

Interdisciplinary Society for Quantitative Research in Music and Medicine 2015 Conference

Abstracts

raga therapy: The Indian Music Therapy, Treatment with Ragas

Mahesh George, SVYASA University, India

Learn about the evolution of the Indian Classical system of music, *ragas* and their importance in various healing traditions. The potential of vibrational energy and its channelization through the body will be discussed and demonstrated through evidence based practices with an emphasis on *nadanusandhana* and the Mind-sound resonance technique (MSRT). Vedic and Gregorian chants will be demonstrated with application of how they are used for rehabilitation. [The author can be reached at maheshyogi25@gmail.com]

Appraising Emotions Post Raga Intervention: The Ability of Ragas in Managing Mood States

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Objective: To appraise the emotions post-*raga* interventions, and to explore the application of select *ragas* in their ability to invoke desirable mood states.

Mode of study: Mixed methods, employing both qualitative and quantitative methodologies.

Methods: It is described in great detail in the classical text (*silappadikaram*) about the various Indian classical *ragas* and the *Rasa*(emotion) each individual *raga* evokes. For this study, 9 Indian classical *ragas* are selected, the *ragas* and the particular emotion it evokes are as given below:

<i>Raga</i>	(Emotion)
<i>Natta</i>	(Ecstasy/hyperactivity, feeling happy and vibrant)
<i>Saramati/Charukesi</i>	(Devotion, connection with God, reflections of one's life, near-death period)
<i>Mohanam</i>	(Happiness)
<i>Yamankalyan</i>	(emphatic ; happiness)
<i>Shubhpanthuvarali</i>	(sadness, remembering the bereavement of a loved one)
<i>Bhoopalam/Bowli</i>	(elegant dawn/dusk experience)

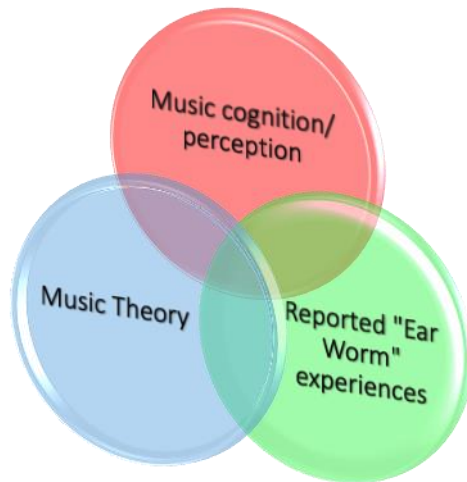
15 healthy subjects will be recruited for the study in the age group (25-35 years) and each person will be given a select Indian Classical Raga Intervention (ICRI) for about 10 minutes, with GSR (Galvanic Skin Response) sensor connected to the forefinger, and the physiological data such as EDR/GSR, HRV, BVP will be recorded in the Interfaced Computer Software Database (ICSD). Gas Discharge Visualization (GDV) equipment will be used to measure the prana/chi/energy fields in each subject post ICRI and data will be recorded in the ICSD. Following the ICRI, in-depth detailed interview of the subject will be taken. Once the study is completed with the recruited 15 subjects, 8 subjects randomly chosen from the same group will be assembled together and ICRI will be done, and GDV recordings of each individual subject will be performed, and Focus Group Discussion(FGD), with those 8 subjects will be conducted and videotaped, and the experiences, will be studied and the common theme, and the aspects which are commonly described and those which are not commonly described, i.e., unique experiences/comments will be studied and recorded in detail. The neural correlates of these *ragas* will be studied in detail using pre-post fMRI study and will look to correlate the findings with simultaneously acquired EEG. The functional differences in the activation regions, between normal healthy subjects and advanced meditators post ICRI (we hypothesize an increased coherence length/span post ICRI in

advanced meditators) is another prospect of this study. [The author can be reached at maheshyogi25@gmail.com]

MUSICAL COGNITION, EMOTION AND IMAGERY: EAR WORMS

Dan Kruse, University of Arizona, USA

Ever have a song stuck in your head that won't go away? That's an "ear worm," also known as Involuntary Musical Imagery (INMI). Over ninety percent of people experience ear worms weekly; many experience them several times daily. Why do ear worms happen? Why does the perception of music persist long after hearing it? Why is INMI an ideal subject for scholarly examination and documentation? Ear worms offer a valuable window to a richer understanding of the human relationship to music, allowing us to examine how sensory input, emotion and brain



processes create (and re-create) a perceptual experience. While scholars have studied "INMI onset" for several years (Williamson et al, 2011), this 2014-15 study considers the question of *why ear worms persist* as a perceptual experience. This interdisciplinary project examines INMI from the perspectives of music theory, perceptual/cognitive science and the "reported ear worm experience", plus the creation of a compelling PBS-style

documentary film.

Interdisciplinary Model, 2014-15 INMI Research

Background: Ear worms allow us to examine how sensory input, emotion and brain processes create (and re-create) a perceptual experience. They are a particularly salient outcome of the interaction of input structure and processing, involving not just the recall of information, but persistent (often involuntary) *re-experiencing of musical perception* without recurring external sensory input. These perceptual recurrences may be related to recent research in auditory neuroscience, suggesting the importance of neural oscillations and "neural loops" between the brainstem and cortex in the perception of complex sounds such as music and speech. In the present study, several questions guide our efforts: Does the frequency or severity of INMI in specific individuals likewise correlate with musical/emotional sensitivity or perceptual abilities? Are "ear worms" simply an annoying, obsessive occurrence, or instead a "working out" of emotional or cognitive issues on an entirely different level? What are the reported commonalities of this experience among a diverse group of subjects? **Interdisciplinary Methodology:** Our study's interdisciplinary approach grows from the inherently interdisciplinary nature of the question. One must accurately describe the structure of different musical passages, measuring the variety of personal experiences with music and differences in hearing/cognitive processing, and documenting the results in a way that can be broadly accessed by both scholars and lay persons.

Our study includes the following:

- On-line surveys to gather demographic and experiential data from subjects experiencing INMI
- Laboratory assessments of subjects' music perceptual abilities
- An examination of musical elements – melody, harmony, form, rhythm – which may be particularly "ear worm-worthy"

- Structured interviews examining the subjective experience of INMI
- A documentary film (presented with this paper) to support community outreach on a subject of wide interest to scholars and music lovers in general

Outcomes: The project's unique vision is to examine the ways in which these divergent perspectives intersect with one another, and to develop unique insights regarding the experience of INMI that may be of value to cognitive/perceptual scientists, and to music theorists, educators and therapists. [The author can be reached at krused@email.arizona.edu]

PERFECTIONISM, ACADEMIC MOTIVATION, AND PERFORMANCE ANXIETY IN SOUTH AFRICAN UNIVERSITY MUSIC STUDENTS

Madaleen Botha, University of Pretoria, South Africa

Perfectionism is often associated with the positive characteristics of motivation, effort, and achievement. However, perfectionism encouraged by the views of others may result in increased anxiety levels. The debilitating effects of socially prescribed perfectionism frequently cause inferior academic performances of undergraduate university students. The aim of the study is to examine whether and to what extent perfectionism is related to academic motivation and to performance anxiety in BMus and BA (Music) students. A total of 93 music students from four South African universities' music departments participated in the study. Students are compared in terms of perfectionism, academic motivation, and performance anxiety, and the correlations between these traits. Confounding variables such as the university of attendance, type of music degree, academic year, gender, home language, and first instrument are taken into account. The study follows a quantitative survey design consisting of the Multidimensional Perfectionism Scale, the Work Preference Inventory, and the Performance Anxiety Inventory. Strong positive correlations were found between the Concern over Mistakes subscale of Perfectionism and the Extrinsic Motivation/Outward-dimension. The Personal Standards subscale of Perfectionism showed moderate to strong correlations to the Intrinsic Motivation/Challenge and Extrinsic Motivation/Compensation dimensions. The BA (Music) students scored significantly higher than the BMus students in Performance Anxiety, Parental Expectations and Parental Criticism. Students from the Other language group scored significantly higher in both the Perfectionism subscales of Parental Expectations and Parental Criticism. The study provides valuable insight into the perfectionistic trends and its effect on motivational orientations in South African undergraduate music students, particularly the differences between the BMus and BA (Music) degrees, which has not yet been investigated. The study verifies various inter-correlations between aspects of perfectionism and motivation with specific emphasis on the parental dimensions of perfectionism. **Keywords:** Perfectionism, academic motivation, performance anxiety, music students, intrinsic, extrinsic, South Africa, university [The author can be reached at madaleen7@gmail.com]

SACRED SCALE MUSIC TO TREAT DISORDERS RELATED TO PAIN, ANXIETY AND DEPRESSION

Carla Rose Kelly, Royal Conservatory of Canada, CANADA

This workshop introduces participants to the Sacred Scale for treating disorders with music. The Sacred Scale is 9 specific frequencies all in tune with the laws of nature, all in tune with the human body. Previous research on the Sacred Scale showed that these frequencies were effective in lessening symptoms of pain, anxiety, and depression. Our newest research was conducted on specific disorders including rheumatoid arthritis, chronic pain and migraine. The results showed that participants in all groups reported less pain after only three sessions. Results of both studies will be presented as well as plans for future research. Participants will receive a handout explaining the study results as well as the history of the Sacred Scale. The workshop will involve two sections. In the first part of the workshop, quantitative research results will be presented as well as a theoretical background of the Sacred Scale. The second part of the workshop will involve an experiential session where participants will be exposed to a typical session and be able to experience what happens in the body as well as ask questions about methodology and administration of this type of healing. [The author can be reached at info@carlarosekelly.com]

CAROLYN GRAHAM'S JAZZ CHANTS

Roy Kennedy, Ph.D., The University of Georgia, USA

The purpose of this paper was to write a descriptive analysis of Carolyn Graham's jazz chants and to provide supporting evidence from music therapy studies that used the strategies and techniques of jazz chants to teach English as-a-Second Language (ESL). I interviewed Ms. Graham via email communication, reviewed several of her jazz chants books and accompanying CDs, and summarized evidence from experimental and qualitative music therapy studies that used strategies and techniques created by Graham to teach ESL. She originally created jazz chants as a language acquisition tool, which emphasized the rhythmic and intonation patterns of Standard American English as it occurs in situational contexts. Jazz chanting also immerses ESL students in expressing feelings in situational contexts by emphasizing the stress and intonation of the language while simultaneously building vocabulary that is used in everyday conversations. Most of the jazz chants are presented in two-part dialogue form as the teacher engages the class in call and response activities. Several studies in the music therapy literature provide evidence that the strategies and techniques used in jazz chants language are effective when used in music therapy interventions as supplemental ESL teaching techniques. The results of these studies indicated that the pairing of second language information with music listening, group chanting, singing, playing simple percussion instruments, and movement to music activities were effective music therapy interventions used as supplemental teaching techniques in ESL classes. In addition, pairing language information with singing and sign language activities were effective strategies in assisting Kindergarten ESL students to acquire vocabulary words as well. Overall, the results of implementing music therapy interventions as supplementary and/or primary teaching techniques were effective for teaching ESL skills to Kindergarten, elementary, and middle school students. Furthermore, alternative second language instruction that is interesting and engaging is needed for public school students that have Limited English Proficiency (LEP). Students with LEP have difficulty in speaking, reading, writing or understanding the English language and these deficits severely impede their progress in learning academic subject matter in schools where English is the only language of instruction. In addition, many students with LEP are stymied in ineffective ESL classes. In fact, experts in the ESL research literature recommend the use of comic books, audiotapes, videotapes, and other "extra-linguistic" materials as supplemental teaching strategies that may enhance ESL students' acquisition of a second language. There is corroborating evidence in the music therapy literature that supports the idea of using music therapy interventions in combination with extra-linguistic information such as sign language and movement to music interventions, which may engage ESL students in engaging and interesting alternative ESL instruction. In fact, music therapy studies that offer alternative, supplemental, primary ESL instruction employ the basic philosophy, strategies, and techniques of Carolyn Graham's jazz chants which include rhythmic repetition, chunking of language information paired with melodies and chants, and modifying the affect of second language learners as useful strategies in ESL instruction. [The author can be reached at rkennedy@uga.edu]

EFFECTS OF CANCER PATIENTS LISTENING TO THEIR PREFERRED MUSIC ON CLAUSTROPHOBIA, ANXIETY, AND NAUSEA DURING RADIATION TREATMENT

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Purpose: The purpose of this study was to investigate the effects of cancer patients listening to their preferred music on claustrophobia, anxiety, and nausea during radiation treatment. Patients with head and/or neck cancer may experience claustrophobia as a result of having to wear a mask during their radiation treatments and; in general, many patients with cancer below the head have anxiety and nausea as a result of anticipating and receiving radiation treatments as well. **Method:** This quasi-experimental pilot study includes a single group of volunteer participants who have been exposed to music during their treatments. The participants were asked to indicate their preferred artists and songs, which were played via Pandora on an iPod during their radiation treatments. Initially, customized playlists were created for the patients; however, the patients quickly became exhausted of the music and asked for more variety. Through artist-preferred playlist provided by Pandora, the patients were more satisfied. Data was collected via paper and pencil questionnaires for the dependent variables anxiety, claustrophobia, and nausea. The researchers and nurses sat with patients prior to and after their first radiation treatment and final radiation treatment to assist the patients with any questions about the questionnaires. Only patients that could not cognitively understand the questions after the

researchers read the questions aloud and gave repeated prompts were excluded from participating in the study. Since the treatment room was very small, the patients' preferred music was played on an Ipod through connected speakers. The radiation therapist controlled the music source during each patient's treatments. The researchers calculated scores from the questionnaires and compared the scores from the time prior to the first treatment to the time after the last treatment. **Results:** Seven out of thirteen patients (53.8%) showed a decrease in suffocation related to claustrophobia. Ten out of thirteen patients (76.9%) showed a decrease in restriction related to claustrophobia. Eight out of thirteen patients (61.5%) showed a decrease in levels of anxiety. Nausea showed no changes or was never present throughout the treatment period. The researchers recorded qualitative comments that the patients made before and after treatments, which provided additional information concerning their experiencing of the dependent variables. **Conclusion:** The results of this study may be of use to music therapy professionals that work with cancer patients undergoing radiation therapy. The majority of music therapy studies with cancer patients focuses on those undergoing chemotherapy treatment. In addition, no music therapy studies were found that specifically investigate the effects of patient preferred listening on the claustrophobia of cancer patients. **Keywords:** *music therapy, patient preferred listening, cancer, radiation treatment.* [The author can be reached at pomiyun@uga.edu or rkennedy@uga.edu]

A WEB OF RESONANCE: AN EXAMINATION OF CHINESE BELL THERAPY

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The Chinese *Bian Zhong* Bells are calibrated to the sexagenary cycle of traditional Chinese music theory which posits a relationship between the organs and meridians recognized in Chinese medicine, and the application of notes and sequences of notes in proximity to the body. Such notes and sequences were traditionally prescribed to change the state of health, both physical and emotional, following a specific schemata of interaction. In the Chinese medical text the *Yellow Thearch's Inner Canon (Huangdi Neijing)* there is a schema of interaction of notes in singular and combination that are used to affect the meridian system. This paper examines a quantitative model of assessing the impact of this methodology on the body. Patient survey, Kosato Method Pulse Analysis, range of motion assay, and thermal spectrography are tested before and after the application of the sound therapy. The paper further discusses models of potential interactions which could account for the observed metabolic changes. Following the results of this research, the paper presents a protocol for the use of the principles of this traditional methodology for application in the clinical arena of modern music therapy. [The author can be reached at stevejackowicz@gmail.com]

SPIRITUAL HEALING AND EXORCISM: MUSIC AS A CATALYST IN SACRED SPACE

Weldon Cochren, Independent Scholar, USA

The focus of this paper is to explore the possibility of music and its causality in spiritual healing, and exorcism in the Pentecostal Church within the African Diaspora. The term "spiritual healing" as opposed to just "healing" is used to indicate 1) an event that would occur in the realm of the miraculous or super-natural; and 2) an event that should not be misconstrued as the result or process of Music Therapy, as some have perceived or concluded David's musical encounter with King Saul to have been (1 Samuel 16:23). Biblically, there is no evidence of music being incorporated into the ministry of spiritual healing or exorcism of Jesus or the Apostles, yet music has become an integral component in Pentecostal churches throughout the African Diaspora (Continental Africa, North America, Brazil, United Kingdom, Caribbean and Virgin Islands). Music for spiritual healing also is also prevalent in many communities that are not contained or confined in churches. This is evident in the countries of Haiti, Mali, and USA. This paper will endeavor to answer the following questions: Does a particular genre or style of music have a greater impact in the sacred space than others? Is there a particular spiritual position or comprehension that musicians and singers should occupy or obtain to achieve the desired outcomes? Does the cultural or worship community have an influence on the musical expression, e.g., instruments, lyrical content, language?

Does meter, tempo, key, or pitch affect the outcomes? Does the "patient" have to be a Christian? Is there a preparation and treatment for the instruments used in the rituals or ceremonies? What is the training or conditioning process for the musician(s)? **Conclusion:** The transporting of sicknesses associated with spiritual oppression, spiritual possession, physical ailments, psychological/mental distress, or biological toxins from a human can be facilitated through or

assisted by music, with certain exceptions and stipulations. **Keywords** **Spiritual healing** **Exorcism** **Sacred space**. [The author can be reached at wcochren@hotmail.com]

MUSIC IMPROVISATION SKILLS: THERAPEUTIC TOOLS FOR RESOURCE DEVELOPMENT IN CLINICAL PRACTICE

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Mental health and allied professionals are often conduits for fostering hope and change in clients that present multiple complex clinical concerns within multiple practice settings. In this experiential workshop, participants will be introduced to universal music and movement improvisational structures and techniques for building individual resiliency, interpersonal communication skills, as well as creative self-empowerment. Relevant theoretical literature will be reviewed. Several case examples will also be included highlighting clinical applications from a women's therapeutic support group within the context of an urban outpatient community mental health center. This workshop will offer a humanistic philosophical approach to music making which holds the belief that innate music making is an available tool for everyone to enhance health and wellbeing. Improvising is creating spontaneously an experience in the moment. To improvise takes courage and authenticity. When we improvise, we face the unknown. This process can help one face their fears, developing courage and trust. Self-expression can lead to self-actualization and a sense of building mastery over one's abilities that can generalize to other life experiences leading to self-growth and empowerment. The skills that encompass sound therapeutic practice are mirrored in similar skills that make up shared musical practice such as deep listening to self and others, supporting, trusting, mirroring, reflecting, releasing judgment, being in the present moment, authenticity, attunement and connection. Additional psychological benefits include a greater sense of community and belonging through this shared experience, development of social skills and interpersonal interaction. In conclusion, this workshop will provide an overview and introduction to music improvisation skills as a therapeutic tool within a safe, supportive, and creative environment. [The author can be reached at jlynnlcs@gmail.com]

GROUP MUSIC THERAPY AND MINDFULNESS TOWARDS SELF-AWARENESS AND EMPATHY DEVELOPMENT IN CHILDREN: A MIXED METHODS PILOT STUDY

Megan Smith, Alice's Encore: Community Music & Mindfulness, USA

The primary purpose of this pilot study was to determine what effects, if any, participation in a 10-week music and mindfulness program had on a group of school-aged children, by measuring: mood, cooperation, confidence, helpfulness, perceptions of empathy and bullying, and feasibility. This preliminary study implemented a mixed methods design in which baseline data was collected, pretest and posttest surveys were compared, and participant feedback and observational reports were incorporated. The authors propose that a powerful and effective space is created for expression, awareness, and compassion at the intersection of mindfulness practice with group music therapy. The study was conducted at an afterschool program located in a suburban school-district in a mid-sized city. Participants were 8 children ranging in age from 7-12 with no prior music therapy or mindfulness experience. The group was conveniently sampled due to clinical setting. The study examined a program consisting of ten weekly 45-minute mindfulness-based music therapy groups co-lead by music therapists. Typical interventions included instrumental improvisations, self-regulatory check-ins, songwriting, verbal processing, creative movement, mindfulness meditations, and specifically designed instrumental activities. The quantitative findings reveal positive trends in mood, cooperation, confidence, and kindness. Results for hypothetical bullying situations were not valid. In the qualitative analysis, themes of increased confidence and learned techniques for mood expression, a meaningful understanding of empathy, and an increased awareness of how to positively treat others emerged. Additionally, there was an overwhelming interest reported by

participants regarding participation in future music groups. Despite the limited rigor in this preliminary pilot study, the data suggests that this program is feasible and potentially beneficial for elementary-aged children. Recommendations for further research including generalization of results are discussed, as well as the program's growth and evolution into a community organization. [The author can be reached at msmith7@naz.edu]

THE EFFECT OF MUSIC ON IMPULSIVITY IN COLLEGE UNDERGRADUATE STUDENTS WITH ATTENTION DEFICITS

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The purpose of this study was to investigate the effect of music listening on impulsivity as judged by the Conners' Continuous Performance Test (CPT) II v. 5. College undergraduate students were recruited into one of two groups and were administered a computer task (CPT) to complete in an initial condition, a music condition, and a silence condition. One group of participants had no diagnosed history of ADHD while the other participant group had a history of ADHD. The initial condition served as an opportunity for each participant to take the CPT with the researcher present to allow each participant to ask questions before taking the test alone; each participant was then taken to a separate testing room. As all participants were tested in all three conditions, the remaining two (music and silence) were randomly assigned to control for order effect. The music condition involved taking the CPT alone in the testing room with "In a Mello Tone" by Count Basie playing in the background during the test administration. The piece was manipulated to have a tempo of $mm = 124$ and looped to last the entirety of the CPT (14 minutes). Each participant was administered the CPT in a silence condition, in which the participant was alone in the testing room without other provided stimuli. The final sample was $N = 51$ with $n = 26$ enrolled in the typical group and $n = 25$ enrolled in the group with attention deficits. A significant main effect difference was found by group: the typical group exhibited lower impulsivity levels as compared to the ADHD group based on Commission mean scores. Additionally, significant main effect differences were found by condition (initial, music, and silence). Both the factors of group and condition appear to be independent as no interaction was found. Implications and suggestions for future research were discussed. [The author can be reached at DunbarLL@uwec.edu]

A QUALITATIVE INVESTIGATION OF SPEECH-LANGUAGE PATHOLOGISTS' AND MUSIC EDUCATORS' TECHNIQUES

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Many techniques speech-language pathologists (SLPs) use to improve speech sounds are akin to techniques general music educators (MEs) use; however, music educators and SLPs may not recognize ways in which their techniques are similar. The purpose of this study was to examine possible similarities among techniques used by SLPs and MEs that could improve speech sounds. This study also sought to compare and contrast the perceptions of SLPs and MEs about using musical techniques to improve speech sounds. Using a modified multi-case study approach, I observed and interviewed two SLPs and two MEs over a period of three months. Preliminary findings seem to indicate that SLPs and MEs use musical elements with students to enhance a student's performance on speech-related tasks. Music educators intentionally utilize musical elements to improve student's enunciation on text used in class and do not necessarily seek to help students generalize these enunciations to conversational abilities outside of their music classrooms. Speech-language pathologists unintentionally utilize musical elements to improve student's articulation on speech sounds and seek to help students generalize these articulations to conversational abilities outside of their speech-language spaces. Understanding that SLPs may not recognize the musical elements they use can help MEs foster collaborations with SLPs. Music educators could open conversations with SLPs that help SLPs identify the musical elements they use and suggest ways in which musical elements could be used to encourage musical and language development across a student's lifetime. [The author can be reached at MaraCulp@gmail.com]

THE RELATIONSHIP BETWEEN PHONOLOGICAL AWARENESS AND MUSIC APTITUDE

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Previous research studies have pointed to connections between language development and musical development (Dege&Schwarzer, 2011; Forgeard, Schlaug, Norton, Rosam, Iyengar, et al., 2008; Moritz, Yampolsky, Papadelis, Thomson, & Wolf, 2013; Tierney & Kraus, 2013). The purpose of the present study was to discover the relationship between phonological awareness and music aptitude. To examine this relationship, The Phonological Awareness Test 2 (PAT-2) (Robertson & Salter, 2007) and the Intermediate Measure of Music Audiation (IMMA) (Gordon, 1986) were administered to students in two second-grade classes in a rural elementary school in Pennsylvania. Prior to formal testing, a trained specialist administered an individual hearing screening to each participant. Speech-language specialists administered the PAT-2 individually to participants and scored the measure. The primary researcher (a music specialist) administered the IMMA to participants in groups and scored the measure. Student scores on the two measures were analyzed using t-tests to determine mean differences between groups, Pearson product-moment correlations to examine existing relationships, and linear regressions to establish the predicative potential of IMMA scores for PAT-2 scores. Findings from this study indicate a strong positive relationship exists between PAT-2 standardized composite scores and IMMA raw composite scores ($r = .541$, $p = .025$) as well as IMMA raw tonal subtest scores ($r = .526$, $p = .03$). A linear regression helped the researcher determine IMMA raw tonal subtest scores were reasonable predictors of PAT-2 standardized composite scores ($R^2 = .277$, $F(1, 15) = 5.742$, $p = .03$). A stepwise linear regression helped determine IMMA raw composite scores were reasonable predictors of PAT-2 standardized composite scores ($R^2 = .293$, $F(1,15) = 6.207$, $p = .025$) and slightly better predictors than IMMA raw tonal subtest scores. The predictive potential of IMMA scores for PAT-2 scores seems to indicate improving music aptitude early in life may naturally improve phonological awareness – a foundational skill that may affect students’ literacy throughout their lives (Bauman-Waengler, 2012). Results may provide support that musical practices taking place in music classrooms support phonological awareness. [The author can be reached at MaraCulp@gmail.com]

BIO-GUIDED MUSIC THERAPY: LIVE JAMMING FOR HEALTH WITH REAL-TIME PHYSIOLOGICAL DATA

Eric B. Miller, Ph.D. MT-BC BCB, Montclair University Music Therapy David Ott Lab, USA

This course reviews the fundamental concepts of Bio-guided Music Therapy (Miller, 2011, Jessica Kingsley Publishers of London). Focus is on utilizing real-time physiological data-driven music therapy for stress, anxiety, hypertension, ADHD, Raynaud’s, & other disorders. In this workshop format, participants gain hands-on experience creating musical environments based on heart rate, skin conductance and EEG brainwaves. This presentation presents fundamental concepts of Bio-guided Music Therapy (Miller, 2011, Jessica Kingsley: London). The course provides the music therapy practitioner with a rationale, historical context and detailed step-by-step, how-to instructions for utilizing real-time physiological data driven music therapy. Interventions are outlined for various purposes and populations. Some of the target complaints discussed include, stress, anxiety, high blood pressure, migraine, Raynaud’s disease, neuromuscular deficits, ADHD, Autism, depression, phobias, and addictions. In thisworkshop format, the session delivers live demonstrations creating therapeutic musical environments based on real-time physiological output of muscle tension, heart-rate, skin conductance and EEG brainwaves. Basic concepts relating to music and the brain will be reviewed with particular attention to musical tasks related to brain structures. Applications to music therapy research and clinical documentation (e.g. for insurance companies, etc.) will also be presented. [The author can be reached at miller@biofeedback.net]

EFFECTS OF MUSIC LISTENING ON PAIN PERCEPTION IN CANCER PATIENTS: A REVIEW OF LITERATURE

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The use of music in pain management as a form of analgesia has become popular in the last half a century. Patients have demonstrated significant results in studies involving the use of music with post-operative surgery, dentistry, spinal cord injuries, pediatric treatments, and chronic pain. Regardless of the approach used to examine the effects of music listening on pain, there are many reasons why there is need for continued research on this subject. Studies in Phenomenology,

Psychology, Psycho-spirituality and Physiology all bring varied empirical and non-empirical evidence to the study. Musical structures are known to emanate from mental processes. Mental processes are both psychological and physiological while varied human experiences can add other constructs such as psycho-spiritual. However, the scientific study of music and pain perception is still in its stage of infancy while the practice of music as an agent of pain control is centuries old. This paper focuses on a systematic review of published literature on the subject matter of music listening and pain perception. The areas of presentation in this paper will include studies on patients receiving cancer treatments such as bone marrow transplants (BMTs). The other aspects of the literature will focus on mechanisms of the auditory nervous system in the context of the Gate Control Theory. The last segment will focus on the implications of findings from this literature to music education. [The author can be reached at dakombo@isqrm.com]

SOUND HEALING FRONTIERS: CYMATHERAPY MEETS ELECTROPHOTONIC IMAGING

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Sound and light are the medicines of the future making sound healing the natural domain of the music therapists practicing in the 21st Century. Come learn about the science behind vibrational medicine and see a demonstration of the CYMA 1000 and the AMI 750 bio-resonant healing devices on the Human Energy Field (HEF) using the Gas Discharge Visualization (GDV) camera.

B. Learner Objectives: 1) Participants will learn about the history of Cymatics from ancient to modern times. 2) Participants will learn how the Human Energy Field that surrounds the body can be measured. 3) Participants will have a ‘hands on’ demonstration Using two new technologies: the CYMA 1000 & AMI 750 from England and The GDV camera from Russia. C. Description: Every human being is a symphony! Each one of us is essentially a wonderful combination of highly organized vibrational energy systems that eventually results in our physical bodies. In addition, sound and light are becoming an increasingly important combination to generate wellness in human beings. Music therapy is now crossing over into the realm of physical healing using specific application of bio-resonant frequencies that can re-establish harmony on a cellular level. The CYMA 1000 Acoustic Massage and AMI 750 devices were created in 2004 to provide healing support for a variety of physical, mental, and emotional conditions. This technology was developed by Sir Guy Manners over the last 50 years in England. Essentially the CYMA uses the principle of sonic entrainment to re-introduce the proper frequencies to the body and can rebalance many forms of “dis-ease” using the safe and subtle energy of sound. In order to measure the efficacy of the CYMA protocols the Gas Discharge Visualization camera developed by the Russian physicist Konstantine Korotkov Is employed. The GDV takes a picture of the Human Energy Field (HEF) surrounding the body-Or commonly known as the aura The camera not only takes a biophotonic image of the human body, but also offers an enormous amount of information on the physical functioning of the human organism. This presentation will involve a brief discussion of these two technologies and how they relate to music therapy practice, as well as, a live demonstration of how bio-resonant sound positively influences the human aura. [The author can be reached at joereilly@tuneupnetwork.com or info@gdvsources.com]

BATTLES OF WOUNDED ME: AN AUTOETHNOGRAPHIC CANTATA

Allison Upshaw, University of Alabama, USA

Narrative inquiry involves the “why” as opposed to the quantitative research question “how many”. Within that narrative (qualitative) framework, critical autoethnography takes the research puzzle two steps further by asking “why me”, and then expanding the researcher’s question to “why us”. Clandinin and Connelly (2000) take a three dimensional approach to narrative lives, *Inward/Outward, Backward/Forward, and Situated within a place*. Meaningful autoethnography begins with a collection of the researcher’s life experience(s). These life experiences are then woven into a story, captivating an audience with its *Inward/Backward* focus. It is a methodological framework, itself being framed within the narrative halls of qualitative research. Critical autoethnography grabs that captivating story from the individual focus of its initial telling and, through intense examination, places it within the context of a greater knowing that now moves Outward/Forward. Performative autoethnography embodies this storied knowledge of self and enacts the knowledge of self in relation to other, thereby *situating* this Artist/Researcher/Teacher/Scholar... firmly in the present, while critically analyzing the past in order to improve the future. Performative autoethnography processed

through arts based research methods is the darkroom in which I develop these snapshots of my life. Trauma theory is the frame in which they hang, and both the written and performed accounts serve as my artistic showcase, through which I hope to encourage a more embodied critique and discussion. I want readers and audience members to personify their critique through their own experiences, both triumphant and failed (Boal, 1992). Like Boal, I write with no goal or expectation of catharsis. This is not intended to provide a fairy tale ending to any issues presented, but rather this is an open processing of personal traumatic life events through a layering of arts based ways of knowing. The use of creative writing, monologues, song, movement, and drawing as inquiry, process, and product is my way of decoding the narratives of *Wounded Me*. [The author can be reached at aupshaw1@crimson.ua.edu]

ANALYSIS AND RECOMMENDATIONS FOR TEACHING STUDENTS WITH DYSLEXIA

Kent Nelson, Ph.D., Weber State University, USA

Many of the characteristics of dyslexia—such as difficulties with decoding written symbols, phonemic awareness, physical coordination, and readable handwriting—may adversely affect music learning. Despite challenges, most individuals with dyslexia can successfully learn music. This presentation will examine: (a) the challenges and successful ways individuals with dyslexia may best learn music; (b) an overview of the general and researched-based literature on dyslexia and music and dyslexia, (c) the talents some individuals with dyslexia may possess, (d) the emotional difficulties that may be associated with dyslexia, and (d) some recent research in the field of dyslexia as it may apply to music. It is hoped that this presentation may assist teachers, parents, and students with dyslexia better understand and apply a best teaching-learning approach to music study. [The author can be reached at kpnelson@graniteschools.org]

THAT'S MUSIC TO MY EARS – THE SOUND OF LAUGHTER

Peggy Tileston, MA, MT-BC, CMSll-BC, CLYL, Temple University, USA

Resounding down through the ages have come numerous stories and prescriptions from ancient wisdom attesting to the healing powers of both music and laughter. In recent years we have benefitted from an upsurge in evidence-based research (all hail EEGs, MRIs, fMRIs, and modern technology!) that confirm the beneficial physiological and neurological effects of music and laughter. So what happens when we combine the two? As a clinician, I have had tremendous success with doing just that. There are presently no known studies that combine the two. Why not? [The author can be reached at ptileston@verizon.net]

RESEARCH RESULTS AND REFLECTIONS: THE EFFECT OF MUSIC-IMAGERY AND ART ON PROFESSIONAL BURNOUT

Lillian Eyre¹

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In today's healthcare environment, there is an urgent need to address job burnout because of its negative impact on medical personnel and consequently, service delivery to patients. This presentation will reflect on the research process and discuss the results of a study of the effect of music-imagery, art, and journaling on self-reported burnout for medical and psychiatric professionals. Sixty-five medical personnel who had direct patient contact participated in a two-arm randomized controlled mixed-methods trial. Quantitative measures were used to evaluate the sense of coherence and job satisfaction in nursing personnel, and qualitative analysis examined the participants' perceptions of the experience through an analysis of their journals and mandalas (art and drawings in the shape of a circle). Results revealed that there were no statistically significant differences in change scores between the control and experimental groups for self-reported burnout, sense of coherence, and job satisfaction. Qualitative results on the subjects' self-report of the interventions indicated that the music-imagery and art experience helped them to relax, rejuvenate, and re-focus, enabling them to complete their shifts with renewed energy. The authors will discuss various reasons for the differences

between the qualitative and quantitative results as well as implications for future research. [The author can be reached at leyre@immaculata.edu or ahunt1@immaculata.edu]

"RUÍDO ROSA" (BRAZILIAN DANCE AND MUSIC)

Juliana Azoubel, Universidade Federal de Minas Gerais, Brazil

This workshop is based on a creation process that became a performance for students at the Federal University of Minas Gerais, in Brazil. During the month of October of 2014, based on the dancer and choreographer Juliana Azoubel's own experience of fighting against breast cancer and losing her mother to it, students were motivated to use the color pink as an inspiration for the creation of movements that turned out to be a piece called "Ruído Rosa" (Pink Noise). The work is about all the many shadows of pink, about breast cancer, about women and their relationship with life, with others, and with love. In this workshop, besides showing to the participants data about the process developed with a group of twelve dancers and the many performances in the different parts of the city of Belo Horizonte, in the state of Minas Gerais, participants will have the chance to build their own creative process relating the subject with their life histories and experiences. [The author can be reached at juliana.azoubel@gmail.com]

THE DRUM SET AND CEREBRAL PALSY, MOTOR AND AFFECTIVE PSYCHOLOGICAL DEVELOPMENT

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Cerebral palsy is a condition caused by a hemorrhage in the brain that can occur before childbirth until the age of three while the brain is developing. This condition is defined according to the motor skills impairment which affects muscular tone and creates limitations in movement. Moreover, this condition could cause different brain and cognitive disorders such as learning disabilities, attention deficit, emotional impairments, behavioral problems, hydrocephaly, epilepsy, and visual impairments, among others. It is very difficult for a person with cerebral palsy to learn to play an instrument such as the drum set because of the motor impairment and brain deficiencies that can limit the acquisition of the proper skills to be able to play such an instrument. The lack of data about the changes in motor skills and psychological affect using this instrument was the central purpose of this investigation. A qualitative, longitudinal case study approach was used to study the changes in fine and gross motor development as well as the changes in psychological affect in a student diagnosed with cerebral palsy who was musically educated on the drum set during a two and a half years period. Three instruments were used to obtain data: 1) observations extracted from a pedagogical diary, 2) digital video recordings, and 3) interviews to the student and the student's mother. At the end of the analysis changes were observed in both aspects studied; a significant increase in the speed on his general performance from 118 to 162 quarter note and, an increase in endurance from four minutes and 13 seconds to 45 minutes of continued performance (motor), as well as significant changes in relation to the music, music education and the student's future in the field of music (affective psychological). [The author can be reached at singingcanaries@gmail.com or KalebSantana@gmail.com]

A QUALITATIVE INVESTIGATION OF SPEECH-LANGUAGE PATHOLOGISTS' AND MUSIC EDUCATORS' TECHNIQUES

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Many techniques speech-language pathologists (SLPs) use to improve speech sounds are akin to techniques general music educators (MEs) use; however, music educators and SLPs may not recognize ways in which their techniques are similar. The purpose of this study was to examine possible similarities among techniques used by SLPs and MEs that could improve speech sounds. This study also sought to compare and contrast the perceptions of SLPs and MEs about using musical techniques to improve speech sounds. Using a modified multi-case study approach, I observed and

interviewed two SLPs and two MEs over a period of three months. Preliminary findings seem to indicate that SLPs and MEs use musical elements with students to enhance a student's performance on speech-related tasks. Music educators intentionally utilize musical elements to improve student's enunciation on text used in class and do not necessarily seek to help students generalize these enunciations to conversational abilities outside of their music classrooms. Speech-language pathologists unintentionally utilize musical elements to improve student's articulation on speech sounds and seek to help students generalize these articulations to conversational abilities outside of their speech-language spaces. Understanding that SLPs may not recognize the musical elements they use can help MEs foster collaborations with SLPs. Music educators could open conversations with SLPs that help SLPs identify the musical elements they use and suggest ways in which musical elements could be used to encourage musical and language development across a student's lifetime. [The author can be reached at MaraCulp@gmail.com or angela@tempotherapy.com]

MANDALA, MUSIC, AND RECOVERY

Mary E. Campbell, MAMT-BC, Creative Health, Pottstown, USA

The Mandala and Music protocol was developed for use with outpatient intensive care mental health consumers, and further developed in combination with EMDR as a tool for clients in trauma recovery. Prior to creating a Mandala, clients work through issues and identify core positive beliefs. This is done through a combination of guided meditation and positive visualization with music chosen to promote relaxation, followed by discussion of possible affirmations and goals. With EMDR clients, the process has an inherent component of identifying positive beliefs about self, and often a Mandala is a natural part of therapy after several sessions, helping to summarize and affirm progress. This protocol has also been presented to 'Women for Sobriety' support groups as a single 2 hour group session. Each client creates their own Mandala, a very personal and motivational graphic image which then becomes an ongoing source of inspiration, a tangible reminder of goals and/or accomplishments, often a comfort, and source of grounding. In therapeutic sessions clients are then assisted to also frame the finished image, and frames have been created using recycled cardboard and fabric. [The author can be reached at sunflowerangels@verizon.net]

THE INFLUENCE OF PIANO TRAINING ON VERBAL MEMORY IN HEALTHY OLDER ADULTS

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Musical training is a complex visual-motor task that has the potential to promote neuroplasticity. Piano training in older adults, for example, has been associated with improvements across cognitive domains, mood, and quality of life (Bugos et al., 2007; Seinfeld et al., 2013). Past studies, however, have not evaluated piano training in elders using a music oriented control group. The purpose of this study was to evaluate the effects of six months of piano training compared to an individualized music listening task in healthy older adults. **Method:** 23 community dwelling older adults (mean age 71 +/- 5.5 years) were recruited. Participants completed a computerized cognition battery via CNS Vital Signs (CNS Vital Signs, Inc: Morrisville, NC), as well as parts A and B of the Trail Making Test (TMT). Data from 20 participants were analyzed at baseline and post-training. **Results:** Between-subjects analysis at six months revealed that participants in the piano group had fewer commission errors on the Stroop task ($p < .01$), had higher raw domain scores in composite memory ($p < .05$) and verbal memory ($p < .05$), as well as more correct hits on delayed verbal

memory recall ($p < .01$). Within-subjects analysis showed that participants in the piano group had improved raw scores at 6 months for composite memory ($p < .05$), domain verbal memory ($p < .05$), and correct hits on delayed recall verbal memory ($p < .05$), whereas scores on these measures did not significantly change for those in the listening group. Furthermore, although groups did not differ on the TMT at 6 months, the listening group did show within group differences between baseline and 6 months on the TMT Part A ($p < .01$). **Conclusion:** Piano training is associated with improved verbal memory in elders compared to a music listening task. [The author can be reached at sathorne@uga.edu]

THE EFFECTS OF MUSIC PAIN PERCEPTION ON PATIENTS WITH SICKLE CELL DISEASE

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Although the effects of music on pain have recently been examined, very few studies have examined the effects of music on pain perception in patients living with sickle cell disease. Sickle cell disease is categorized by episodes of severe pain that mainly affects the chest, back, and legs of diagnosed individuals. This kind of investigation is greatly needed. The application of music on pain management and the control of pain has increased in the last two decades. Past studies have shown that music is an effective medium to ease pain perception and decrease the threshold of pain. Although music therapy as an established allied health profession has produced numerous empirical and qualitative data on increased frequency in medical treatments, there is a dearth of empirical research that supports the use of music on patients with sickle cell disease. In addition, many of these studies are few and findings are often contradictory. This research will be devoted to examining the effects of music on pain perception on patients with sickle cell disease. The setting for this study will include but is not limited to the State of Mississippi. [The author can be reached at kristie.j.lipford@jsums.edu or david.o.akombo@jsums.edu]

STUDENT PROJECTS IN MUSIC THERAPY & PHYSIOLOGY: FALL 2013 MONTCLAIR STATE UNIVERSITY

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Chik D.¹

Kim H., ¹

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This poster presents highlights of several experimental self-subject research trials conducted by music therapy students in the David Ott Laboratory for Music and Health at Montclair State University. The students explored the effects of music on physiological responses by manipulating musical elements such as instrumentation, genre, scale quality and lyrical content. Of particular interest is an experiment that utilized a 19-channel EEG brain scanner to display brain activation via 3D Lorentz imaging, while listening to various musical stimuli. Autonomic measures monitored in these experiments were electrodermal activity (EDA), heart rate variability (HRV), blood volume pulse (BVP) and Heart Rate

(HR). The poster also presents some of the limitations that were identified by the students while conducting the experiments and their implications. [The author can be reached at miller@biofeedback.net]

THE EFFECTS OF MUSIC THERAPY AND MUSIC EDUCATION ON THE QUALITY OF LIFE OF THE HEALTHY ELDERLY PEOPLE

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The purpose of this study was to identify optimal strategies of music intervention for contributing to the mental well-being of healthy elderly people. An experimental study was conducted to evaluate the effect of music therapy and music education on three groups of participants: healthy elderly unaccompanied during treatment sessions, healthy elderly accompanied by grandchildren(ages five to seven) during treatment sessions, and a control group. ANOVA and Independent Sample T-test techniques were employed to compare the effects of music activity among the groups, while Paired Sample T-test techniques were employed to test the effects of music activity within groups. The results indicated that the unaccompanied elderly group showed significant improvements on mood, self-esteem, and depression measurements, while the group of elderly accompanied by grandchildren showed improvement only on the mood scale. These results suggest several implications for the area of music therapy and music education, especially with regard to improving the healthy elderly's self-esteem, depression, and mood as components of successful aging. **INDEX WORDS:** Music therapy, Music education, Healthy elderly, Music intervention, Quality of life. [The author can be reached at naejeong.suh@gmail.com or rkennedy@uga.edu]

DRUMMING IN THE DARK: INTEGRATING MUSIC THERAPY INTERVENTIONS WITH TRADITIONAL HEALING PRACTICES IN HOSPICE CARE

Laura Thomae MT-BC, Keystone Hospice, USA

Historically music has been used to comfort the dying and in rituals to honor and mourn the dead. The hospice movement is growing around the world and with it an expanding awareness of the value of holistic approaches in end of life care especially music and music therapy. An increasing number of hospices are employing music therapists as research grows to support the unique role of music therapy in addressing bio/psycho/social/spiritual issues with the terminally ill. Music can provide a safe vehicle for expression and communication of grief and sorrow at end of life, it can provide comfort, ease pain, improve mood and is particularly useful when verbal communication is no longer possible. Current hospice music therapy practice draws on medical music therapy models that for the most part do not include indigenous music and healing practices. What do traditional healing methods and spiritual practices have to teach us about the use of music with hospice patients? How do we incorporate indigenous methods into current music therapy practice to improve quality of life and ultimately the quality of death? This presentation will share case examples and highlight music therapy approaches that incorporate traditional healing practices and spiritual rituals in music therapy interventions with terminally ill patients. An overview of cultural approaches to death and care of the dying will be discussed with emphasis on specific uses of music in indigenous and spiritual healing practices. Music therapy interventions discussed will include chanting, singing, drumming vs. shamanic drumming, guided imagery and visualization and the creation of ritual as means for healing. Through both didactic and experiential methods participants will have the opportunity to explore and discuss music therapy approaches that incorporate traditional healing practices with hospice patients and how these practices can contribute to quality of life with the terminally ill. [The author can be reached at lthomae@keystonecare.com]

FLUTES: HEALTH AND HEALING

Clint Goss, Ph.D.

How does playing wind instruments relate to healing and health? Can it be used as a modality for general health benefits? And can it be used for specific clinical conditions? We explore the state of the science and art as it stands today, and propose a specific practice – distinct from the goals of music performance in our society – to maximize the personal health benefits of playing wind instruments. [The author can be reached at clint@goss.com]

MUSIC IMPROVISATION BRINGING SOUL IN THE HOSPITAL SETTING

Lynn Miller¹
Brienne Wall¹

¹Music for People

In most allopathic hospitals the focus is on the physical body. A holistic approach to healing and wellness respects not only the body but includes the mind, and spirit. Music is the language of the soul. Learn about how soul expression is incorporated in the healing process at a Geri/Psyche Hospital in Philadelphia, PA. Several case studies will be presented with examples of how music improvisation is used therapeutically. This experiential workshop will include philosophy and concrete experiences to help understand the bridge of music improvisation for well-being. Improvising is creating spontaneously, in the moment. Improvisational music making can provide experiences of being present, connection with self and other, trusting and enhancing listening skills. When we improvise, we face the unknown. This process is used to help one face their fears to develop courage and trust. Psychological benefits include a sense of community and belonging through this shared endeavor developing balance and well-being. Easy to play world music instruments are used which are harmonically tuned in a Pentatonic scale that have “no wrong notes.” This brings success and beauty to the patient who plays, raising self-esteem. Improvisational singing is encouraged with both verbal and non-verbal patients to encourage self-expression. Song writing interventions are also utilized for expression of thoughts and feelings. This experiential course will provide examples of how improvisational music making is used in the hospital setting. The improvisational structures will be experienced with exercises in communication, freeing inhibitions, and broadening expression. There is no need for prior music experience. [The author can be reached at Lynn@LynnMiller.org]

WORKSHOPS

MUSIC RX: JOURNEY OF EXPLORATION AND EXPLANATION


Arthur Harvey
University of Hawaii, Honolulu, USA

Scientific studies on the brain, intelligence and music confirm that music and sound have a significant impact on higher level brain function and emotional well being. It can be argued that musical intelligence probably carries more emotional, spiritual and cultural weight in human development than any other set of influences. In this workshop Dr. Harvey, one of the most venerated researchers, teachers and authors in the realm of sound and music therapy will examine and demonstrate some of the diverse approaches to the therapeutic use of music and sound and how they affect us physiologically and psychologically Through lecture, discussion, audio resources, media and experiential exercises, Dr. Harvey will help students gain a better understanding of the various uses of sound and music therapy in health care for personal and professional applications. He will also examine the distinctives of sound therapy, music therapy, music for health and music medicine. This is an experiential workshop in which students participate in adaptive and traditional music making with instrumental and vocal processes. Special emphasis will be devoted to Stress Management approaches with music and the use of music and sound to accelerate learning. Come prepared to be educated, entertained, enlightened, entrained and enriched. [The author can be reached at aharvey@hawaii.edu]

AFRICAN DRUMMING FOR YOUR HEALTH

David Akombo, Ph.D.m, Jackson State University, USA

This experiential workshop explores the auditory stimulation and ambulatory performance aesthetics caused by the transformative power of African drumming and movement for good health. The session is essentially divided into two parts: The first session provides the basic rhythmic structures of African drum rhythms from selected African regions



where the participants create, recreate, and improvise rhythms based on given idioms. The second part introduces African dance elements where participants engage in ambulatory performance and learn to move to the African rhythms by improvising movements based on Afrocentric dance patterns based on lore and artistic idioms. [The author can be reached at dakombo@isqmmm.com]