverance – and when re-lived in therapy is characterised by the sense of enormous achievement and triumphal optimism.

In Grof's view the *perinatal level* ultimately opens to the *transpersonal level* in which **all** experiences – phenomenal and non-phenomenal, cosmic, supra-cosmic and non-dual – are possible. He lists these under various headings:

A. Experiences within consensus reality and space-time

1. Transcendence of Spatial Boundaries

- Experience of Dual Unity
- Identification with Other Persons
- Group identification and group consciousness
- Identification with animals
- Identification with plants and plant processes
- Oneness with Life and All Creation
- Experience of Inanimate Matter and Inorganic Processes
- Planetary Consciousness
- Extraterrestrial Experiences
- Identification with the Entire Physical Universe

- Psychic Phenomena Involving Transcendence of Space

2. Transcendence of Linear Time

- Embryonic and Foetal Experiences
- Ancestral Experiences
- Racial and Collective Experiences
- Past Incarnation Experiences
- Phylogenetic Experiences
- Experiences of Planetary Evolution
- Cosmogenetic Experiences
- Psychic Phenomena involving transcendence of time

B. Experiences beyond consensus reality and space-time

- Mediumistic experiences
- Subtle bodies
- Experiences of animal spirits
- Encounters with spirit guides
- Visits to other universes
- Experiences of mythological entities
- Blissful and wrathful deities
- Universal Archetypes
- Intuitive understanding of symbols
- Creative inspiration and Promethean impulse
- Insights into Cosmic Creation
- Experience of Cosmic Consciousness
- The Supracosmic and Metacosmic Void (Grof, 1988)

In addition to this cartography, Grof has devised the concept of the *system of condensed experience* or *co-ex*, as he calls it, whereby events that are thematically related tend to cluster in the psyche and reinforce each other. These often emerge sequentially during non-ordinary states of consciousness. An example might be someone recalling an incident of childhood near-drowning, then a birth experience with the umbilical cord around their neck, and then perhaps something that seemed like a past-life experience in which they had been hanged or strangled; three experiences with the common theme of choking, which could possibly lead to therapeutic gain on the purely psychological or psychosomatic level.

The obvious objection that can be raised against Grof's theories is that the experiences he describes are not authentic, but fantasies. This is a very reasonable objection and one that can't be adequately answered. There are though two levels on which a response to it can be made – the therapeutic and the ontological. There is no doubt that the experiences people have in non-ordinary states induced by Grof's methods can be very intense indeed, but whether they are authentic is another question. On the therapeutic level though, it can be argued that it doesn't matter. If the experience results in significant therapeutic gain it might be reasonable to say that it isn't relevant whether it is authentic or imagined. Hence when Grof reported the case of a woman who had an intense diabolical-possession-like experience during a psychedelic session, the fact that it was followed by a dramatic improvement in her clinical condition could render it relatively unimportant as to whether she had actually been possessed by some supernatural demonic entity (Grof, 1988, p.247-249). But Grof does claim that the experiences in non-ordinary states are authentic – that they are ontologically valid as well as therapeutically useful. For the most part he can't justify

this claim, but occasionally he can, because occasionally the experiences people have are veridical. He describes many of these in his writings, but a particularly striking example was that of a woman who during her session began to chant in a foreign tongue. It just so happened that another participant in the group understood what she was saying and was able to translate it. The language was Ladino, a medieval Hebrew-Spanish hybrid, of which the woman, being neither Jewish nor Spanish, knew nothing. (Grof, 1988, p.168) In summary it could be said that whilst the evidence for Grof's claims of authenticity for the experiences which arise in non-ordinary states is not decisive, neither is it entirely lacking.

1.2.3. Holotropic Breathwork

Holotropic Breathwork™ is the name given by Grof to the non-drug method he devised with his wife Christina for accessing non-ordinary states of consciousness for the purpose of personal growth and healing. It involves controlled breathing, evocative music, focused bodywork and mandala drawing. The most important element of the method is the breathing. Breathing is unique amongst human physiological functions in that whilst being a spontaneous activity it can also be brought under voluntary control, and many cultures have learnt that by altering the pattern of breathing they are able to alter consciousness as well. The ancient Indian techniques of *pranayama* involve quite sophisticated methods of breath control, and the same can be said for other practices such as Kundalini Yoga, Siddha Yoga and Tibetan Vajrayana. The Balinese *Ketjak* and the Inuit throat music also indirectly alter breathing patterns and consciousness. (Grof, 1988, p.170) The breathing technique used in Holotropic Breathwork is relatively simple and consists of breathing more rapidly than normal, whilst focussing on the inner process. It is in effect

hyperventilation, and is similar to the breathing patterns that emerge spontaneously in two other situations – in women in the final stages of labour, and in men and women when approaching orgasm during sexual intercourse. In both of these situations it might be supposed that the person is following bodily instincts to change their state of consciousness. Hyperventilation is well described in physiology text books and is said to produce muscle spasm or tetany as a result of the changes in blood pH that accompany the increased exhalation of carbon dioxide. This does not seem to be a problem during Holotropic Breathwork however, and after some initial tingling in the fingers the intense breathing can be continued for several hours without discomfort.

Holotropic Breathwork is usually conducted in a group setting, preferably that of a weekend or several-day residential workshop. The participants divide into pairs, and in each session one of each pair acts as sitter whilst the other 'breathes'. The role of the facilitator is to create a safe space for the experience of non-ordinary states and to interfere in the process as little as possible. The role of the sitter is likewise to protect the breather and to tend to all of his or her needs throughout the session, including providing assistance to visit the toilet. The session starts with a gentle relaxation exercise with the 'breather' lying comfortably on a mattress with eyes closed. They are instructed not to try to direct their experiences, nor to suppress or censor anything that arises, but to simply allow to happen what will happen, and, most importantly, to trust the process as it unfolds. From his several decades of work with non-ordinary states of consciousness, Grof has become convinced of the wisdom of what he calls the 'inner healer' – that once in the non-ordinary state the organism will spontaneously move towards healing – that the process when left to itself to unfold will come to a beneficial resolution.

When all the preparations are complete, the 'breathers' are instructed to begin to breathe a little deeper and faster than usual, and at this point the music is begun. The music in Holotropic Breathwork is what drives the session. It is played at moderately high volume (concert volume) and acts to allow the 'breathers' to become less aware of their actual surroundings. In the early part of the session the music is fast and rhythmic and helps to drive the speed of the breathing. Later it becomes more expansive and evocative, and towards the end of the session quiet and peaceful. Efforts are made to play music with which the participants are not familiar, and it is usually without words, but when singing or chanting is involved it is always in a language not familiar to the participants. The intention is that the participants shouldn't have any pre-existing associations with the music.

As the session progresses, the 'breathers' might have a whole range of experiences and might experience intense emotions. In the privacy of their own inner world supported by the music and with the external environment kept safe for them by their sitter and the facilitator, they are free to express whatever they are inclined to do, and are encouraged to do so. They might scream, cry, laugh, howl, make animal sounds, thrash about, go into contorted postures or make ritualistic movements – or they may lie peacefully and quietly on their mat, but whatever urge arises in them, they are encouraged to follow and allow to develop as it will.

After about three hours the sessions tend to come to a natural close and most people find some sort of resolution of the experiences that have arisen for them. When this doesn't happen however is when the 'breathers' are offered focussed body work to help bring about a resolution. The 'breather' is asked to scan their body and to report

any pain, discomfort or unusual sensation. The aim of the body work is to amplify whatever pain or discomfort there is by allowing the 'breather' to intensify it. It often happens that during the bodywork process the 'breather' will have very intense experiences including images, sensations and memories, and will spontaneously release energy in a very dramatic fashion by shouting, screaming, howling, fighting and struggling. The facilitator encourages this expression whilst maintaining physical safety. When the release work is finished and the 'breather' feels that he or she has reached some resolution, they are allowed to rest peacefully for a while, and if they require physical contact, which is often the case, this is provided by the sitter. When the 'breather' feels ready the sitter will accompany them from the room and provide them with a cup of tea.

Good!

Immediately following the session the 'breather' is provided with paint, crayons and paper and invited to draw a mandala. This is an opportunity to express something of their feelings in a non-verbal way before the non-ordinary state has completely worn off. Later in the day, usually after the evening meal, the group meet together to share their experiences, and the 'breathers' are invited to say as much or as little as they wish about their experiences of the day. The facilitator and group listen deeply to each speaker, giving full attention, perhaps offering a few words of encouragement or interpretation, and then thanking the speaker for having shared.

1.2.4. Holotropic Breathwork and Research

Holotropic Breathwork was developed by Grof twenty five years ago, and since that time several hundred people have been trained by him in its use, and well over one hundred thousand sessions have been safely conducted around the world. (Grof, 1999)

Nevertheless the method has never been systematically evaluated, and, apart from Grof's own books, there is little to be found about it in the scientific literature. It is used by a small number of psychotherapists in their private practices, but it has never been recognised by mainstream psychology, and clinical trials have never been conducted within the main healthcare institutions. It has therefore largely been restricted to the margins, where it has been used informally by individuals seeking their own healing or personal growth in workshop settings. A few publications have appeared though. Taylor has written of her use of Holotropic Breathwork mainly with recovering addicts, but also with victims of sexual abuse and post-traumatic stress disorder (Taylor, 1986), Sparks has described its contribution to his own recovery from drug addiction as well as that of his clients in therapy (Sparks, 1993), and Religious Studies professor, Christopher Bache has written about what he believes to be the cosmic implications of working with non-ordinary states of consciousness (Bache, 2000).

Everett, for her Ph.D. thesis (Everett, 2001), conducted a retrospective questionnaire study on individuals who had worked with various types of non-ordinary states work, including Holotropic Breathwork, using The Phenomenology of Consciousness Inventory (PCI). She found there to be highly significant differences between the non-ordinary states group and controls on a number of dimensions of the PCI, namely, altered states of awareness, memory, altered experience, positive affect and volitional control, and further significant differences in attention, arousal and negative affect. The PCI was developed by Ronald Pekala, and the control data Everett used was that reported by Pekala; being a group of one hundred and ten Michigan State University students sitting quietly with eyes open. (Pekala, 1986). Everett was not able to

comment on the precise significance of the differences she found, but she suggested that they might represent the boundary conditions for healing in non-ordinary states of consciousness. This study will attempt build on these findings as will be discussed later, but first we must discuss the subject of somatic memory.

1.3 SOMATIC MEMORY

1.3.1. Overview

As was discussed in the previous section, somatic memory recall is a well recognised feature of Holotropic Breathwork sessions, and often occurs when the 'breather' is receiving focussed bodywork to help bring about a resolution of the issues that have arisen during the session. The recall, triggered by the touching or bodily manipulation, is often accompanied by an intense outpouring of energy which can take a variety of forms.

"Among the reactions that might spontaneously occur under these circumstances are violent shaking, grimacing, coughing, gagging, vomiting...baby talk, animal voices, talking in a language foreign to the client, shamanic chanting and many others" (Grof, 1988, p. 196).

The role of the body in mental functioning (with the exception of the brain) has usually been ignored by physiologists. Darwin, however, was one of the first to recognise the importance of the body for emotions (Darwin, 1872), and shortly afterwards Janet wrote of his belief that the effects of trauma were stored in the body (Janet, 1887). In the twentieth century Reich made the claim that psychological problems often arose as a result of energetic blocking in the muscles and viscera of

the body; what he called 'character armour' (Reich, 1949), and the neurophysiologist and musicologist, Manfred Clynes, argued that emotions cannot be separated from their bodily expressions (Clynes, 1977). More recently, Damasio, who distinguishes between *emotions*, which he regards as physical, bodily events, and *feelings*, which he says are the inner, subjective experience of them, has argued that the former actually precede the latter. In other words, we only know we are sad, angry, happy or whatever by listening to the signals our body is sending to us. He further argues that rational decision-making is not possible without emotions, and that there is no sharp distinction between body and mind (Damasio, 1994).

The concept of somatic memory was first named in recent times by van der Kolk in his 1994 paper *The Body Keeps the Score* (van der Kolk, 1994). Since that time it has received considerable attention from those studying Post-traumatic Stress Disorder. That traumatic events exact a toll on the body as well as the mind, even when they involve no bodily harm is now attested to in the *Diagnostic and Statistical Manual of Mental Disorders, fourth edition, of the American Psychiatric Association (DSM-IV)* in its acknowledgement that post-traumatic stress disorder involves persistent symptoms of increased arousal, because these are, of course, mediated through the autonomic nervous system. In those suffering from post-traumatic stress disorder, traumatic events are not remembered properly and relegated to the past in the same way as other events. At the same time, somatic disturbance is at the core of post-traumatic stress disorder, and its sufferers are plagued with disturbing symptoms characteristic of autonomic nervous system arousal. It is for these reasons that the concept of somatic memory has become important to those working in this field, and why attempts have been made to suggest a neural mechanism for it.

1.3.2. Arousal and the Nervous System

Before going on to discuss how somatic memory might be understood physiologically, it will first be necessary to discuss the nervous system more generally. Arousal is one of the prime responses of all animals and it is mediated by the limbic system, which is also actively involved in the memory process. The limbic system is also connected to the autonomic nervous system through one of its components, the amygdala, which is connected to the hypothalamic-pituitary-adrenal axis. The autonomic nervous system in turn has two components, the parasympathetic nervous system, which controls normal bodily functions such as eating, breathing, digestion, sexual behaviour etc, and the sympathetic nervous system, which, when activated, prepares the body to deal with danger through 'fight and flight' mechanisms, mediated by release of adrenaline and noradrenaline from the adrenal medulla, and corticosteroids from the adrenal cortex. These two systems usually act in concert, sometimes one predominating, and sometimes the other, dependent upon prevailing conditions. When danger is inescapable, and neither fight nor flight are possible, the parasympathetic nervous system comes into play and causes freezing of movement or tonic immobility. This might have survival value when being attacked by a predator which may lose interest in 'dead prey', but in any event it renders death less unpleasant by causing the victim to enter an altered state of consciousness in which time slows down, and fear and pain disappear. This is attested to by individuals who have survived falls and by sky-divers making their first jump.(Rothschild, 2000)

It should be noted that this behaviour is automatic and instantaneous, and is not consciously chosen by the individual. The activation of the autonomic nervous system by the limbic system is a healthy response to trauma. What is not healthy is when it remains activated, or becomes recurrently activated in the absence of threat. In these

circumstances the traumatic events float freely, and are not relegated to the past - they are not properly remembered.

Most events in our lives are not retained in memory, they are forgotten. To be remembered an event must carry an emotional charge, and this is supplied by a component of the limbic system – the amygdala. Another part of the limbic system, the hippocampus, is responsible for supplying the event with a time and space context; for giving it perspective; for putting the memory properly in our life's time line. It has been shown however, that during traumatic threat the hippocampal activity can become suppressed, and may not therefore perform its function properly in this regard. When this happens the event might not be properly recorded in the individual's life history and float freely, lacking meaning. It has been suggested that this could be the explanation for 'flashbacks' that characterise post-traumatic stress disorder (van der Kolk, 1994). Many trauma victims remember little or nothing of the actual event, but are plagued by physical sensations and emotional reactions that make little sense in their current context.

The infant brain is a very malleable structure, and very sensitive for its development to the child's experiences in early life. The amygdala of the newborn infant however is fully mature, whilst the hippocampus doesn't become so until the second or third year. It has been suggested that this is why infantile experiences cannot be accessed in the way normal memories can (Nadel & Zola-Morgan, 1984). It is interesting to speculate whether there might be a connection here with the fact that in non-ordinary states of consciousness perinatal events as well as somatic memories can sometimes be accessed.

A number of other studies have focussed on the role of diminished hippocampal activity in trauma. Gunner and Barr have suggested that hippocampal activity is suppressed by prolonged cortisol secretions (Gunner & Barr, 1998), and Rauch and colleagues amongst other have concluded that victims of post-traumatic stress disorder have smaller hippocampi than the general population (Rauch, Shin, Wahlen, & Pitman 1998).

The third component of the limbic system is the thalamus through which passes all the sensory input from the body on its way to the cerebral cortex. The cortex's two hemispheres are functionally asymmetrical, with the left side usually being the one associated with speech. Moreover, the right cortex is more closely associated with the amygdala, whilst the left has closer connections with the hippocampus. Van der Kolk and colleagues have shown that during trauma the left Broca's area, which is concerned with speech, is suppressed as well as the hippocampus, thus perhaps explaining 'speechless terror' (Van der Kolk et al, 1996).

1.3.3. Memory

All our senses are involved in perception, and our perceptions are processed by the brain and stored in memory as thoughts, emotions, images, sensations and behavioural impulses. The greater the significance of an event, or the higher the emotional charge, either positive or negative, attached to it, the more likely it is to be remembered (Schacter, 1996). Memory is commonly divided between short term memory, whereby perceptions can be remembered for a few minutes or hours, and long term memory which may last for many years. Long term memory is further divided between explicit or declarative memory, which is dependent upon language, either

oral or written, and involves the historical placement of an event in time. Implicit or non-declarative memory is where learnt procedures or behaviours are stored, and it is non-verbal. This is therefore how we learn to walk, swim, ride a bicycle, ski or type, and, in addition, it is where behavioural patterns formed by classical or operant conditioning reside. It has been suggested that incidents involving trauma may be excluded from explicit memory, and so remain only implicit, and also that traumatic events are more easily stored in implicit memory because the amygdala is not affected by stress hormones to the extent that the hippocampus is.

“In some cases, upsetting emotions, disturbing body sensations, and confusing behavioural impulses can all exist in implicit memory without access to information about the context in which they arose or what they are about.”

(Rothschild, 2000)

Memory functioning has three components, encoding, storage and retrieval. As has been discussed, encoding is influenced by the limbic system, particularly the amygdala. Memory retrieval is less well understood. Eich and Reus independently put forward the theory of ‘state-dependent recall’. This states that information learned in a particular state (a drug state, for instance) is more easily recalled in that state (Eich, 1980, Reus et al, 1979). This has implications for somatic memory in that state-dependent recall could be elicited under conditions that replicate body posture.

1.3.4. Somatic Memory

Implicit memory is at the core of somatic memory. Memory begins with sensory input, and there are two main divisions of this. Exteroceptive sensation is what we receive from the outside world through our five senses. Interoceptive sensation comes

from within our body and is made up of proprioception, which itself has two divisions, kinaesthetic and visceral or internal, and vestibular. Kinaesthetic sensation is what tells you where the parts of your body are in space. It is central to implicit memory and helps us remember manoeuvres such as walking, sitting and standing. Internal sensation is the sensation from our internal organs and viscera . According to Damasio, it is what enables us to identify and name emotions (Damasio, 1994). Vestibular sensation is what detects the earth's gravity and allows us to know when we are in a vertical position with respect to the earth. Implicit memory, like explicit memory, can be recalled through state-specific recall. In the case of implicit memory though, these can be kinaesthetic or internal visceral sensations.

The somatic nervous system is the means by which we exercise voluntary control over our muscles. Hence it is by this means that our behaviours, movements and physical processes are performed, and it is through proprioception that they are perceived. Furthermore, when a new behavioural sequence is learned, images associated with it may be stored simultaneously, and then, by means of state-dependent recall, they may later be retrieved when the same behaviour is repeated. In other words, if state-dependent recall is applied to postural states, somatic memories can be recovered.

Rothschild sums it up in this way:

“In cooperation with proprioception, the SomNS is also party to encoding traumatic experiences in the brain. Somatic memory recall can occur when those same positions, movements, and behaviours are replicated either purposefully or inadvertently”. (Rothschild, 2000)

1.4 PURPOSE OF THE STUDY

The concept of somatic memory is now a well established one in psychology, but its incidence in non-ordinary states of consciousness has not received attention, and its relevance to healing and personal growth does not appear to have been studied.

The purpose of this study, is to look at somatic memory recall in a sample of individuals who use non-ordinary states for the purpose of personal growth, and to examine whether its occurrence is related to, or a marker of, a deeper than usual healing process.

The study does not attempt to define the terms *healing* or *personal growth*. Everett has reported that there is little agreement in the literature on how these terms should be defined (Everett, 2001), and the participants in this study were allowed to decide for themselves what the terms meant, and how they applied to their own experiences.

Neither does the study attempt to evaluate the usefulness of non-ordinary states of consciousness work for the treatment of post-traumatic stress disorder. That would require a clinical trial, and is quite beyond the limits of what this study set out to show.

The specific aims of the study were:

1. To corroborate Everett's finding discussed in Section 1.2.4, that there were significant differences between the non-ordinary states group and controls in their responses to the Phenomenology of Consciousness Inventory in the

dimensions of altered states of awareness, memory, altered experience, positive affect, volitional control, attention, arousal and negative affect.

2. To look at whether significant differences in these same dimensions are also present between those participants who rated their experience highly and those who rated it less highly, as judged both from their own evaluations and their independently-evaluated written accounts. Such differences, if present, would add support to Everett's suggestion that differences in these dimensions represent the boundary conditions for healing in non-ordinary states of consciousness.
3. To show that there were significant differences between individuals who reported somatic memory recall in their non-ordinary states work and those who didn't in: (i) their responses to the Phenomenology of Consciousness Inventory in those dimensions listed above, (ii) their own evaluations of their sessions, and (iii) their written, but independently-evaluated, accounts of their sessions.

2. METHODOLOGY

The study comprised 66 people who completed two retrospective questionnaires related to their experience of healing or personal growth in sessions of Holotropic Breathwork. The first of these was a general questionnaire designed specifically for the study; the second was The Phenomenology of Consciousness Inventory, a standard psychological instrument designed by Ronald Pekala. (Pekala, 1991)

2.1. Methodology in Consciousness Studies

Pekala and Cardena have pointed out that “although theorizing about consciousness has become almost commonplace these days, it may remain fruitless unless sophisticated methodologies can adequately map states of consciousness in a reliable and valid manner.” (Pekala & Cardena in Cardena, Lynn & Krippner, 2000)

Introspection has become an important way of exploring consciousness, but because most scientists consider that valid data can only come from the observation of objective, external events, it is often criticised as being unreliable, but as Pekala and Cardena go on to say:

“What critics of introspective access have typically glossed over is the fact that many of the limitations of introspective reports (e.g., lying, uncertainty about the extent to which the same linguistic labels refer to the same experience) are also applicable to reports of observable data (Kukla, 1983).

Indeed, determining the validity of reports of subjective experiences may be

difficult, but it is not an insurmountable problem, as Richardson (1984) and others have argued.” (Pekala & Cardena in Cardena, Lynn & Krippner, 2000)

They go on to list a number of the reasons why it may be difficult to determine the validity of reports of subjective experiences, and to show some of the ways in which these may be overcome. Perhaps the most important is the lack of independent verification, but even this deficiency can be ameliorated by assessing the internal consistency of the report and its consistency with reports from comparable observers, or triangulating or cross-validating with other measures that would be expected to provide corroboration. Other important difficulties include forgetting, reconstruction errors and confabulation. When the experience being described occurred a significant amount of time ago, it might be expected to have been at least in part forgotten, reconstructed or distorted, and, as Pekala and Cardena point out, “there is currently no infallible way to distinguish accurately recalled material, trivial memory mistakes that do not change the gist of what occurred, and outright falsifications”, but adding that this applies to memories of ‘objective’ events as well as ‘subjective’ ones. (Pekala & Cardena in Cardena, Lynn & Krippner, 2000)

This study attempts to cross-validate the participants’ experiences of non-ordinary states of consciousness by looking at them from three perspectives:

1. The participants’ responses to a standard psychological instrument – the Phenomenology of Consciousness Inventory
2. Their own evaluation of the experience in the form of a numerical score
3. An independent evaluation of their written account of the experience.

All of these perspectives, however, ultimately rely upon the accuracy of the participants' memories of the events, and herein lies a potential weakness of the methodology used. In Pekala's own work with the PCI most of the reports were written within minutes of the events being experienced, whereas in this study the participants are usually reporting on something that happened years in the past. The difference between the two situations, however, which will tend to render the data of this study reliable despite the passage of time, is the importance of the event being reported. Events that carry a heavy emotional charge are much better remembered than ones which are relatively trivial, and none of the events reported by the participants of this study would be likely to be trivial to them. On the contrary they were frequently of enormous importance. Tart has commented on this as follows: "Those elements of past experiences which made a vivid impression on the mind-body and those from which we should profit in the interest of survival and progress in the world are easily remembered." (Tart, 1975, p.249), and with regard to non-ordinary states of consciousness he has put it a little more strongly, "...it is believed that in various higher states of consciousness memory may function with a far greater accuracy than in ordinary life." (Tart, 1975, p. 103) In her study of experiences of non-ordinary states of consciousness using the PCI, Everett found that in the dimension of *memory* the mean score of her non-ordinary states group exceeded that of Pekala's group (sitting quietly with eyes open); the scores being 4.91 and 4.25 respectively. (Everett, 2001) Yet Pekala's group were reporting within twenty minutes of their experience, whilst Everett's group were reporting months or years afterwards (Everett, 2001). This does not demonstrate that Everett's group remembered their experience better, but it does demonstrate is that they believed themselves to do so.

2.2. Recruitment of participants for the study

Participants were recruited for the study from a postal mailing list of about three hundred individuals and an email list of about one hundred and fifty. The postal mailing list consisted both of people who had attended Holotropic Breathwork workshops and of ones who had only enquired about them. The email list consisted of people who were either trained facilitators in Holotropic Breathwork, or were currently undergoing training. The invitation letter and email (which are in Appendix A) stated that the study was open to anyone who had used Holotropic Breathwork for the purpose of healing or personal growth. Eighty eight people replied (thirty six from the postal list and fifty two from the email list) and were sent the research questionnaires. Seventy people returned their questionnaires by the deadline. Reminder letters and emails were sent out to the remainder. One person had died in the intervening period, six people replied to say they hadn't been able to find the time to complete the questionnaires and the remainder failed to respond. Of the seventy who returned their questionnaires, two were excluded for answering 'no' to question 4 (see next section), and a further two for failing to answer the PCI in the correct way. Of the remaining sixty six who were entered into the study one had failed to answer question 11 in the general questionnaire, and so was excluded from the part in which participants' written accounts were scored (see next section).

2.3. General Questionnaire

This can be seen in Appendix B. It begins by asking for routine data such as name, age and sex, and then goes on to establish that the participant has in fact used Holotropic Breathwork for the purpose of personal growth or healing. Question 4 asks if they have actually experienced personal growth or healing from the practice of

Holotropic Breathwork, and question 6 enquires as to whether they have had experiences of somatic memory recall in any of their sessions. The participants are then asked, that in answering the remainder of the questionnaire and the subsequent PCI questionnaire, to focus on the one session that they found to be the most useful. Question 9 enquired if this session had included a somatic memory recall experience. Question 10 asked about the importance they attached to the session they had chosen in terms of their personal growth or healing, and asked them to score it on a seven point Likert scale between 'important, but not the most important experience of your life', and 'the most important experience of your life'. Question 11 asked them to briefly describe their experience of personal growth or healing resulting from the session.

Question 10 was specifically designed to obtain the greatest spread of responses amongst the participants. It was not expected that anyone who had not experienced growth or healing from Holotropic Breathwork would take the trouble to participate in the study, and, as they had been asked to report upon their most significant session, it was thought unlikely that anyone would regard the session as anything less than important. It was therefore decided to make the lower pole of the question 'important, but not the most important experience of your life' rather than 'not important', and it was further decided that if anyone did in fact respond to question 4 by saying they had not experienced healing or personal growth, they would be excluded from the study.

The data obtained from Question 10 was used in two ways:

1. The sub-group of higher scorers (scores of 5 or 6) were compared with the sub-group of lower scorers (scores of 1 or 2) for their responses to the PCI in those dimensions that Everett had suggested might represent the boundary

conditions for healing in non-ordinary states, to see if there were significant differences between them that might add weight to Everett's suggestion.

2. The second way in which the data was used was to look at whether those who had reported an experience of somatic memory recall in Question 9 had a significantly higher score in Question 10 than those who hadn't reported one.

The participants' responses to question 11, in which they were asked to write a short account of their experiences, varied in length, but on average were of about 200 words. These were anonymised and then sent to three independent evaluators to score. The evaluators were asked to score them for the degree of personal growth or healing that they (the accounts) communicated to them. They were asked to give a score on the overall impression gained from reading the account, and not to be unduly influenced by its length or the author's skill with words. It was indicated to them when a participant's first language was not English. The full instructions that were given to the evaluators can be found in appendix C. As was with Question 10 the data from Question 11 was used in two ways.

1. The scores of the three independent evaluators for each participant were averaged, and the ten highest scorers were compared with the ten lowest scorers for their responses to the PCI in those dimensions that Everett had suggested were relevant to healing, to look at whether there were significant differences between them that might support her suggestion.
2. The participants who had reported an experience of somatic memory recall in Question 9 were compared with those who hadn't reported one for the scores they received from the three independent evaluators.

The covering letter that was sent with the research pack advised the participants, that before answering the questionnaires, they should spend some time to sink back into the experience they had chosen and allow themselves to recover the feelings and sensations associated with it.

2.4. Phenomenology of Consciousness Inventory (PCI)

The Phenomenology of Consciousness Inventory was developed by Ronald Pekala (Pekala, 1991), and evolved out of two earlier instruments he had developed, the Phenomenology of Consciousness Questionnaire and the (Abbreviated) Dimensions of Consciousness Questionnaire. All of these were based upon "Battista's (1978) eight elements of phenomenological experience, Tart's (1975,1977) 11 subsystems of consciousness, Krippner's (1972) and Ludwig's (1972) altered states of consciousness, and Silverman's (1968) dimensions of attention" (Pekala, 1991, p. 91), and contain items based on the ones used in the Post-Session Questionnaire developed by Osis, Bockert and Carlson (Osis et al, 1973) to assess the phenomenological experience of meditation. The PCI itself "is a retrospective self-report questionnaire completed in reference to a preceding stimulus condition, (which) permits subjective experience to be phenomenologically quantified in terms of pattern parameters, as Tart (1975) indicates, and intensity parameters, as Singer (cited in Zinberg, 1977), suggests, thus allowing for the phenomenological values associated with a stimulus condition to be empirically assessed" (Pekala, 1991, p.127) It consists of fifty three pairs of opposing statements separated by a seven-point Likert scale, and assesses twelve major and fourteen minor dimensions of consciousness. Pekala and Cardena state that "The PCI and DAQ and predecessor inventories have been found to reliably and validly map states of consciousness in a variety of contexts.", but add that given

the small number of items per dimension, they do not “provide very fine phenomenological discriminations, and were not designed to provide a narrative account of the experience.” (Pekala & Cardena, in Cardena, Lynn & Krippner 2000) Krippner and Achterberg also agree that the PCI “and similar instruments allow for valid and reliable assessment of various dimensions of the anomalous healing experience (e.g., arousal, affect, imagery, and volitional control). (Krippner & Achterberg in Cardena, Lynn & Krippner 2000).

The validity and reliability of the PCI has also been commented upon by MacDonald and colleagues:

“The reliability of the PCI has been shown to be satisfactory.....Pekala et al (1986) examined the internal consistency of the instrument and found coefficient alphas ranging from .70 to .90 for all the major and minor dimensions. They also obtained an average reliability index of .85 across all subjects who completed the measure.” and

“The validity of the PCI has mostly been examined in terms of criterion validity (i.e. its ability to predict differences between stimulus conditions). Pekala, Steinberg and Kumar (1986) found that significantly different PCI scores were obtained by groups of subjects undergoing different stimulus conditions (eyes open, eyes closed and hypnotic induction); similar findings were obtained in an earlier study by Pekala, Wenger & Levine (1985). Moreover, Pekala and Kumar (1984) found that the PCI could successfully predict hypnotic susceptibility. In general, these findings suggest that the PCI

is a valid measure which can adequately differentiate between phenomenological states. (MacDonald, LeClair, Holland, Alter & Friedman, 1995)

The PCI contains five pairs of items (dealing with awareness, attention, affect, internal dialogue, and imagery) which are duplicates of each other, with synonyms substituted for a few of the words in each item. These five pairs act as a reliability index of the instrument. Subjects who were diligent and consistent in answering the questionnaire would score zero on the reliability index; a subject who was answering randomly would score three. Pekala (1981) found an average reliability over many of his studies to be 0.8. He considered a reliability score of two or more to be unacceptable.

The twelve major dimension of the PCI are: Positive Affect, Negative Affect, Altered Experience, Visual Imagery, Attention, Self-awareness, Altered State of Awareness, Internal Dialogue, Rationality, Volitional Control, Memory and Arousal. The fourteen minor dimensions are: Joy, Love, Sexual Excitement, Anger, Sadness, Fear, Altered Body Image, Altered Time Sense, Altered Perception, Altered Meaning, Imagery – amount, Imagery – vividness, Direction of Attention and Absorption. The major and minor dimensions are weighted in importance by having different numbers of questions associated with them. Table 1 shows the number of questions associated with each dimension.

Dimensions (Major/Minor)	No.of Questions	Percentage Of Total
Positive Affect	6	11%
Joy	2	
Sexual excitement	2	
Love	2	
Negative Affect	6	11%
Anger	2	
Sadness	2	
Fear	2	
Altered Experience	13	25%
Altered body image	3	
Altered time sense	3	
Altered perception	3	
Altered meaning	4	
Visual Imagery	4	8%
Amount	2	
Vividness	2	
Attention	5	9%
Direction (inward)	2	
Absorption	2	
Self-awareness	3	6%
Altered State of Awareness	3	6%
Internal Dialogue	2	4%
Rationality	3	6%
Volitional Control	3	6%
Memory	3	6%
Arousal	2	4%

Table 1. The major and minor dimensions of the PCI showing their relative weightings

2.5. Statement of Hypotheses

Based on the goals of the study set out in section 1.4., and on the literature search, the following hypotheses were developed:

1. The Phenomenology of Consciousness Inventory dimensions of Altered State of Awareness (AS), Memory (ME), Altered Experience (AE), Attention (ATT), Positive Affect (PA), Arousal (AR), and Negative Affect (NA) will be significantly higher, and the dimension of Volitional Control (VC) significantly lower, at the 0.05 level in the study group than in the control group 'sitting quietly with eyes open' as reported by Pekala. (Pekala, 1986).
2. There will be a significant difference at the 0.05 level in those dimensions of the PCI listed in hypothesis one between those participants who rated their experience highly in Question 10 of the general questionnaire (i.e. scored 5 or 6) and those who rated their experience lowly (i.e. scored 1 or 2)
3. There will be a significant difference at the 0.05 level in those dimensions of the PCI listed in hypothesis one between the ten participants with the highest average evaluated scores for their written account of their experience, and the ten participants with the lowest average score.
4. There will be a significant difference at the 0.05 level in those same dimensions of the PCI listed in hypothesis one between those participants who had an experience of somatic memory recall in their selected Holotropic Breathwork session and those that did not.
5. There will be a significant difference at the 0.05 level in the mean scores participants gave in evaluating their own experience in question 10 of the general questionnaire, between those who had had an experience of somatic memory recall in their selected session and those who had not.

6. There will be a significant difference at the 0.05 level in the mean scores given to the participants' written accounts of their experience by the three independent evaluators, between those who had had an experience of somatic memory recall in their selected session and those who had not.

2.6. Ethical Considerations

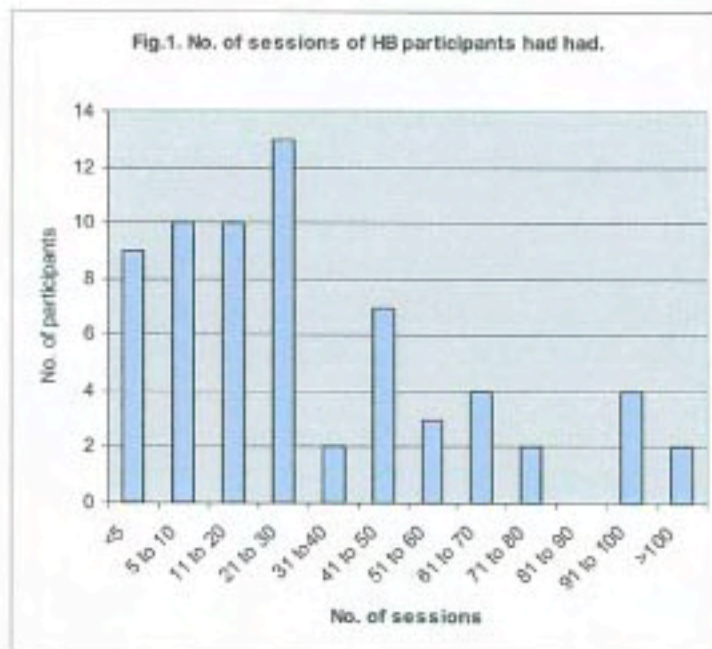
All participants were sent two copies of a letter giving their consent to take part in the study, and asked to sign and return one of them and to keep the other for their own records. A copy of this is in Appendix B.

3. RESULTS

3.1. Study Group Profile

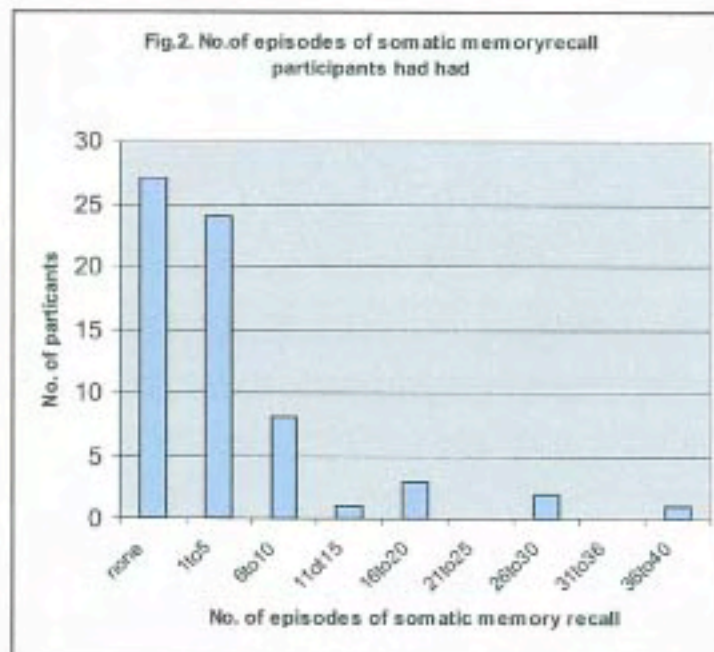
Sixty six people from thirteen countries participated in the study. Besides the UK, there were participants from Canada, USA and Australia, and from Ireland, France, Germany, Holland, Switzerland, Spain, Denmark, Norway and Argentina. There were twenty six males (40%) and forty females (60%). The mean age was forty nine years, with a standard deviation of nine years.

The mean number of Holotropic Breathwork sessions that participants had had was thirty five, but there was considerable variation. Nine had had less than five sessions, ten between five and ten sessions, ten between ten and twenty sessions and thirteen between twenty and thirty sessions. Six had had more than ninety sessions, and two had had more than one hundred.

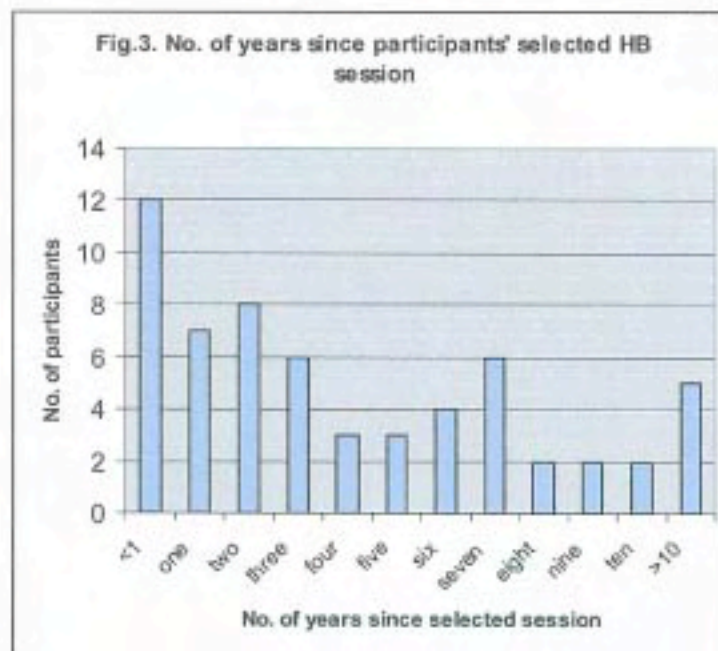


Twenty five people had begun to use Holotropic Breathwork more than ten years ago, eight had begun more than fifteen years before and one more than twenty years ago. Forty four of the participants had had a session within the past year, and a further eight within the past three years. Eight participants had not had a session within the past five years.

Thirty nine participants (59%) reported having had an experience of somatic memory recall during at least one of their sessions. Twenty seven participants (41%) reported never having had such an experience. Of those who reported having had a somatic memory recall experience the mean number of such experiences was eight, but there was considerable variation. Twenty four reported between one and five experiences, and a further eight between six and ten. Only eight people had had more than ten such experiences, though one person reported having had forty.



The participants were asked to choose one of their sessions, which was to form the main focus of this study. This was to be the one they had found to be most helpful in terms of their healing or personal growth. Where there had been two or more sessions that had been equally helpful they were to choose any one of them. The mean time that had elapsed since the sessions chosen was five years, but again there was considerably variation. In eighteen cases the time was one year or less, and in a further fourteen cases it was three years or less. There were thirteen cases where the time was over five years, of which seven were over ten years.



3.2. PCI Reliability Index

Pekala regards a Reliability Index of less than two to be acceptable. All of the participants were below this limit, and no-one was excluded from the study on grounds of unreliability. The highest Reliability Index of the group was 1.4. The mean was 0.6 with a standard deviation of 0.4

3.3. Hypothesis One

The results of the study group in the various dimensions of the Phenomenology of Consciousness Inventory compared with the control group 'sitting quietly with eyes closed' as reported by Pekala (Pekala, 1986), are shown in Table 2. It will be seen that compared to the controls, the study group scored significantly higher in the dimensions of Altered State of Awareness (AS), Altered Experience (AE), Attention (ATT), Positive Affect (PA), Arousal (AR), and Negative Affect (NA), and significantly lower in the dimension of Volitional Control (VC). This was as predicted. In all the dimensions with the exception Positive Affect (PA), the results were in fact highly significant. In the dimension of Memory (ME), however, the predicted difference between the study group and controls was not found. Table 3. compares the differences found between the study group and controls in this study with the differences Everett found between her study group and the same controls.

<u>PCI Major Dimensions</u>	<u>Study Group</u>		<u>Control Group</u>		<u>T-Values</u>
	Mean	Std.D	Mean	Std.D	
Altered State of Awareness	5.17	0.98	2.17	1.63	15.25***
Memory	4.48	1.02	4.25	1.06	1.43
Altered Experience	3.80	1.20	2.07	0.96	9.96***
Attention	4.86	0.82	3.71	1.27	7.30***
Rationality	3.82	1.35	4.21	1.39	-1.83
Imagery	4.22	1.79	3.78	1.57	1.65
Self-Awareness	3.86	1.44	4.20	1.25	-1.59
Positive Affect	3.25	1.55	2.71	1.56	2.23*
Internal Dialogue	2.44	1.76	4.10	1.79	-6.02***
Arousal	3.10	1.89	1.81	1.61	4.63***
Volitional Control	1.58	1.09	3.95	1.36	-12.76***
Negative Affect	2.72	1.67	1.24	1.24	6.24***
*** <0.01 * <0.05					

Table 2. PCI Dimensions of Study Group and Control Group

<u>PCI Major Dimensions</u>	<u>T-Values – this study</u>	<u>T-Values – Everett’s study</u>
Altered State of Awareness	15.25***	15.96***
Memory	1.43	4.68***
Altered Experience	9.96***	16.67***
Attention	7.30***	3.60*
Rationality	-1.83	0.15
Imagery	1.65	1.59
Self-Awareness	-1.59	1.95
Positive Affect	2.23*	4.42***
Internal Dialogue	-6.02***	-6.96*** (but see Section 4.1 and Appendix E)
Arousal	4.63***	2.42***
Volitional Control	-12.76***	-12.41***
Negative Affect	6.24***	2.47*
*<0.05 ***<0.01		

Table 3. PCI dimensions comparing T-values obtained in this study with the ones reported by Everett using the same control data.

3.4. Hypothesis Two

The results of the scores in the Phenomenology of Consciousness Inventory of those who scored highly in Question 10 of the General Questionnaire (5 or 6) and those who scored lowly (1 or 2) are shown in Table 4. It can be seen that there are significant differences in the dimensions of Altered State of Awareness, Altered Experience, Memory and Imagery; the difference in Imagery being highly significant.

PCI Major Dimensions	Scored 5 or 6 in Q.10 N=20		Scored 1 or 2 in Q.10 N=10		T-Values
	Mean	Std.D	Mean	Std.D	
Altered State of Awareness	5.57	0.48	4.77	1.03	2.30 *
Memory	5.05	0.92	4.03	1.16	2.40 *
Altered Experience	4.32	1.06	3.35	1.22	2.15*
Attention	5.16	0.83	5.04	0.58	0.46
Rationality	3.93	1.30	3.37	1.39	1.07
Imagery	5.21	1.36	3.40	1.72	2.97 ***
Self-Awareness	3.62	1.75	3.97	1.36	0.60
Positive Affect	3.18	1.26	2.72	1.89	0.70
Internal Dialogue	2.25	1.94	2.85	1.67	
Arousal	3.43	1.87	3.95	1.44	0.85
Volitional Control	1.38	0.69	1.73	1.13	0.90
Negative Affect	3.16	1.70	2.60	1.22	1.03
*** <0.01 * <0.05					

Table 4. PCI Dimensions for High Scorers and Low Scorers in Question 10

3.5 Hypothesis Three

The results of the scores in the Phenomenology of Consciousness Inventory of the top ten and bottom ten scorers in Question 11 of the General Questionnaire as scored by independent evaluators are shown in Table 5. It can be seen that there are significant differences in the dimensions of Altered State of Awareness, Altered Experience and Imagery, with the difference being highly significant in the case of Altered Experience. Table 6 shows how these results compare to those reported in the previous section.

<u>PCI Major Dimensions</u>	<u>Highest Ten Scores in Q.11</u> N=10		<u>Lowest Ten Scores in Q.11</u> N=10		<u>T-Values</u>
	Mean	Std.D	Mean	Std.D	
Altered State of Awareness	5.57	0.70	4.30	1.43	2.52 *
Memory	4.50	1.09	4.33	1.36	0.30
Altered Experience	4.60	0.80	2.90	1.49	3.17 ***
Attention	5.06	0.93	4.80	0.99	0.61
Rationality	4.17	1.44	4.37	0.76	0.37
Imagery	4.93	1.72	3.13	1.93	2.20 *
Self-Awareness	4.33	1.56	3.83	1.51	0.73
Positive Affect	4.10	1.47	2.82	1.82	1.17
Internal Dialogue	2.40	2.07	1.80	1.40	0.76
Arousal	2.20	1.69	3.45	1.95	1.53
Volitional Control	1.73	1.07	2.00	1.40	0.48
Negative Affect	2.10	1.83	1.97	1.59	0.17
*** <0.01 * <0.05					

Table 5. PCI dimensions for highest and lowest scorers in Question 11

<u>PCI Major Dimensions</u>	<u>T-Values related to Q10 comparisons</u>	<u>T-Values related to Q11 comparisons</u>
Altered State of Awareness	2.328*	2.518*
Memory	2.149 *	0.302
Altered Experience	2.149 *	3.174 ***
Attention	0.459	0.605
Rationality	1.074	0.371
Imagery	2.972 ***	2.204 *
Self-Awareness	0.6	0.728
Positive Affect	0.695	1.737
Internal Dialogue	0.878	0.761
Arousal	0.849	1.533
Volitional Control	0.899	0.478
Negative Affect	1.032	0.174
*<0.05 ***<0.01		

Table 6. PCI dimensions comparing high with low scorers –self-assessed (Q.10) and independently evaluated (Q11).

3.6 Hypothesis Four

The results of the scores in the Phenomenology of Consciousness Inventory of those who had a somatic memory recall experience in their session and those that did not are shown in Table 7. It will be seen that there were significant differences in the dimensions of Positive Affect (PA) and Negative Affect (NA). The difference in

Negative Affect was predicted by the hypothesis. The difference in Positive Affect was in the opposite direction to that predicted. There were no significant differences in any of the other dimensions predicted by the hypothesis.

PCI Major Dimensions	Somatic Memory		No Som. Memory		T-Values
	N=17		N=49		
	Mean	Std.D	Mean	Std.D	
Altered State of Awareness	5.00	1.28	5.23	0.86	0.69
Memory	4.67	1.19	4.39	1.01	0.87
Altered Experience	3.68	1.68	3.84	1.00	0.36
Attention	4.91	0.86	4.85	0.81	0.24
Rationality	3.63	1.56	3.89	1.28	0.63
Imagery	4.38	2.18	4.16	1.65	0.38
Self-Awareness	3.64	1.79	3.93	1.31	0.61
Positive Affect	2.42	1.68	3.54	1.40	2.49*
Internal Dialogue	2.47	1.19	2.43	1.76	0.08
Arousal	3.74	1.49	2.88	1.97	1.87
Volitional Control	1.47	1.38	1.61	0.98	0.40
Negative Affect	3.49	1.43	2.45	1.68	2.47*
*<0.05					

Table 7. PCI Dimensions comparing those who reported a Somatic Memory recall experience and those who didn't.

3.7. Hypothesis Five

The scores in Question 10 of the General Questionnaire, by which the participants rated their selected session, were compared between those who reported a somatic memory recall experience and those who did not. The results are given in Table 8 and show no significant difference between the two groups.

<u>Participants' own evaluation of their session</u>	<u>Somatic Memory Group</u>		<u>No-Somatic Memory Group</u>		<u>T- Value</u>
	Mean	Std.D	Mean	Std.D	
	3.82	1.42	3.98	1.09	-0.41

Table 8. Comparing the scores by which the participants evaluated their session between the Somatic Memory group and the No-Somatic memory group.

3.8 Hypothesis Six

The scores which the three independent evaluators gave to the participants' written accounts of their sessions were compared between those who reported a somatic memory recall experience and those that did not. The results are given in Table 9 and show no significant difference between the groups for any of the three evaluators.

<u>Scores given to participants'</u> <u>written accounts by</u> <u>independent evaluators</u>	<u>Somatic Memory</u> <u>Group</u>		<u>No-Somatic</u> <u>Memory Group</u>		<u>T-Value</u>
	Mean	Std.D	Mean	Std.D	
Evaluator No. 1	3.24	1.48	3.67	1.34	-1.06
Evaluator No. 2	4.12	0.93	4.46	1.02	-1.27
Evaluator No. 3	2.0	1.06	2.31	1.34	-0.97

Table 9. Comparing the scores of the three independent evaluators for the Somatic Memory group and the No-Somatic Memory group.

4. DISCUSSION

The methodology of this study had two elements:

1. To look at whether Everett's findings that there were significant differences in certain dimensions of the PCI between her non-ordinary states group and Pekala's control group (sitting quietly with eyes open) could be reproduced with another group of people who used non-ordinary states of consciousness for personal growth or healing, and to seek additional data by means of the general questionnaire that might support her suggestion that these differences actually represented personal growth or healing.
2. To use the PCI and other data obtained from the general questionnaire to look at whether the occurrence of somatic memory recall during a non-ordinary state is an indication of a deeper than usual process.

The results of the study will be discussed under these two headings.

4.1. PCI and Non-ordinary States of Consciousness

The findings of this study regarding the differences in various PCI dimensions between the study group and Pekala's control group considerably agree with the differences Everett found between her study group and the same control group. (Tables 2 & 3, pp. 42 & 43) In every dimension of the PCI, with the exception of Memory, wherever Everett found a significant difference this study did also. In addition, in the dimension of Internal Dialogue, where Everett did not report a significant difference, an error was found in her calculations (which is discussed fully in Appendix E), which when corrected showed the two studies to be in agreement.

The highly significant differences which Everett found in Altered State of Awareness, Altered Experience, Arousal, Volitional Control and, as already mentioned, Internal Dialogue, were also found to be highly significant in this study. The difference in Positive Affect, which Everett found to be highly significant, was found only to be significant in this study, but the differences in Attention and Negative Affect, which she found to be only significant, this study found to be highly significant. Neither study found significant differences in the dimensions of Rationality, Imagery or Self-awareness. The only dimension in which there was an important difference in the findings was that of Memory, where Everett found a highly significant difference and this study found no significant difference.

The different findings in the two studies in the dimension of Memory is an important one, however, as it raises questions about the usefulness of the PCI in retrospective studies of non-ordinary states of consciousness where significant time has elapsed between the experience being investigated and it's reporting. Pekala has said that "in general, data collection should occur as soon as possible after the event of interest to avoid the loss of important material", though adding the rider that "some accurate recollection may be 'blocked' at the time of the recollection and resurface at a later point." (Pekala, 2000, p. 52) He also points out that with the passage of time there is a greater danger of individuals confusing *inferences* about their experiences with the experiences themselves, or with them *averaging* their experiences with other similar experiences. Everett says with regard to her own findings, however, that their importance is that "(they do) not agree with the literature on memory which says that memory fades with time and is unreliable" (Everett, 2001, p.53), but goes on to quote Tart who says that "it is believed that in various higher states of consciousness

memory may function with far greater accuracy than in ordinary life” (Tart, 1975, p. 103). There are two points which need to be drawn from this discussion.

1. The PCI does not demonstrate that individuals remember their experiences well; it can only show that they believe themselves to do so, which may be a necessary condition of them actually doing so, but is not a sufficient one.
2. Whilst this study did not find that the participants considered themselves to remember their experiences significantly better than the controls, as Everett’s did, it did not find that they considered they remembered them any less well. This in itself is significant when it is considered that the controls were reporting on their experience within twenty minutes, whereas for the participants in the study it was months, years or even decades later.

Whilst Everett’s study demonstrated differences in the PCI dimensions between groups reporting on their experiences of healing or personal growth in non-ordinary states of consciousness and controls sitting quietly with eyes open, and whilst she suggested that these differences might represent the boundary conditions associated with healing in non-ordinary states, she was not able to demonstrate that they actually did so. This study attempted to do this by quantifying the participants’ subjective feelings about their experiences. It should be pointed out that whilst in the PCI participants were being asked to report phenomenological *facts*, in questions 10 and 11 of the general questionnaire they were being asked to report inferences and opinions. Furthermore, the participants’ written accounts of their experiences were quantified by means of a further subjective process – their appraisal by the three independent evaluators. Whilst the reliability of these subjective processes has not been tested, it was considered that they were not likely to be more unreliable than

many other processes which are commonly used to assign a numerical value to a subjective opinion; such as a teacher marking an essay, for instance.

Nevertheless, the two processes of producing high-scoring and low-scoring sub-groups did each produce quite different groups. Of the ten individuals in the low-scoring group produced from their ratings in Question 10 only four appeared in that produced from the evaluated scores of the accounts in Question 11, and of the ten high scorers selected by these evaluations, only three appeared in the group of twenty high-scorers in Question 10. Despite this variation, however, no individual that appeared in the high-scoring group selected by one method appeared in the low-scoring group selected by the other.

When the PCI results were compared between the high and low scoring sub-groups, significant differences were found in the dimensions of Altered State of Awareness, Altered Experience and Imagery in both sets of sub-groups (Table 6, p.47). The differences were highly significant for Imagery in the Question 10 sub-group pair, and for Altered Experience in the Question 11 sub-group pair. There was also a significant difference in Memory in the Question 10 sub-group pair.

This pattern of differences is significantly different from the pattern between the total study group and controls, with many less dimensions showing significant differences. The dimensions of Altered State of Awareness and Altered Experience remain significant, but less so, whilst Imagery, which didn't appear to be significant in comparing the total study group with the controls, does appear to be a significant

factor in comparing the high and low scorers, by whichever method these were selected.

The participants in this study, as well as the one's in Everett's study, were reporting upon quite different experiences to the ones with which they were compared (Pekala's control group), and it seems likely that it was differences other than healing and personal growth that accounted for many of the differences that appeared in their responses to the PCI. Nevertheless, differences in the dimensions of Altered State of Awareness and Altered Experience do persist in the comparisons of high and low scorers, which suggests that these dimensions might well be genuine markers of healing and personal growth in non-ordinary states. Furthermore the study provides some evidence, though it is tenuous, that Imagery too might be important in this way.

4.2. Somatic Memory in Non-ordinary States of Consciousness

The main focus of this study was to look at the incidence of somatic memory recall experiences occurring in non-ordinary states of consciousness and to examine whether their occurrence represented a deeper than usual healing process. This was done by looking for significant differences between those participants who reported a somatic memory experience in their selected session and those that didn't in:

1. Their responses to the PCI
2. The score by which they evaluated their session in question 10 of the general questionnaire
3. The scores given to their written accounts of their session in question 11 by the three independent evaluators.

Comparison of the dimensions of the PCI between the somatic memory group and the no-somatic memory group showed significant differences Positive Affect and Negative Affect (Table 7, p.48). These differences are difficult to interpret, particularly as in Positive Affect the mean is greater in the no-somatic memory group. The differences in Altered State of Awareness and Altered Experience, which have been tentatively suggested as being markers of healing or personal growth, were not significant, and neither was there a significant difference in Imagery. These results are not suggestive of there being any difference between the two groups.

Comparison of the two groups in the way they evaluated their experiences in question 10 also failed to show a significant difference; the mean score in fact being higher in the no-somatic memory group (Table 8, p.49).

Similar results were found when the participants' evaluated written accounts in question 11 were compared between the two groups. The scores given by the three evaluators were looked at separately, and in none of the cases was it significantly higher in the somatic memory group (Table 9, p.50).

None of the data collected in this study supports the hypothesis that somatic memory experiences that occur in non-ordinary states when being used for personal growth or healing represent a deeper than usual process. Indeed, when it is further considered that although thirty nine people reported having had such an experience, only sixteen chose as their most important session one that had included it, it must be concluded that in the case of Holotropic Breathwork the occurrence of somatic memory recall is not an event of particular significance. This fact is perhaps well illustrated by one

participant who, in her fifty two breathwork sessions, had had forty experiences of somatic memory recall, yet chose none of the sessions in which they had occurred as her most important one.

This is an interesting, if unexpected, finding. The occurrence of somatic memory recall during bodywork in Holotropic Breathwork sessions is usually a very dramatic affair, often involving the discharge of huge amounts of energy. The fact that the data from this study suggests it is nonetheless not of exceptional importance from the participants point of view can perhaps only be explained by recognising that it is only one of many dramatic events and exceptional experiences that people regularly have during breathwork, and that in comparison to all these it is not in and of itself exceptional. This is not to say that it is not important, only, that as just one important event amongst many, its significance was not able to be recognised by this study.

4.3. Participants' Experiences

This study has been a quantitative one, and, as such, the participants' experiences have had to be quantified with the inevitable loss of the vitality they held. To partially re-dress this, and as a reminder of the energy, significance and potential for growth that the participants found in their experiences, the following excerpts from their written accounts are given. The complete accounts can be found in Appendix G.

"As a result of that session my perspective of my life shifted....This caused me, since the session, to take much more responsibility for my life and for manifesting what I choose to in this world."

"The follow-up of this session; I realized a new freedom and urgency to live fully. I felt I had died and been given a new chance at life. This precipitated a

number of important changes and decisions in my life during the following two years.”

“The experience started with struggle; fighting. As the session progressed, I was filled with awarenesses that were subtle. The fighting had led me to a place of being more fully in my body; no dissociation. This helped me to experience my body very fully and deeply – something that is rare. Awareness of my body and senses and the wonder in my existence. A feeling of being the Divine Feminine, being complete in myself, and knowing it is good on a cellular level.”

“The session was about boundaries, about surrender, about standing up for myself and not taking emotional abuse...It was an expression and articulation of the previously unarticulated feeling of rejection and emotional abuse.”

“A very intense energy ...slowly moved through my entire body, and seemed to open various areas of my body in a new way. The experience culminated in a state of unity consciousness and pure awareness which continued for a considerable length of time. After the session I experienced an expanded and more inclusive view of reality. This session motivated a change in my life and life work.”

“There were a few main understandings I took away from the session. First was the understanding about just how much energy is blocked in my body and how much armouring I have. The depth of my kinaesthetic experience was so strong and the release so great, I felt like I never knew myself to this extent before.”

“This session also had a period of struggle and bodywork that released intense rage...After the session I felt very peaceful and loved and knew I could come back to this feeling in the future when I experienced difficulties.”

“The facilitator started applying pressure to my chest and the intensity of situation increased 100 fold for me. I was terror stricken, the pressure was intense and I could not breathe. I stayed with it and the facilitator had my sitter lay a towel over my face – that was the trigger. When I felt something on my face – I went to a time of being in my crib – a baby, and seeing my mother looking down on me with tears in her eyes, picking up the pink blanket in my crib, and trying to smother me. I struggled with her and she did eventually give up.”

“During the session I was struggling a lot – physically and emotionally – to express what felt like enormous energies. Eventually – after some very physical bodywork – my sitter and a facilitator each held me by a shoulder and I let the energy build in my body until it drove me forward with great force. They restrained me and I just powered against their restraint with huge strength as if I was driven by something beyond my body. My throat opened and an incredibly loud roar came out. This seemed to last a long time, and then everything softened and I could be held. Then a flood of memory/images came of death, birth, fear and anger at being restrained in surgery, and being sexually assaulted.”

“Near the end of the session a facilitator noticed movements in the muscles of my face and asked if she could work with that. She pressed my face with her hands and I began to speak in a language unfamiliar to me, but clearly a language.”

“I expressed a lot of anger from the depths of my being...I felt tremendous relief after that as if a huge burden had been lifted off my chest. I felt freer in my body and emotions followed by peace and tranquillity.”

4.4. Conclusions

This study set out to demonstrate that the occurrence of somatic memory recall experiences in non-ordinary states of consciousness, when being used for healing or personal growth, represented a deeper than usual process, and it has shown fairly conclusively that this is not in fact the case. It has argued though that this is not because these experiences are unimportant, only that they are just one of a number of important experiences that can arise in this work. What the study has shown is that there are significant differences in various dimensions of the PCI between the study group reporting on their experiences of Holotropic Breathwork and controls, but that not all of these differences are concerned with the healing process, though there is evidence that some of them, namely, Altered State of Awareness and Altered Experience might well be so. Further studies would be needed to confirm this, and also to assess the significance of the dimension of Imagery.

The study did not set out to examine the role of non-ordinary states work in general, or of Holotropic Breathwork in particular, in the treatment of Post-traumatic Stress Disorder. However, a few issues that have been arisen during its course do point towards its possible usefulness, and are worthy of consideration. These are that:

1. In times of extreme stress a person can freeze and enter an altered state of consciousness in which times slow down, and fear and pain disappear. Whilst this may have survival value, but in any case is useful for a victim about to die, it frequently becomes problematical as a result of the experience not being adequately recorded in memory and hence properly relegated to the past, but remaining as recurrently occurring, disturbing sensations.
2. The concept of state-dependent recall suggests that memories laid down in a particular state of consciousness are best recalled in that same state. This suggests that the incompletely remembered experiences of extreme stress may be more easily accessed in an altered state of consciousness.
3. These incompletely remembered experiences of trauma are often associated with bodily cues or somatic memory.
4. Somatic memory recall is common in Holotropic Breathwork; nearly sixty per cent of the participants in this study reported having had one.

Taken together these facts provide a persuasive rationale for the use of Holotropic Breathwork in the treatment of Post-traumatic Stress Disorder. At the present time it has not been used systematically for this purpose, though Taylor has reported on its usefulness in a few instances (Taylor, 1994). More systematic clinical studies are needed, but before they are likely to happen, the value and usefulness of non-ordinary states of consciousness will first have to become more widely recognised.

WORD COUNT: 15,009

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APPENDICES

Appendix A: Recruitment letter and email

Dr Christopher Lyons

"Farway"
Wilderswood
Horwich
Bolton
BL6 7 ET
Tel/Fax: 01204 697411
Email: chris.lyons@zen.co.uk

19th February 2003

Dear

Research Project into Holotropic Breathwork™

I am conducting a study into Holotropic Breathwork™ and its potential for healing and personal growth, and I am writing to you as someone who might be prepared to participate.

The study is open to anyone who has used Holotropic Breathwork™ for purposes of healing or personal growth. It involves completing a questionnaire about your experience of breathwork, and would take about **one hour** of your quality time. The results will be written up and submitted as part-requirement for a master's degree in Consciousness and Transpersonal Psychology from Liverpool John Moores University. All the data will be treated confidentially, and participants will not be identified in the final report.

If you would like to participate, please get in touch with me **as soon as possible** – preferably by email (chris.lyons@zen.co.uk) – and confirm your full postal address. I will then post the research package to you.

I have personally found Holotropic Breathwork™ to be a very powerful technique for self-exploration, and hope that this study might contribute to its wider use. I would very much appreciate your participation.

Yours sincerely,

Email sent to holo-cert@Dartmouth.EDU on 18.12.03

Hi everyone,

I'm planning to conduct a study into HB and its healing potential, and I'm writing to ask you all to be kind enough to participate. It will involve you in completing a questionnaire about your experience of Breathwork, and will take about an hour of your quality time. I would like to get at least a hundred participants, but there's no upper limit, and the more people who take part the more reliable will be the results. Those of you who run workshops or have email lists of clients/breathers might like to forward this email on to them. The more people who participate the better - I would like to hear from anyone who has used Holotropic Breathwork for the purposes of personal growth or healing.

The study will be written up and submitted as part of a master's degree I'm doing in Transpersonal Psychology. All the data will be treated confidentially though, and participants will not be identified in the write-up.

So please participate and pass the word on to as many people you know who are involved in HB and aren't on this list.

To take part just send me your full postal address and I'll send you the research package.

Look forward to hearing from you all.

Best wishes,

Chris



Appendix B: Research Pack

Dr Christopher Lyons

"Farway"
Wilderswood
Horwich
Bolton
BL6 7 ET
UK

Tel/Fax: #44-1204-697411
Email: chris.lyons@zen.co.uk

5th February 2003

Dear

Many thanks for volunteering to participate in this study into Holotropic Breathwork™ and its potential for healing and personal growth. The research package consists of the following items:

1. This letter
2. Two copies of the consent form, one which you should sign and return to me, and the other for you to keep.
3. General Questionnaire
4. Phenomenology of Consciousness Inventory questionnaire
5. Addressed return envelope, either pre-paid (for UK participants), or with a contribution to cover postage (one Euro or two US dollars) for others.

Please sign one of the consent forms, fill out both questionnaires and return them to me by airmail as soon as possible, but not later than **15th March 2003**.

The study will be written up and submitted as part of the requirement for a M.Sc. degree in Consciousness and Transpersonal Psychology from Liverpool John Moores University in the UK. All the data will be treated confidentially, and participants will not be identified in the final report.

I would suggest that you allow yourself an hour to answer the questionnaires, at a time when you will not be disturbed. I would like you to focus on one of your breathwork experiences, to sink back into it, and allow yourself to recover the feelings and sensations of that particular experience, and then, when you feel ready, to complete the questionnaires.

Thank you once again for participating in this research - your contribution is very much appreciated. Please contact me if you have any questions or comments.

Yours sincerely,

Consent to Participate

1. The Research Project

The project, which is to research the experience of people who have used Holotropic Breathwork™ for purposes of healing and personal growth, is being conducted by Dr Christopher Lyons as part of a master's degree in Consciousness and Transpersonal Psychology from Liverpool John Moores University, UK.

2. Requirements

Participation in the project involves completing two questionnaires concerning the experience of Holotropic Breathwork™.

3. Risks

The process of recalling experiences of Holotropic Breathwork™ may touch upon sensitive or emotional areas.

4. Confidentiality

The records in this study will be handled as confidentially as possible. Participants will not be named, or in any other way identified, in the final report.

5. Benefits

There will be no direct benefit to participants by way of payment, but the study may lead to benefits by evaluating the efficacy of the use Holotropic Breathwork™ for purposes of personal growth and healing.

6. Further information

Any further information concerning the study may be obtained from:

Dr Chris Lyons

Phone/Fax: # 44 – (0)1204 – 697411

Email: chris.lyons@zen.co.uk

CONSENT:

I understand the nature, requirements, risks and benefits of this study, and I have been given a copy of this sheet to keep. I further understand that my participation is voluntary and that I may withdraw at any time.

I hereby agree to participate in this study.

Participants Name _____ Researcher's Name _____

Signature _____ Signature _____

Date _____ Date _____

General Questionnaire



Statistics

Name _____ (optional)

Age _____ Sex _____ Date _____

1. Have you used Holotropic Breathwork™ for the purpose of personal growth or healing? Yes ____ No ____
2. How many sessions have you had (approximately)? ____
3. In what year did you have your first session? ____
....and your most recent session? ____
4. Have you experienced personal growth or healing as a result of Holotropic Breathwork™? Yes ____ No ____
5. Bodywork is regularly used in Holotropic Breathwork™. Have you ever received bodywork in any of your sessions? Yes ____ No ____
6. People who receive bodywork during Holotropic Breathwork™ sessions sometimes report that it triggers sensations, feelings and images of previously unremembered past events in their lives. Have you ever had this experience? Yes ____ No ____
7. If yes, how many times? ____

For questions 8-11 please reflect and report upon one session of Holotropic Breathwork™, which you found to be the most beneficial with regard personal growth and healing. (If there were two or more sessions which were equally beneficial, choose any one of them)

8. Approximately how long ago did the session you have chosen take place?
____ weeks, ____ months, ____ years
9. If you answered 'yes' to question 6, did the session you have chosen involve the recall of previously unremembered past events, triggered by bodywork? Yes ____ No ____

Please turn page over and answer questions 10 and 11

Appendix C: Pekala's letter and PCI scoring instructions

Appendix D: Instructions to independent evaluators

2nd June 2003

Dear,

Many thanks again for agreeing to do this for me. It's going to take a big chunk of your time, for which I'm really grateful, but I hope too that it will be fun. These people are all describing what for them was an important event in their lives – in some cases a very important one – so it surely shouldn't be boring.

All of the participants in the study have devoted at least an hour to completing the questionnaires. They have all stated that they have experienced healing or personal growth as a result of Holotropic Breathwork, and the session they have described is the one that has been most useful to them. What I would like you to do is to read the accounts and then to score them for the degree of personal growth or healing that they communicate to you. When reading them, I'd like you to be feeling relaxed and open, and in an intuitive rather than analytical frame of mind. You may wish to read them all through quickly first, before going back to score them. The score you give should be the result of the overall impression communicated with regard to healing or growth. It shouldn't be determined particularly by, say, the length of the report or the participant's skill with words, though these will undoubtedly contribute to the impression you get. For many of these people English is not their first language, and in cases where I know this to be the case I have marked the report with a green asterisk. Besides the UK, Ireland, US, Canada, and Australia, participants have come from France, Germany, Holland, Switzerland, Spain, Denmark, Norway and Argentina. In addition I have marked each report with **M** or **F** to denote the gender of the writer.

After reading each report I'd like you to give it a score between zero and six on the basis of the following:

In terms of this person's personal growth or healing I think that this experience was:

Important, but not hugely so 0 1 2 3 4 5 6 Hugely important

I would like you to try to spread the scores so that at least some people score zero and six, though I'm not suggesting that you should try to ensure that the mean falls on three or anywhere else, or that your scores should have a normal distribution. On the contrary, I'd prefer you not to reflect on what the distribution might look like.

Some people have used some of Grof's technical terms in their accounts. I've written a short glossary of these for you overleaf. I have also included a score-sheet for recording the results.

I hope you have fun with this, and once again very many thanks.

Glossary of Grof's terms

Co-ex: A system of condensed experience, whereby events that are thematically related tend to cluster in the psyche and reinforce each other. These often emerge sequentially during non-ordinary states of consciousness. An example might be someone recalling an incident of childhood near-drowning, then a birth experience with the umbilical cord around their neck, and then perhaps something that seemed like a past-life experience in which they had been hanged or strangled.

Basic Perinatal Matrices (BPM1, 2, 3, 4)

BPM1: The sense of being in the womb before the onset of labour – total comfort, all needs being met, no anxieties – innocent, oceanic or Garden of Eden feeling.

BPM2: Onset of labour before dilatation of the cervix. Intense crushing and discomfort – but no way out. Associated with feelings of hopelessness, overwhelming depression, despair, annihilation – images of concentration camps, torture etc.

BPM3: Next stage of labour – still being crushed by uterine contractions, but now cervix has opened and escape is a possibility – life and death struggle in the birth canal – images of gigantic battles, fighting for survival, blood, gore and excrement.

BPM4: Emergence from the birth canal into the world - battle for survival won – rebirth , new life - delivery and deliverance – sense of achievement, triumph.

Score Sheet

Participant No.	Score
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Appendix E

ERROR IN EVERETT'S REPORT

In her report of the differences in the PCI dimensions between her study group and the controls (Pekala's group sitting quietly with eyes open), Everett reported the following data for the PCI dimension of Internal Dialogue:

<u>Study Group</u>	<u>Control Group</u>	T-value: 1.56
Mean: 2.54	Mean: 4.10	
SD: 1.78	SD: 1.79	
N: 150	N: 110	

There is clearly an error here as the T-value of 1.56 cannot be arrived at from the data she has given for the two groups.

The Control Group data was published in Pekala's 1986 paper in *Perceptual and Motor Skills*, 63, 983-989, and is correct.

With regard to her own data, the group size of 150 is reported many times in the thesis, and the figures for mean and standard deviation appear several times in her appendix, and so are also likely to be correct.

The error, therefore, appears to be in the calculation of the T-value, and Everett does not show how she does this.

Using the above data the T-value can be calculated as follows:

Standard Error (SE equals SD divided by square root of N)
Study Group: SE: 0.1453
Control Group: SE: 0.1707

Difference in means (Diff-means): -1.56
Standard error of difference (SE-diff equals square root of the sum of the squares of the SE's): 0.2242

T-value (assuming that for samples of this size T equals the number of SE-diff's in the Diff-mean - in other words Diff-mean divided by SE-diff): -6.96

This calculation was checked by producing artificial data with the same sample-size, mean and standard deviation as the two groups being compared, and running it through the SPSS programme. It confirmed a T-value of -6.96

The calculation was also checked by my supervisor, using another method of calculation, but confirming the value of -6.96.

This error was only discovered at a late stage, and though Everett has been notified of it she has not yet replied with her comments.