

Experimental

THE EFFECTS OF SACRED/SHAMANIC FLUTE MUSIC ON TRAUMA AND STATES OF CONSCIOUSNESS

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*“Music is the beginning and end of the universe.
All actions and movements made in the visible and invisible world are musical.”*

—Hazrat Inayat Khan
Sufi mystic

“The flute is as old as the world.”
—Old American Indian saying

ABSTRACT

This research investigated the effects of listening to a particular music played on a Native American flute upon self reports of anxiety and perceptions of interconnectedness with individuals diagnosed with a trauma related disorder. It was a combined statistical and qualitative study.

The results supported the theoretical model which included ancient indigenous and mystical cosmological concepts of interconnectedness and sound as healing (i.e. returning to wholeness). The research identified a recording of flute music (“Ancient Spirits”) as facilitating perceptual experiences of integration related to trauma, as well as expanded consciousness. Also illustrated were previously undocumented dissociative processes. The results support a dissociative continuum which includes not only trauma related dissociation, but also wholeness related to concepts of spirituality and expanded consciousness. The study introduced a new testing measurement, the Interconnectedness Scale, with application in fields of psychology, spirituality and consciousness. The research points to the inclusion of sacred or shamanic world music’s trans-cultural use, therapeutically and for consciousness exploration.

KEYWORDS: Trauma, Dissociation, Dissociative Disorders, Sacred Music, Shamanic Music, Native American Flute, Healing, Oneness, Interconnectedness, Music Therapy

THEORETICAL MODEL

The theoretical model proposed that music, played on an aboriginal flute, with an inherent connection to ancestral cosmological concepts of Oneness and interconnectedness as well as sacred sound's use for healing (i.e. restoring wholeness), could positively affect populations with a trauma based diagnosis due to the disorder's characteristic fragmentation of aspects of conscious awareness of self (i.e. a lack of interconnectedness). It was theorized that this music could facilitate the restoring of wholeness to the dis-associated self.

The music was theorized to have the ability to reduce anxiety, and as a result would both indirectly and directly lead to increase perceptions of interconnectedness, as well as to directly lead to an increase in perceptions of interconnectedness.

BASIC CONCEPTS

TRAUMA

Trauma can be described as an experience or reaction which occurs when something of a tremendously distressing nature is imposed externally leading to a sense of being overwhelmed. Shengold elucidates trauma as an experience “that is so overwhelming that the mental apparatus is flooded with feeling... (a) terrifying too muchness.”¹

If a person is unable to fight or flee from a trauma, unable to stop it or get away from it, and is overwhelmed by this “terrifying too muchness”, the result may produce a dissociative response.

DISSOCIATION

Dissociation implies being out of a state of wholeness. The term “dissociation” itself is descriptive of the nature of the process, a process of “dis-association” of an aspect of the self from the whole of the self. The thoughts, emotions and/or memories of the traumatic experience that are so overwhelmingly too much become dis-connected or fragmented from conscious awareness. These painful memories and/or feelings, partial or whole, have become out of

reach, no longer functioning in “association” with what is generally considered the normal stream of conscious awareness. It is characteristic for there to be amnesia for these dissociated, compartmentalized aspects of self and often there is an unawareness or amnesia for the experience of not remembering.

Dissociation is a psychological coping mechanism used to defend against overwhelming traumatic memory and affects.

Dissociation is considered to be on a continuum. Everyone has experienced some type of dissociation (i.e. daydreaming, automatic pilot driving, being in a 'daze' after the loss of a loved one). It only becomes considered “pathological” when the symptoms of dissociation do not remit and they begin to significantly disrupt functioning.

Dissociation has been identified to occur in trauma, meditative states and near death experiences. In trauma, a severe dissociative experience may be illustrated by the report of a child that experiences him or herself floating above their body, looking down and seeing him or herself being overpowered and sexually abused by a family member. The dissociative process represents moving away from a painfully traumatic experience. In meditation, it is the moving toward “union” with the Divine.² In near death experiences it is about both, moving away from distress of the dying body and moving toward the positive perceptual experience, often descriptive of peace and tunnel of light.

DISSOCIATIVE DISORDERS

There are two main trauma based diagnostic categories; Dissociative Disorders and Post Traumatic Stress Disorder. While dissociation can occur in both, this study looks particularly at Dissociative Disorders because here the unique process of dissociation is the primary attribute of the diagnosis.

The DSM-IV summarizes Dissociative Disorders as “...a disruption in the usually integrated functions of consciousness, memory, identity, or perception of the environment” The five diagnostic categories are: Dissociative Amnesia, Dissociative Fugue, Depersonalization Disorder, Dissociative Identity Disorder (formerly Multiple Personality Disorder), and Dissociative Disorder Not Otherwise Specified.³

Dissociative Disorders involve the horizontal splitting off from conscious awareness a part or parts of the self.⁴ Yet, importantly, while they have become split off from the rest, they continue to function, but are isolated from conscious awareness and voluntary control.⁵ Morton Prince used the term “coconsciousness” to describe the simultaneous and autonomous nature of the splitting off and functioning of these aspects of consciousness.⁶

The primary cause of Dissociative Disorders has been identified as extreme and overwhelming trauma. Often the original trauma has its origins in childhood. The etiology of childhood trauma may include: extreme neglect, emotional abuse, physical abuse, frequently sexual abuse and especially incest.^{7,8} The literature, as well as clinical observation, reflects that the trauma has generally been severe, repetitive, overwhelming and unpredictable. There is controversy and difficulty in determination of this diagnosis, in part due to its etiology, complex symptomatology, as well as it having a main characteristic of amnesia. The amnesia can hide the etiology, hide the uncomfortable feelings and/or memories related to the trauma, as well as there existing amnesia for the experience of amnesia itself. The result is that years can go by with an individual experiencing symptoms of anxiety, panic attacks, depression, withdrawal, outbursts of anger or rage, nightmares, flashbacks, and/or time loss. These symptoms may often go undiagnosed or are misdiagnosed related to the most strongly presented symptomatology (e.g. an anxiety or depression diagnosis).

ANXIETY

Anxiety is an emotional state characterized by “apprehension, tension, or dread.”⁹ It is related to an anticipation of a vague or even unknown threat or danger.¹⁰ This differs from the known threat related to fear. The reduction of anxiety potentially can allow the fragmented parts of the self to begin to approach and be remembered, without re-experiencing the original sense of being overwhelmed. Theoretically, the lessening of trauma related anxiety can begin to allow for a reintegration into wholeness.¹¹

HEALING

In ancient cosmologies healing is about returning to wholeness. It is about facilitating the return to harmony and to balance the dynamic inter-relating, interconnectedness of everything: the individual (body, emotions, thoughts, and spirit), nature and the cosmos itself.

REVIEW OF LITERATURE

MUSIC

The belief in the power of music is universal. Music is identified with creation beliefs and has been used for prayer and healing within ancient mystical and indigenous traditions throughout time and cultures.

Shamans, philosophers and mystics have viewed music as balancing, unifying and a healing force. Music's use for healing can be traced back to the beginnings of recorded history.

The use of music or sound therapeutically has grown tremendously in the last few decades. The “application of music as a therapeutic modality can vary greatly. It can include: a) listening to music to relax, b) listening to or experiencing sounds or music for the psychological, emotional, spiritual or physiological 'felt sense' (or promise of) that the music engenders, including that of subtle energies and consciousness expansion, c) by listening to music while engaging in other activities (i.e. guided imagery, dancing, visual art activities, while meditating, etc.) and d) the active participation of creating music, structured or improvisational, with instruments or vocally.” Variations of these are continually being explored and expanded.¹¹

MUSIC AND TRAUMA

A nurse, Margaret Anderton, at the end of W.W.I, worked with wounded Canadian soldiers. She described treating “war-neurosis” with music, in particular sustained tones. She stated that “memories have been brought back to men suffering with amnesia; acute temporary insanity done away with; paralyzed muscles restored.” She described a particular captain, “who had been hurled into the air and then buried in debris at the bursting of a bomb and had never been able to remember even his own name until the music restored him.”¹² This early work was with veterans who would probably now be diagnosed with Post Traumatic Stress Disorder, exhibiting dissociative symptomatology.

It was after W.W.II that the therapeutic use of music was formally labeled “music therapy”. It was used in dealing with the trauma of combat, used successfully in reducing depression and helping in the return of dissociated memories.^{12,13,14}

In the 1970's, Helen Bonny developed the use of guided imagery with music. She incorporated music and concepts of transpersonal psychology, believing this process could tap into the "inner state" and would facilitate the resolving of issues normally out of reach of conscious awareness.¹³

A technologically developed use of sound, "Hemi-Sync®", may be the most known and researched of the technologically developed sound programs. It is a specific composition and presentation of sound, to be listened to systematically, which induces an altered state. Rosenthal believes the repeated moving between states makes it easier to bring memories and affects back to consciousness and incorporated them into "one's sense of self." He described the use of this music and process related to traumatic memories in Dissociative Identity Disorder.¹⁵

Trance states and the "Hemi-Sync" induced altered states appear to share some similar features with the pioneering work of Penniston, done in the late 1980's. He did a body of research using biofeedback training to induce alpha and theta brainwave states with patients diagnosed with Post Traumatic Stress Syndrome, and discovered individuals were able to access dissociated memories and emotions with significantly less anxiety.¹⁶

Another therapeutic modality advocates music therapy in a traditional approach, with added improvisation. This allows for accessing and expressing dissociative aspects of the personality, also facilitating the expression of pre-verbal memories and affects.¹⁷

Oliver Sacks, a neurologist, also described the power of music. He stated it was "the profoundest non-chemical medication" used by his patients. In his book *Awakenings*, he reported music as having the ability to "integrate and cure." He wrote of a patient who appeared to have dissociated "into a dozen aspects of herself," and that music was one of the few things which could "recall her former un-broken self".¹⁸

Music as a non-invasive modality is being explored by researchers and used more frequently by therapists as a means to enter altered states, thereby facilitating the ability to access state dependent traumatic memories and affects.

Music is often used to therapeutically induce relaxation and/or altered states of consciousness. Generally, there are four categories of music that are listened to therapeutically: 1) relaxation music of a non-intrusive, generic type, 2) relaxation music which is individual specific, 3) sounds or music which have been 'intuitively' or 'technologically' developed and used to produce relaxation, affect, "energy" and/or altered states of consciousness, and 4) sacred music and/or ancient indigenous or shamanic music with an intent to touch the 'soul', and at times to induce trance and healing.¹¹

The third category of music above is sometimes used to induce alpha and/or theta brain waves. These resulting states are identified with deeper relaxation, meditative and trance states, linked with dissociation, as well as being connected with concepts of healing and consciousness exploration.^{15,18,19} It is believed that during alpha and theta, repressed and dissociated memories and/or affects may be brought to conscious awareness with less anxiety, and move towards integration. It is also proposed that these states may allow access to unconscious material such as creative gifts, intuitive knowings, and a tapping into a "collective" unconscious for an even wider resource of awareness and healing.²⁰

The fourth category is of sacred sound(s) and music originally from, but not limited to, ancient mystical spiritual and aboriginal traditions. It was accompanied by intentionality (or prayer) related to "soul" or "spirit" or "spiritual" realms, used to facilitate healing, returning to wholeness.²¹

These ancient cosmologies view of health and medicine is often related to types of "energy." It is the harmony and balance of this flowing and dynamic energy which is strived for.

Rouget, in his book on music and trance, gives descriptions of the profound power of music to induce altered states of consciousness throughout history, in many cultures. He suggests that music will ultimately be seen as the principle means of facilitating the trance state.²² Schneider states that "Music is the seat of secret forces or spirits which can be evoked by song in order to give man a power which is either higher than himself or which allows him to rediscover his deepest self".²³ In most ancient civilizations and cultures, the concept of music and the soul are directly related. The soul is not only connected to the "divine" breath, but also, to sound.²⁴

Today, the increasing interest and application of music therapeutically encourages the exploration of how music has been viewed in ancient cultures.

MUSIC IN ANCIENT INDIGENOUS AND MYSTICAL SPIRITUAL TRADITIONS

To describe the importance of music in these ancient cosmologies, it is important to acknowledge the generally universal belief that the world was “sounded” into existence.

“Sikh <i>Adi Grath</i> :	One Word, and the whole Universe throbbed into being.
Christian <i>Bible</i> :	In the beginning was the Word, and the Word was with God, and the Word was God
Jewish <i>Old Testament</i> :	And God said, Let there be light: and there was light.
Taoist <i>Tao Te Ching</i> :	The nameless is the beginning of heaven and earth. The named is the mother of ten thousand things.
Hindu <i>Upanishads</i> :	Accordingly, with that Word, with that Self, he brought forth this whole universe, everything that exists.” ²⁵

There are many Native American tribes and therefore many creation beliefs. Yet, there is a belief within many American Indian traditions that this world was “sung into existence by sacred songs.”¹¹ During the Hopi Flute Ceremony of the southwest, there is a reenactment of “emergence” into this world. The “emergence songs are sung” and reed flutes are played.²⁶ It is worth noting that both “sacred music” and the “flute” are connected in this auspicious ceremony.

It is from the very beginnings that sound is considered sacred and imbued with special powers. Everything is created from sacred sound, everything is sacred, everything is alive with spirit and its own sound. Natalie Curtis, who studied Native American music in the late 1800’s, described all things having “soul”, and everything its own sound or song.²⁷ Hazrat Khan, Sufi master and mystic, also described each person as having their own sound.²⁸ Human beings, in the physical form as well as in spirit, are sound or music itself.²⁹

Physics string theory describes the possibility of everything being tiny loops of vibration. That it is the speed and density of vibration which creates the perception of matter, the perception of form. That there may in fact be no “particles”,

only vibrations.²⁵ This could mean that everything is sound, audible or inaudible. This theory would be in keeping with ancient cosmological beliefs.

As sacred sound is a part of creation beliefs, and sacred sound is that of which all things are made, it follows that sacred sound can facilitate healing, the returning to the delicate balance and harmony wholeness, of the sacred Oneness.^{11, 28} Sound becomes the healing unitive force.

In the description of a Navajo healing ceremony or “sing”, a concept of the dynamic Oneness is illustrated.

“The Navajo concept of the universe in an ideal state is one in which all parts—each with its power for good and evil—are maintained in interrelated harmony.”...

“Illness, physical and mental, is the result of upsetting the harmony. Conversely the cure for illness is to restore the patient to harmony. It is to this end—the preservation or restoration of harmony—that Navajo religious ceremonies are performed.”

—Bahti²⁶

The actual ceremonies, rituals, songs may vary, Indian nation to Indian nation. The concept of maintaining and returning balance and harmony is universal. The connection to the spirit world, or the realm of the supernatural, is also inherent in healing practices. Music, healing and prayer are intertwined.³⁰

The flute in many ancient stories, legends, and traditions, has been associated with magic, mysticism, and the ability to transform. It is easy to be reminded of “The Pied Piper of Hamelin”, Mozart’s “Magic Flute”, Krishna and his flute. The flute’s ability to induce trance or alter states of consciousness has been described by Plato, Aristotle, Aeschylus, and more.²² Bone whistles and flutes were discovered at the temple of Apollo at Delphi and Apollo is considered both, a god of music and a god of healing. The flute is unique in its connection with “divine” breath, spirit, life.

There is an old Native American saying which says, “There has always been a flute, just as there have always been young people. The flute is as old as the world”.³⁰ Archeological discoveries may lend credence to this saying, as to date, the flute is documented as being the oldest discovered instrument.³¹

There is a well known image of a humpback fluteplayer depicted in ancient rock art, especially in North America. This image has been described as “rain priest”, “deity”, and “shaman”.³² These beings all are identified as having supernatural capabilities.

In myth, legend and practice, the Indian flute is described in terms of the sacred, healing, transformation and love. In a Dakota legend, the flute was brought to humans by supernatural “Elk People”. It was “imbued with the sounds and power of all living things...” and expressed “the divine mystery and beauty of love.”³³

The Native American flute is a unique musical instrument, by legend the oldest. It is imbued with supernatural qualities.

In ancient indigenous and mystical spiritual traditions, the beliefs include the power of sacred song. It is these songs, these prayers, which are used to maintain and restore the delicate balance of harmony when it has shifted out of balance. Healing with “songs” and prayers is about keeping in harmony something as vast as the cosmos, and as seemingly limited as an individual. There is an overall cosmological view which includes an interconnected, inter-relating sacred Oneness.

The cosmos itself sings. As “sacred songs” brought this world into existence, it is also “song” which is needed to keep the cosmos in balance and harmony, in its interconnected, inter-relating wholeness.

DESIGN AND METHODS

The experimental research was a mixed factor design. There were two groups, participants identified with a diagnosis of a Dissociative Disorder and a control group consisting of adult college students, N=94. Adults were defined as being 18 years or older. Half of each group of participants were exposed to listening to either a recording of music played on a Native American flute (“Ancient Spirits”) or “placebo music” (new age genre, “Sedona Suite”).

In the mixed factor design, there were two between subject factors: 1. presence of NA flute music vs. presence of placebo music, and 2. Dissociative Disorders vs. Normal Subjects. The within subject factor was time. The testing measurements were administered pre and post listening to 10 minutes of either type of music.

The Dissociative Disorder group was comprised of adult individuals who had a pre-existing Dissociative Disorder diagnosis and were actively involved in therapy. They were drawn from both psychiatric in-patient and out-patient populations. Part of the recruitment involved a pre-selection process by the participants' therapists related to participants' appropriateness for the study in terms of diagnosis, ability to freely volunteer and emotional stability. Once this was done, there were no exclusions. Participants' with a dual diagnosis and/or on medication were included, as these factors are not uncommon with this particular diagnosis, and for the purpose of this study these issues were not anticipated to significantly affect outcome.

The music played on the Native American flute, for the purpose of this study represents a very particular recording of music, identified anecdotally as having shamanic characteristics, and being played on an aboriginal wooden flute. The flute was traditional northern plains style. The music was of solo flute from the first 10 minutes of the flute recording entitled "Ancient Spirits" (created by the researcher).

The placebo music, for the purpose of this study, was defined as having no strong emotional valence or pull. (It was an instrumental of the new age genre, which included a silver flute, entitled "Sedona Suite"). It was selected, due to its use to promote relaxation by a psychologist working with people who had experienced trauma.

The testing measurements included Spielberger's State Trait Anxiety Inventory and Wiand's Interconnectedness Scale. The measurements were administered pre and post listening to 10 minutes of recorded music. A brief interview followed the completion of the final testing.

PRE TESTING	MUSIC (10 Minutes)	POST TESTING	
Dissociative Disorder	Flute	Dissociative Disorder	I N T E R V I E W
Normal		Normal	
Dissociative Disorder	Placebo	Dissociative Disorder	
Normal		Normal	

Mixed Factor Design

PROCEDURES

Efforts were made to set an atmosphere of safety and openness for both groups. This was viewed as significant, as individuals diagnosed with a Dissociate Disorder are characteristically sensitive to issues related to trust and safety, due to their history of severe trauma. This atmosphere of safety was encouraged by having the participants meet in small groups in familiar settings (e.g. therapist's office, meeting room and/or college classroom). Participants were asked if anything could help them be more comfortable (e.g. sitting in a different chair or leaving the door slightly open).

The main research experience involved:

1. Completion of a pre music packet, which included a demographic questionnaire and the two testing measurements.
2. Exposure to 10 minutes of listening to either the recording of music played on the aboriginal flute or placebo music condition.
3. Completion of the post music packet, which included new, though identical testing measurements as in the pre packet.
4. An Interview—There was one interview question designed to be open ended, “What was your experience or response to listening to the music?” If there was any query of what was stated, it was formed by repeating all or partially what the participant had stated, in the form of a question. This was to minimize bias leading on the part of the researcher.

THE INTERCONNECTEDNESS SCALE

The Interconnectedness Scale is a self-report measure of perceptions of interconnectedness developed specifically for this study. Interconnectedness is being defined as wholeness, meaning all parts are functioning in an unbroken, undivided state of unity.³⁴ The scale consists of five questions about interconnectedness. The participants responded to each question by making a mark on a 100 millimeter, visual analogue line to indicate their present perception of interconnectedness. Scoring was performed by calculation of sums for the items being measured.

The five items of the scale (abbreviated descriptions):

1. personal interconnectedness—connectedness to feelings, thoughts, memories
2. internal wholeness—feeling whole and fully present

3. universal interconnectedness—connectedness to nature and the universe
4. humankind interconnectedness—connectedness to people
5. oneness interconnectedness—being a part of something greater which includes everything

PRELIMINARY FINDINGS

Demographics

There were 94 participants: 12 males (13%) and 82 females (87%). The male mean age was 27 and the female mean age was 42.

Categories of Types of Trauma

Physical
Emotional
Sexual
Multiple
None

Through self report, 92% of the Dissociative Disorder Group reported having experienced multiple types of trauma, while 30% of the Normal Group reported having experienced multiple types of trauma.

These demographic findings lend support to the etiology of Dissociative Disorders as being trauma based. The findings are supportive of percentages reported in the literature of severe childhood trauma.^{35, 36, 37}

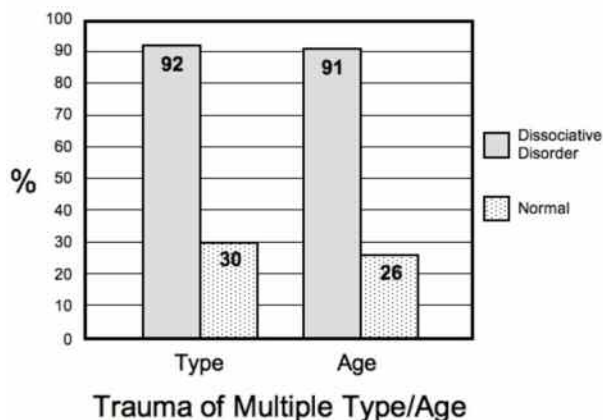
Categories of Ages that Trauma Occurred

Childhood
Teens
Adulthood
Multiple
None

Through self report, 91% of the Dissociative Disorder Group reported having

experienced trauma during multiple age categories, while 26% of the Normal group reported having experienced trauma during multiple age categories.

This reflects that individuals who have experienced severe trauma, have also experienced trauma occurring repeatedly over various ages. It can be characteristic of individuals with childhood histories of severe abuse to have patterns of abuse which continue into adulthood.



THE INTERCONNECTEDNESS SCALE

RELIABILITY AND VALIDITY

Pre-session administration of the Interconnectedness Scale exhibited an $\alpha = .72$, a modest though acceptable internal-consistency reliability. The post-session administration of the scale exhibited an $\alpha = .82$, indicating a relatively strong internal reliability. The post alpha's greater reliability may be related to practice effects. For a five item scale, this degree of reliability may be regarded as substantial. This scale is preliminary with convergent validity not yet established, though it evidences internal-consistency reliability and face validity.

APPLICABILITY

The Interconnectedness Scale is a new, easily administered measurement which appears to have potential use in the fields of psychology, spirituality, consciousness and wellness. Each of these categories are not exclusive of each other.

Psychology

The Interconnectedness Scale is a measurement of a quality of dissociative experience, related to the lack of perceptions of interconnectedness. The scale is also able to identify relational balance (or lack of) between the categories of the scale. It may be used with Dissociate Disorders, Post Traumatic Stress Disorders, and other disorders related to trauma, or perceptions of isolation, as in unresolved loss, anxiety and depression.

Spirituality

The scale measures perceptions of universal interconnectedness, which parallels ancient and mystical spiritual beliefs (item 3). It measures without using conceptualizations of theological doctrine or dogma, but rather, may potentially measure increased expanded states of consciousness, as described by mystics, as an aspect of spiritual experience. The implications of this scale contributing to a growing knowledge of spirituality is significant.

Consciousness

The scale measures perceptions of interconnectedness related to the concept of a dynamic (conscious) whole or Oneness. In many aboriginal and mystical traditions everything within the Oneness is alive with spirits and sounds. This quality of being alive with spirit may equate with consciousness. This is applicable in both the fields of spirituality and consciousness. This measurement may contribute to a growing knowledge of consciousness.

Well-being

The Interconnectedness Scale has the potential to be used to assess "wellness", or sense of well being as an aspect of feeling "whole"; connected internally with self, relationally with people and the environment, as well as with something-greater. Potentially to be used in mental health and medical facilities, and wellness centers.

*“And I saw that the sacred hoop of my people was one of many hoops
that make one circle...”*

And I saw that it was holy.”

—Black Elk³⁸

DATA ANALYSIS

There were three independent variables consisting of two between groups, 1. Dissociative and Normal 2. Native American flute music and a placebo, and 3. One repeated within measures within time, i.e. pre and post testing. There were two dependent variables, feelings of anxiety and perceptions of interconnectedness. These variables gave an approximate on interval variable. There was a statistical analysis. MANOVA, a multivariate analysis of variance used to justify the main analysis, followed by a ANOVA, a univariate analysis of variance on each of the two dependent variable measures. A Pearson's Correlation was used to analyze mediating or relational interaction effects. The Cronbach Alpha Coefficient was used to assess the internal consistency reliability analysis for the dependent variables of anxiety and interconnectedness.¹¹

STATISTICAL FINDINGS

I. An important preliminary finding showed that participants with Dissociative Disorders held significantly weaker perceptions of interconnectedness than the Normal group, ($p < .001$).

II. While both types of music reduced anxiety, it was found that participants hearing the NA flute music showed a greater decrease in anxiety, than the placebo music, for both groups, $t(92) = 2.16$, $p < .05$.

III. As expected, the experience of hearing NA flute music did lead to a significantly greater increase in perceptions of interconnectedness, for both the Dissociative Disorder group and the normal group, than the experience of hearing placebo music., $F(1,88) = 10.74$, $p < .01$.

IV. As expected, the NA flute music did lead to a decrease in anxiety, which then led to a greater increase in perceptions of interconnectedness, for both groups.

V. Unexpectedly, it was also found that listening to the flute music resulted in increased perceptions of interconnectedness, which then led to a decrease in anxiety. Analysis showed that there was a non-significant mediating effect for both music-anxiety and music-interconnectedness relationships. (Mediational effects are best tested by covariance analysis in which the

	Group	Music	Post State Anxiety	Post Interconnectedness
Group		-.06	-.44**	.41**
Music			.22*	-.30 *
Post State Anxiety				-.63**
Post Interconnectedness				

Post Measure Correlation Matrix for All Measures

* Correlation is significant at the 0.05 level

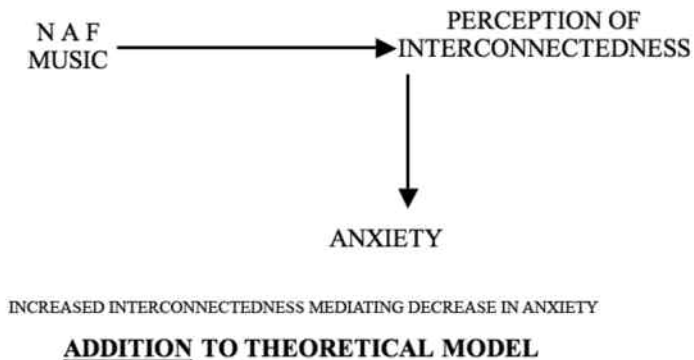
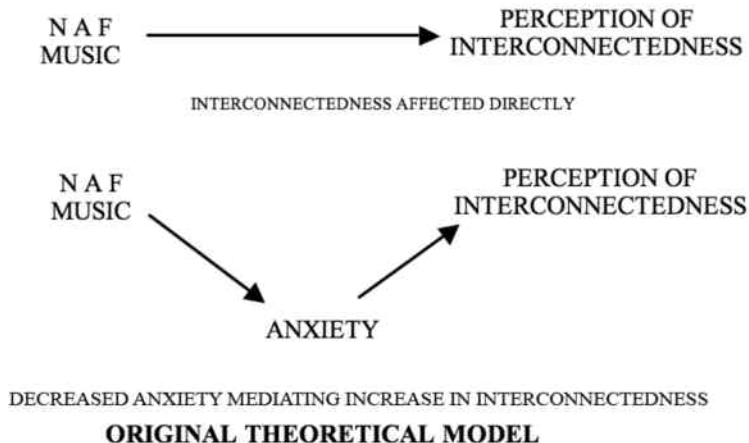
** Correlation is significant at the 0.01 level

CORRELATION MATRIX FOR MEDIATIONAL EFFECTS

predicted mediator's variation is removed. As predicted, removing anxiety from the music-interconnectedness relationship, produced a nonsignificant result, $F(1,86) = 1.9, p$ ns. However, a similar result was obtained by covarying interconnectedness perceptions from the music-anxiety relationship. Removing interconnectedness from the music-anxiety relationship also produced a non-significant result, $F(1,86) = .05, p$ ns. Consistent with these two results was the significant negative relationship found between anxiety and interconnectedness, Pearson Correlation: $r(93) = -.63, p < .01$. Mediation effects are best assessed by removing the mediator's variation. Removing either anxiety or interconnectedness resulted in a p ns. This was consistent with the Pearson Correlation, $(r(93) = -.63, p < .01)$.¹¹

VI. Unexpectedly, there was no significant greater increase in perceptions of individual interconnectedness with the NA flute music for the Dissociative Disorder group, than the normal group. (Individual interconnectedness was a combination of items 1 & 2, representing the personal or psychological), $F(1,39) = 1.54, p$ ns.

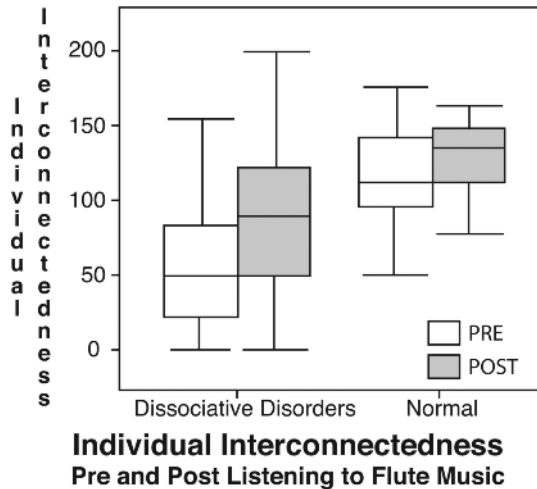
This was puzzling, especially, after analyzing the interview data which indicated significant responsiveness to the flute music by both groups, yet more integrative responses from the Dissociative Disorder group.



PROGRESSION OF THEORETICAL FINDINGS

Months after the initial study was completed, a different question was asked and analyzed. How did each group separately respond?

The very noteworthy finding indicated that when analyzed separately, there was a very significant increase of individual interconnectedness for both groups. The Dissociative Disorder group showed $p < .0001$, and the Normal group showed $p < .0001$.



VII. As expected after hearing the NA flute music there was a significant increase in universal interconnectedness (item 3) for both groups, greater than hearing the placebo music, $F(1,89) = 12.88, p < .0005$.

QUALITATIVE FINDINGS

The rich interview material supported the quantitative findings and theoretical model, and illustrated previously undocumented dissociative processes. This particular recording of flute music produce increased perceptual awareness. It was indicative of producing expanded conscious awareness, which appeared to render certain barriers of amnesia ineffective in keeping some awarenesses out of reach. The expanded perception seemed to allow a gentle inclusion of previously out of reach material, facilitating its integration into conscious awareness.

1. Style of reporting of experience:

Placebo music: minimal
NAF music: very detailed

2. Description:

Placebo music: “relaxing”
NAF music: “relaxing” and “active”

The responses regarding the flute music experience for both groups were detailed and positive, though especially poignant with the Dissociative Disorder participants. The participants also expressed feeling more “hopeful” after the experience. The Dissociative Disorder group responded more extensively in expressing integrative processes.

CATEGORIZED RESPONSES

Active:

“...it seemed to set something in motion.”

“I felt called...”

“Felt like I was flying...”

“It took me to the woods...”

“...tied everything together.”

Soothing Response:

One female Dissociative Disorder participant came late for the research appointment. She appeared especially anxious, scattered and restless. She had a note pinned to her blouse indicating what she was to do after the research was completed, as if a reminder to herself. Even given her agitated state, her response to the flute music was enthusiastic and positive. “How could people feel like this? I wish I had this instead of Xanax... I feel so good. It felt like when I had morphine... heaven... something totally peaceful. It must be like when people die.”

Positive Dissociation:

“The flute calls to me. I went intentionally.”

“...not overwhelmed with emotion or feeling... like an ebb and tide... not a lot of sensory highs and lows.”

A few dissociative disorder participants reported feeling initially concerned, as they felt a dissociative process coming on. Yet, as they allowed the process, they reported it quickly became positive.

One Dissociative Disorder participant described having had a reoccurring uncomfortable dream of running away from bears chasing her. She went on to describe that while listening to the flute music, the bears began to chase her again and she ran, but this time they caught up with her. She stated her surprise and happiness that upon catching her, they held and protected her.

Integrative:

“Connected to whole... a good place to go... tied everything together.”

“I had memories. Memories came back.”

“Memories coming out, not difficult, more memories than dissociation.”

“...felt grief, with sorrow, but peaceful, a connectedness, it was okay.”

A participant diagnosed with dissociative identity disorder reported, “Everyone was sitting back (her alters), content, all listening around me. I heard the whole thing. I opened up to it. This is okay, this is safe.” She reported that usually her alters are “jumping around” for position and control, resulting in her not hearing everything.

There were consistent experiences related to not being overwhelmed. There were many reports of being able to integrate the emotions or experience in a calm manner, which resulted in expressions of feeling positive and hopeful. Individuals who have experienced severe trauma and its overwhelmingly difficult, chronic effect, as well as their therapists, know how significant the feeling of hope can be.

SHAMANIC CHARACTERISTICS

There are four characteristics of shamanism, as described in the scholarly work of Eliade.³⁹

Shamanic:

Journeying
Connected to Nature
Spirit Related
Time-Space Phenomena

These four characteristics were identified repeatedly in the qualitative portion of the study, which indicated the music itself as having shamanic characteristics.

Journeying:

“It was like being on a journey...”

“It took me to the woods at night. I had animals protecting me...”

Connected to Nature:

I was “in nature, of nature, a part of it, ...a tree.”

I was “in touch with nature, the sky, the wind, evocative of... of those things.”

“Like I was a wolf howling at the moon.”

Spirit Related:

“...soulful.”

“...felt spiritually touched.”

“...it felt like a call to ceremony.”

One Dissociative Disorder participant reported hearing the words “Come home, come home,” and “It's safe... then body can feel peace.” When it was inquired, “What, come home?” She responded, “Like my soul... come home.”

Time-Space Phenomena:

There was a participant of the dissociative disorder group who described her original research experience as, “I loved it. It reminded me of nature, animals, wind, mountains. It totally reminded me of my brother. Feel good about him.” Within a month after her particular research session, her therapist contacted this researcher. The therapist reported that her client had an interesting occurrence following the research session and wanted to share it with the researcher. Phone contact was arranged. The woman described that perhaps a week or a couple of weeks after the session she had a dream. In the dream she said she was “...floating over the land. ...heard the music (from the research) played... and the words 'Everything would be okay'.” She said she “was flying over a reservation or something...” She didn't see herself, but could feel wind on her face. “A definite breeze, not really cold. ...felt flying like a bird, flying around... I couldn't hear anything else, but the music... and the voice. I awoke, didn't know if it was real or not... It was the music. The music was so real. The music was so clear, like on a radio.” She went on to describe that she had an issue with her father that she had been struggling with her whole life. She reported now feeling closure regarding the issues surrounding him.

A participant of the Normal Group reported experiencing herself in Africa, one hundred and fifty years ago, at her mother's funeral ceremony. She appeared to be of African-American decent, though volunteered that she had never been to Africa. She described the flute music as being “ceremonial” and how the experience was “beautiful”. She repeated how peaceful and beautiful the ceremony was.¹¹

Sacred Music

What makes a music sacred? Is it its use in a religious context? Is it sacred because it has been categorized as “sacred music”? Is it related to the feeling or experience that it elicits?

Concepts of “sacred” and “spirituality” are complex, as well as filled with ambiguity and controversy. For the purpose of this study, the two following definitions will be used.

Sacred is defined as something which elicits reverence, is holy, divine or spiritual.³⁴

Rabbi Heschel defines spiritual as being in “reference to the transcendent in our existence, the direction of the Here toward the Beyond.”⁴⁰

Sacred music may be associated with:

- Connecting us to this transcendent state, facilitating it or both
- Moving us from here to the beyond
- Beyond - as an expanded state of consciousness

It may be speculated that this particular flute music itself has characteristics which facilitate an experience directionally toward or within this larger landscape.

Whether it is in relationship to facilitating the healing of horrific traumatic experiences, expanding states of consciousness or about moving toward what is perceived to be “transcendent in our existence”, this sacred music appears to facilitate the returning to balance and harmony and wholeness. It is about remembering...

DISCUSSION

This study investigated the effects of a particular music played on a Native American flute upon individuals diagnosed with a Dissociative Disorder. The results of the study did show that this particular flute music facilitated a decrease in anxiety and facilitated processes of integration of dissociated trauma related material. The study also showed the music to produce increased perceptions of interconnectedness and expanded awareness. It assessed state anxiety and perceptions of interconnectedness. Additionally, interview information was obtained.

Results showed overall statistically greater effects with the specific recording of flute music, than the placebo music for both groups. All of the findings supported the theoretical model.

Very significantly, the statistical findings were supportive of the interview data,

just as the qualitative interview data was supportive and elucidatory of the statistical data. Each filling out understanding and meaning of the other.

The particular flute music used in the research was shown to have what may be termed shamanic and sacred characteristics, i.e. listening to the flute music facilitated identified shamanic and/or sacred type experiences as described by Eliade and Heschel.^{39,40}

The Interconnectedness Scale appears to be a new easily administered measure of perceptions of interconnectedness of publishable internal-consistency reliability, showing face validity. It has the potential to measure dissociative experience as well as expanded perceptions of interconnectedness, each being polar opposites on the continuum of interconnectedness as identified with this scale. This scale also appears to have the capacity to measure concepts of spirituality (as identified in mystical spiritual traditions and unrelated to religious behaviors or conceptualizations of theological doctrine or dogma, but rather, may potentially measure expanded states of awareness related to increased perceptions of interconnectedness and Oneness as described by the spiritual experience of mystics).

I. The Dissociative Disorder group held significantly weaker perceptions of interconnectedness. This supports the concept of trauma related dis-association as related to lack of interconnectedness. It also supports the face validity of the interconnectedness scale.

II. The experience of hearing the NA flute music led to a significantly greater decrease in anxiety than hearing the placebo music, in both groups.

Discussion:

A. Irregular tonal patterns and pacing, including periods of silence, of the NAF music may have contributed to mental and psychological slowing down, resulting in decreased anxiety.

B. The music may have an entrainment effect. Entrainment “involves the ability of the more powerful rhythmic vibrations of one object to change the less powerful rhythmic vibrations of another object and cause them to synchronize their rhythms with the first object.”⁴¹ Entrainment has been associated with healing in shamanic traditions and associated with altering brainwave states and perceived states of consciousness, such as trance states in indigenous cultures.⁴²

C. It may be speculated that the decrease in anxiety is related to moving towards a trance state which allowed for accessing of state dependent memories and affects, and/or accessing states of non-ordinary realities. Non-ordinary realities may be described as the defined shamanic characteristics as well as perceptions beyond what is ordinarily perceived by the individual.

III. Hearing the NA flute music directly led to a greater increase in perceptions of interconnectedness, than the placebo music.

Discussion:

A. Some participants reported a sense of being “called”. Perhaps part of the flute music's effect may be to actively engage and call together. “Calling” as reconnecting dissociated aspects of self, such as memories, affects, and “soul”, as well as a call to remember the cosmological belief in a greater interconnectedness or Oneness of everything.

B. Music often reflects societal attitudes and beliefs. Interconnectedness is imperative in indigenous and tribal societies. Ancient societies extol the concept of the collective group in its social and spiritual beliefs, reflecting values needed for survival.

C. This effect may be explained in terms of a possible cross-cultural, ethnomusicological experience. It could be speculated that there is something in the indigenous flute, its type of music and/or the culture it derived from, that is inherently reflected in the music. It may be that the flute and music elicit moving into expanded states of perception of interconnectedness with the larger Oneness. The ancient flute is unique in its connection with the breath, which is associated with spirit and “divine” breath in ancient traditions.

D. It can be speculated that the increased perceptions of interconnectedness may be related to cosmological concepts of Oneness, as well as Bohm's concept of a field of energy, underlying and comprising everything.⁴³ Perhaps both being, as Bohm states, “consciousness”.

IV. Listening to the NA flute music led to a decrease in anxiety, which then led to (mediated) a greater increase in perceptions of interconnectedness.

Discussion:

Anxiety reduction may result in reduced need for protective defenses. Perhaps the music both reduces the perception of threat as well as reducing the ensuing

defense of self imposed protective barriers, thereby resulting in less protective isolation and allowing for greater perceptions of interconnectedness.

V. An unexpected finding showed increased perceptions of interconnectedness also had a mediating effect on decreased anxiety. This is a very significant statistical finding.

Discussion:

A. This suggests that anxiety to a certain degree is influenced by a sense of isolation and aloneness, as per Freud's separation anxiety and abandonment anxiety.

B. The perception of interconnectedness may be with people, nature and aspects of a previously unseen world. It is an awareness of a larger landscape in which one is a part of that may gender a sense of hope and may result in reduced anxiety.

VI. Listening to the NA flute music showed a very strong increase in individual interconnectedness for *both* groups. (Items 1 and 2 of the scale combined)

Discussion:

This may be one of the more significant findings.

A. The statistical and qualitative data suggests that both groups may have experienced significant integration into personal perceptions of psychological interconnectedness.

B. This occurred while simultaneously experiencing phenomena (interview data) of increased perceptual awarenesses which transcended concepts of time and space. These experiences appear to indicate expanded states of consciousness.

C. This may suggest that mental quieting, which can occur with reduced anxiety, coupled with being present fully to oneself, allows for an increased awareness beyond self.

D. Speculatively, this may support a correlation with the mystical concept that describes everything as already existing within. That perhaps, in keeping with ancient beliefs, the individual and their perceptions may be a dynamic aspect of the greater Oneness. It could be speculated that this data supports the concept of various mystical spiritual traditions that

individual internal stillness facilitates expanded states of consciousness, and as described by Kapur, that it is within the microcosm of the individual that lays the macrocosm of the universe.⁴⁴

E. It could be speculated that an increase in perception of interconnectedness, perhaps in relationship to perceiving oneself as a part of a larger whole or Oneness, may have a positive influence on psychological beingness.

VII. Listening to the NA flute music led to a greater increase in perceptions of universal interconnectedness (item 3), than the placebo music, for both groups.

Discussion:

A. The results suggest that something in the music may affect a perception, which parallels an ancient spiritual belief, and it may be able to be influenced trans-culturally through the medium of patterned sound.

B. This result could possibly lend greater support for the concept of an inherent universal or “collective” unconscious within an interconnectedness of everything. This again, parallels concepts of ancient and mystical spiritual beliefs and experiences of Oneness.

C. The entrainment effect may apply here as well.

D. This result may also be influenced by the evocative flute sounds pulling forth images associated with Native American culture, which an individual may have previously been exposed to.

ANTHROPOLOGICAL CORRELATES

There appears to be a cross-cultural anthropological parallel in the conceptualization of “soul-loss” in various world indigenous cultures with trauma related dissociation. For the indigenous culture, loss of soul may be partial or whole. In psychology this is described as memory, affect and/or sense of personal identity, also partial or whole. The etiology of severe fright parallels the trauma based etiology of Dissociative Disorders.^{39,45} The reconnecting and interconnecting aspects of self into conscious awareness may be described as part of the integrative process. In indigenous cultures, the process of reconnecting aspects of the self is often assisted by a shaman in the practice of soul retrieval.³⁹

Shamanism, believed to be one of the oldest forms of healing, continues to use “sounds” and “music” to communicate with and access the world of spirits, and

this type of use of music for healing is still practiced today in various tribal and non-technological societies around the world.^{41,42}

AFFECT OF LOSS

The interview data was suggestive of a primary feeling or affect which the dissociative participants reported experiencing as being grief and sadness, often connected to concepts of loss.

A possible explanation for this may be related to grief and sadness of loss of a dissociated aspect of self. Another explanation may be identified with loss and bereavement issues as related to attachment disorders, which are frequently associated with Dissociative Disorders and other trauma related disorders.⁴⁶

Another possible explanation of this finding of sadness and loss may pertain to spiritual and mystical concepts of a unitive Oneness. There exists a concept of a dis-associated, amnesic lack of awareness of a pre-existing union with a sacred Oneness. This dis-association may produce sadness due to loss of awareness of the sacred connection.

THE DISSOCIATIVE CONTINUUM

One of the results of this study may be to expand the dissociative continuum to include the many facets and nuances of dissociation and interconnectedness, including conceptualizations of world views of spirituality as well as cross cultural comparative psychology.

MECHANISM OF CHANGE

In the scientific method, there is focus on “the mechanism of change”. The focus is often driven to become narrow and precise in attempting to ascertain what is the specific, potent mechanism producing the effect.

When the research is in areas which by their nature are more subtle and interconnected, it follows that the mechanism of change may no longer be singular. The mechanisms may themselves be more subtle, interconnected and inter-relating.

This study’s focus is the efficacy of the music, yet it is interesting to speculate on mechanisms of change.

The subtle mechanisms involved in this study may be connected with belief

systems of the cultures and cosmologies being explored, involving seen and the unseen concepts of reality. These elements may be difficult to identify or ascertain.

Assessing effects of sound within concepts of “sacred”, “shamanic”, and within ancient beliefs systems is wrought with the inter-relational dynamics and effects that may appear expansive, elegantly entangled, ambiguous and elusive.

The researcher may begin to look at interactions and possible mechanisms of change that previously may not have been considered. In research, which include ancient mystical cosmologies, the researcher may benefit by expanding points of reference to include cosmological concepts in exploring mechanisms of change.

The dynamics involved in this research appear interrelating. In this study, it is suspected that *nothing is in isolation*, including the mechanism of change.

SPECULATION ON MECHANISM OF CHANGE

Does the instrument, the ancient styled wooden Native American flute itself hold some inherent connection with its ancestral cosmology which allow its music to function in the unseen realms of energy and spirit?

Does the style of music, or the specific composition, the note and spacing of the notes have an effect? The slow sounds may have some reminiscent of nature and animal or bird sounds, Nature is often associated with peacefulness, relaxing and a non-threatening quality. The slow sounds could have produced an entrainment effect, as well as moving the research participants to slowed brain waves facilitating the expanded states of perception.

Sound can shatter a glass. In India, just as in various ancient traditions there are specific songs which produce specific effects.

“Even today people say when Raga Bhairon was sung an oil press moved without any aid whatsoever; the Malkaus stopped the flow of water and the Hindol moved a swing. Similarly the Deepak Raga caused a fire, even the lamps burnt without being lit by anyone. The beasts and birds became senseless when the Shri Raga was sung.”

—Iman⁴⁷

How significant is the flute player? A significant number of research participants

reported having previously listened to other Native American flute music, describing that this particular music affected them differently, more actively. Does the extent of the effect have something to do with the fluteplayer (attributes, attitudes, and/or intentionality) that is beyond the skill and techniques of playing? Further comparative research will assist in this determination.

Hazat Khan, a Sufi mystic wrote of the influence and characteristics of sacred music. He wrote also of the musicians. “The effect of music depends not only on the proficiency, but also upon the evolution of the performer. Its effect upon the listener is in accordance with his knowledge and evolution; for this reason the value of music differs with each individual.”⁴⁸

There is a story of a Hindu musician and an emperor. The musician took the emperor to see his Master (musician). The Master sang, and “It seemed as if all the trees and plants of the forest were vibrating. It was a song of the universe.” The emperor later commented on the raga, how when the Master sang as compared to the musician there were two different experiences from the same song, “It is the same song, but it has not the same life.” The musician answered. “The reason is this, while I sang before you, the king of this country, my Master sings before God. That is the difference.”²⁸

In the spiritual teachings of India, the Sanskrit word “Nada Brahma” means God is sound. It is the sacred sound which is God, is that of which all is made.⁴⁸

It is difficult to ascertain what attitudes or qualities are involved in differences between musicians which affect the music. Does the fluteplayer's perceived affinity to the ancient cosmology, beliefs attached to concepts of spirituality, consciousness, or healing have an influence? Further research is indicated to delineate affects of state of fluteplayer at time of fluteplaying.

Joseph Chilton Pearce suggests “there exists a musical intelligence that seems to function outside the ordinary boundaries of an individual mind, ...an intelligence ...that can manifest beyond the confines of conventional thought and be incorporated into a higher function of field effect.” “The mind must in some sense be suspended in order for the field to fully express.”⁴³ This could be consistent with ancient and mystical beliefs.

Speculatively, is there a relationship, unseen dynamic or resonance that exists between the participants and the fluteplayer, and by extension the music?... or

visa versa? Is it the resonance or relationship with the music or Music which comes first? This needs further exploration.

It is clear that in ancient traditions the power of music is considered profound. There is emphasis on the qualities of the music, the musician, as well as the instrument, and in what capacity or circumstance the music is performed.

In assessing mechanism of change, again nothing is in isolation in these more subtle realms of sacred or shamanic music.

FUTURE RESEARCH

Research replicating this study is encouraged, especially with Post Traumatic Stress Disorder populations. Further research is suggested to continue exploring mechanisms of change. It would be interesting to compare this recording, “Ancient Spirits”, with live music by the same fluteplayer, also compare with another fluteplayer using the same music, as well as synthesizing the same notes mechanically.

Research into other music identified as having sacred and/or shamanic characteristics world-wide, could produce a rich understanding of the power of music as well as cultural understandings of dissociation related to difficulties and related to enhancements of being. This may also uncover previously undiscovered, non-invasive, cost effective musical medicines.

Future research is suggested to look at brainwave measurements, functional brain imaging, both of the listeners as well as the fluteplayer. Time related follow-up with the participants could give more information to assess long term effects.

The Interconnectedness Scale, while preliminary, shows good internal reliability. It is based on a variety of theoretical and philosophical concepts and appears to have construct validity. Further studies are needed to establish convergent validity. Also, further assessment for cross-cultural, international applicability is suggested.

Further research into the process of dissociation is recommended. It can be explored in terms of trauma, diagnosed and undiagnosed. Perhaps even expanding the assessment of individuals not identifying a history of trauma, but who are having life difficulties or health concerns. The dissociative process is rich for exploration in terms of expanded states of consciousness, and cross-

cultural experiences where it may be related to culturally defined spiritual experiences. This may necessitate a broader focus of not only dissociation, but also association or interconnectedness of the concept of a dynamic whole or oneness.

USE OF MUSIC

The overwhelming effects of trauma are worldwide.

The music can be used to potentially facilitate healing once danger is no longer imminent. Perhaps the music can also begin to be used preventatively. Building a sense of interconnectedness may have the potential to reduce vulnerability to the effect of trauma. The use of music with issues of trauma, as well as facilitating potential unitive connectedness, appears timely.

Music can reach where nothing else can and perhaps when nothing else can. Poets, philosophers and ancients have expressed what most people have experienced, that music has the power to touch deeply the heart and the spirit, and the capacity to transform and transcend.

CONCLUSION

The results of the research supported the theoretical model. This particular flute music, played on an aboriginal flute, was shown to decrease anxiety and increase perceptions of interconnectedness. The statistical and qualitative data supported each other and offered enriching understanding and clarification of processes and concepts identified in the study.

The therapeutic implications of this research in the use of sound for trauma based disorders are still preliminary, though appear significant and far reaching. The diagnosis of Dissociative Disorders (especially Dissociative Identity Disorder) and Post Traumatic Stress Disorders are characterized by extreme vulnerability to triggers of the original trauma(s). Protective and dysfunctional isolation also is common in trauma based disorders. The use of this particular music played on the native flute ("Ancient Spirits") as an adjunctive treatment modality which may potentially facilitate the process of integration and increase perceptions of interconnectedness and wholeness in a non-invasive manner, addresses these characteristics of trauma subtly and soothingly through sound.

The therapeutic implications are not limited to trauma related disorders, but would be applicable to individuals who have experienced trauma and resulting dissociation without diagnosis. Due to the frequent amnesia for the traumatic experience and therefore an ensuing lack of awareness of the dissociative response, it becomes difficult to identify. Hence, it may be conjectured that there is greater existence of unidentified, unresolved dissociative responses in other diagnostic categories as well as the general population than previously considered. Other population groups may benefit therapeutically from the flute music are those that have experienced medical, environmental or social political traumas. Psychiatric and non-psychiatric populations affected by issues of loss or experiences of significant perceptions of isolation or aloneness may, also potentially benefit from this music.¹¹

This music was shown to facilitate expanded states of consciousness, which allowed the return to state dependent states related to trauma. Memories and affects were accessed and retrieved in a less anxiety filled manner.

The results of the study indicate that the benefits of this flute music reach beyond psychological difficulties into areas experienced as greater perceptions of interconnectedness on a multitude of levels, which may be described as including expanded states of perceptions or expanded states of awareness. This then opens possible avenues of use that are beyond therapeutic, including further exploration and application within fields of consciousness and spirituality.

There are significant ethno-musicological implications of the study to be explored further. The implications in terms of psychological processes appear powerful, and in terms of cross-cultural spiritual conceptualizations and consciousness profound.

The Interconnectedness Scale introduces a measurement of perceptions of interconnectedness. The Interconnectedness Scale which demonstrates potential applicability in the fields of psychology, spirituality, consciousness and wellness.

The implications of the study are that through what may be identified as shamanic or sacred sound(s), there may be potentiated a returning to wholeness (i.e. interconnectedness) thru expanding states of consciousness. The wholeness may be orientated toward the psychological or viewed in a larger concept of a unitive, interconnected oneness. Sound touches deeply, moving beyond words and intellect, and beyond boundaries. The conceptual paradigm of the dissociative continuum may be expanded to include not only a psychological orienta-

tion, but also a spiritual component orientated within a cross-cultural world view. This dissociative continuum may be assessed through the new measurement of interconnectedness. Dissociation, the human mind, concepts of spirituality and consciousness may begin to be explored and understood in ways previously unanticipated, through the medium of sound.

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