

ACTIVITY LEADER FACILITATION OF A RHYTHM ACTIVITY TO ENGAGE PERSONS
WITH LATE STAGE ALZHEIMER'S-TYPE DEMENTIA: A FEASIBILITY STUDY

By

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Abstract

The purpose of this study was to determine if an activity leader with little to no formal music background could engage individuals with late stage Alzheimer's-type dementia in rhythm activities following training by a board-certified music therapist. Persons with late stage Alzheimer's-type dementia were eligible to participate if they had a diagnosis staging at a level five or six according to the Global Deterioration Scale for Assessment of Primary Degenerative Dementia (GDS), which was found in the individual's medical file. The activity leader was eligible to participate based on their limited musical background as determined by responses on a questionnaire. Training sessions conducted by a board-certified music therapist were designed for the activity leader to develop skills to deliver a structured 12-minute rhythm activity for persons with dementia. Following training the activity leader conducted three rhythm activities with a group of four facility residents. A trained observer was present at all experimental sessions to record engagement responses. Outcome measures included reliability testing. The measure of reliability testing between the trained observer and the investigator revealed a high level of agreement for varying types of engagement (97.9% to 100%). Quantitative data of percentages from each type of engagement for each resident ($n = 4$) provide percentages that show greater engagement to a rhythm activity than a Bingo activity. Engagement levels of residential participants during a rhythm activity ranged from 0% to 88%, while the Bingo activity engagement levels ranged from 0% to 77%.

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CHAPTER ONE

Introduction

Alzheimer’s disease and other dementia’s (ADOD) are currently the sixth leading cause of death in the United States and the fifth leading cause of death for people over the age of 65.

According to statistics gathered by the Alzheimer's Association, Center for Disease and Prevention, and other governmental agencies, Alzheimer's disease caused 27.1 deaths per 100,000 American citizens in 2008, the year for which the recent statistics are available (Farran, James, Johnson, Scholz, & Weuve, 2011). In 2009, an estimated 36 million people worldwide were living with ADOD. By 2030, that number is expected to more than double to 66 million and by the year 2050 it is estimated that 115 million people will be living with ADOD (Prince, Bryce, & Ferri, 2011). In 2011, Alzheimer's research reported that 5.2 million people 65 years of age and older were living in the United States with ADOD; 13% of this population or one in eight people had a diagnosis of Alzheimer's disease (Farran et al., 2011). It is estimated that by the year 2030, 24% of the population residing in the U.S.A. will live with Alzheimer's disease (Farran et al., 2011).

The etiology of dementia is unknown; however, theories suggest possible causes are genetics, abnormal protein deposits in the brain, and environmental factors (Cutler & Sramek, 1996; Harris, 2007). In order to be diagnosed with dementia, a person must have a decline in memory paired with detrimental function in at least one other cognitive skill including abilities to (a) generate coherent speech or understand spoken or written language; (b) recognize or identify objects, assuming intact sensory function; (c) execute motor activities, assuming intact motor abilities, sensory function and comprehension of the required task; and (d) think abstractly, make sound judgments, plan, and carry out complex tasks (Prickett, 2000). The decline in memory combined with other cognitive dysfunctions must be so severe that they interfere with activities of daily living.

To be diagnosed with ADOD, one must endure lengthy testing procedures, such as Magnetic Resonance Imaging (MRIs), neuropsychological testing, General Practitioner

Assessment of Cognition (GPCOG), and blood tests. Types of treatment include pharmacological interventions, herbal remedies, and cognitive training. Early diagnosis of Alzheimer's disease may aid in planning and understanding the process of the disease as it progresses (Editorial, 2012); however, it will not serve to remediate the effects of disease.

The most common form of dementia is Alzheimer's disease (AD). Scientists suggest that AD results from an increase in the production or accumulation of beta-amyloid protein that leads to nerve cell death; however, scientists have not yet found a specific cause for AD (Crystal, 2012). Persons experiencing symptoms of AD often share common warning signs including challenges in planning or solving problems, tendency to misplace things and lose the ability to retrace steps, changes in mood or personality, and memory loss (Farran et al., 2011). These warning signs can be early indicators that one needs to seek treatment; however, not all people are affected by AD the same way, which makes diagnosis very difficult. The progression rate of AD is unknown, and while some people live for many years in their own homes with the support of family, others require 24-hour care in a residential facility soon after diagnosis.

Generally, a person with AD is placed in a residential facility when caregivers become physically ill, emotionally drained, unable to cope, and/or unable to manage Activities of Daily Living (ADLs) (Clair & Memmott, 2008). Responsibilities of persons caring for individuals with AD maintain ADLs by shopping for groceries, preparing meals, providing transportation, delivering medications, managing finances, bathing, dressing, grooming, feeding, and toileting the individual (Clair & Davis, 2008). As the disease progresses, a diagnosed individual may become withdrawn and unable to interact with others resulting in a failure to thrive. Non-thriving individuals become involved in a multifactor state of decline that is caused by chronic disease and ever-progressing functional impairments (Robertson & Montagnini, 2004). Manifestations of

such decline include weight loss, decreased appetite, poor nutrition, and inactivity. Managing all aspects of care becomes extremely burdensome which pressures family members to place loved ones in assisted residential care facilities.

Residential care facilities are federally mandated to “...promote care for residents in a manner and in an environment that maintains or enhances each resident’s dignity and respect in full recognition of their individuality” (Federal Register, 2011). Further stipulations are required to remain certified by the Health Care Financing Administration (HCFA) for Medicare/Medicaid reimbursements. The Nursing Home Reform Act mandates residential care facilities provide activities that meet the interests and the needs for physical, mental, and psychosocial well-being of each resident (U.S. Code Title 42. January 2000). Facilities must provide interventions to meet the needs and interests of all residents served and music therapy interventions have been shown to be an effective form of treatment (AMTA, 2012; Federal Register, 2011).

Board-certified music therapists provide musical experiences that enhance life quality in those who have dementia as well as their families (AMTA, 2011). The shortage of board certified music therapy practitioners leads to consideration of music therapists as consultants who can train activity leaders to facilitate some music activity delivery. Activity leaders can use music to increase life quality through activities where outcomes are not required to meet the criteria of therapeutic interventions and, therefore, do not require the professional skills of a credentialed music therapist.

Activities are necessary to maintain life quality in residential care facilities. Providing activities that are highly motivating and easily adaptable encourages residents to engage in efforts to improve and maintain their quality of life, and as a result these activities are in high demand. The National Investment Center Guide (2010) lists 6,315 professionally managed

assisted living communities that provide quality of life care to those with Alzheimer's disease. Additionally, approximately 475,000 people reside in assisted living apartments (National Investment Guide, 2010). According to most recent statistics by the American Health Care Association (2011) certified nursing homes in the United States have a total of 79,897 occupied beds in dementia care units. As technological and medical advances improve, life expectancy increases and the population with ADOD will grow. As life expectancy extends for persons with ADOD the needs increase for activity engagement that accommodates their deteriorating functional abilities. Board-Certified Music Therapists can provide services that facilitate these persons' changing needs to promote engagement that leads to improved life quality. Regrettably, the music therapy profession is not large enough to provide board-certified music therapists at every facility where individuals could benefit from music therapy. Therefore, it may be useful to train other professionals who can use music therapeutically to promote life quality in persons with Alzheimer's disease.

As persons progress through mid-stage dementia, engagement in daily activities progressively diminishes (Clair, Bernstein, & Johnson, 1995). It becomes more difficult to develop programs that promote participation and engagement, due to the deterioration of cognitive abilities. There is strong evidence that music therapy protocols, such as drumming, can be implemented to facilitate active participation and engagement very late into the disease process (Clair, Mathews, & Kosloski, 2005). Persons who are severely impaired by dementia voluntarily participate in drumming (Clair et al., 1995). Drumming provides the predictability and structure needed to generate repetitive motor responses making engagement possible. Drumming is easily adjusted to maintain engagement even with progressive decline in cognitive functioning. Clair (1991) states that persons with late stage dementia, who can no longer actively

participate in other formerly familiar experiences such as singing, continue to participate in rhythm activities. Participation occurs because rhythmic entrainment acts as an external timekeeper and entrains desired movements and retrains motor function through anticipatory cuing of functional movements (Thaut, 2008). Rhythm activities enhance engagement for those with varying cognitive abilities because cognitive functioning is not central to the response and it is not required for participation to be rhythmic (Clair et al., 1995). Thaut (2008) further states that motor responses can be entrained by auditory rhythmic patterns with persons functioning at levels below conscious perception. Training activity professional's to engage persons with dementia promotes more consistent results to meet federal mandates.

These federal mandates require engagement in activities for all persons' living with dementia (Federal Register, 2011). Qualified music therapists may train activity leaders to provide rhythmic activities when music therapy interventions are not indicated in order to build engagement in activities. It is possible that trained activity leaders can be successful in facilitating rhythm activities, even with little to no formal music training, provided content of the rhythm activities is simple and well structured. Training activity leaders to effectively use rhythm can offer persons with dementia better access to opportunities for engagement with others even when cognitive and social functions are seriously compromised. Training care professionals to implement rhythm activities will likely increase opportunities for engagement among residents, which may lead to improved resident and family satisfaction with quality of care (Clair, Tebb, & Bernstein, 1993). Such training can also provide the skills whereby activity leaders can meet mandates to engage those persons in activities that have lost their skills and abilities to participate in other activities. Armed with new skills to conduct rhythm activities,

activity leaders can provide a continuum of care into later stages of dementia where life quality suffers from inaccessibility to activities.

The purpose of this study was to determine if activity leaders with little to no formal music background could engage persons with late stage Alzheimer's-type dementia in rhythm activities following training by a board-certified music therapist.

CHAPTER 2

Review of Literature

Alzheimer's disease (AD) affects more than half of the elderly population in the United States and is an insidious disease that eventually results in death. The disease endures for many years during which individuals become progressively less functional. Among the functional losses is decreased ability to engage with others, which is commonly considered essential to life quality (AMTA, 2012). Providing activities that include ongoing opportunities to engage is important. Yet, many activity leaders lack the skills to provide such opportunities to those who have later stages of dementia.

Stages of Alzheimer's Disease

According to the Alzheimer's Association website AD is currently categorized into seven stages; individuals in stages one and two of the disease are rarely diagnosed because comparable symptoms are common in individuals in their older years. Symptoms include short memory lapses, mild word aphasia, and misplacement of daily items. Persons close to the individual have not noticed anything remarkably different about the individual's abilities to function (DeLeon & Reisberg, 1999).

In stage three, friends and family may begin to notice memory deficits and personality shifts. Individuals may have noticeable problems coming up with the right word or name for things or new people. It is not until stage four that people notice remarkable changes that may include total memory loss of current events, inability to do tasks that were once easy, difficulty planning complex tasks such as paying the bills, and increased anxiety in social situations (DeLeon & Reisberg, 1999). By stage five, individuals may become easily confused and may not remember the day of the week or the names of people familiar to them. The person will likely need help choosing appropriate clothes to match the season outside, but are able to remember significant events about themselves and their family.

At stage six, the individual has severe cognitive decline. The person requires assistance with all Activities of Daily Living (ADLs). At this stage, individuals may lose awareness of recent events and have difficulty distinguishing names of people familiar to them. It is not uncommon for individuals to appear lost or confused. Urinary and fecal incontinence is common and persons experience major changes in sleep. Individuals are conscious of life but unable to recall what occurred just moments after events happened. Families are usually faced with finding an assisted residential care facility to help manage the demands of the individual's 24-hour care. In the final stage, individuals enter a catatonic-like state characterized by inability to speak, respond to others, sit up, smile, or hold up their heads. Family members struggle to have interactions with their loved ones and usually prepare for an impending death (DeLeon & Reisberg, 1999).

In the later stages progressive impairments often lead to poor perceptions of life quality that result in depression, boredom, apathy, and loneliness (Cohen-Mansfield et al., 2011). To slow down the deterioration of quality of life it is necessary to provide opportunities that enhance engagement and that are meaningful to each individual residing in an assisted living facility (Cohen-Mansfield et al., 2011).

Importance of Engagement

The importance of engagement among people with AD residing in an assisted care facility is to encourage healthy relationships. Engaging persons with dementia has increased positive emotions, improved ADL's, and improved quality of life (Cohen-Mansfield, Dakheel-Ali, & Marx, 2009). Research has shown that rhythm playing provided the structure needed to enhance meaningful interactions that remove isolation (Brotons & Picket-Cooper, 1994). Persons with AD participated in rhythm playing more actively when structure was provided through

visual models; hand over hand assistance, and verbal cues (Clair & Memmott, 2008).

Engagement to drum playing was likely even when there was no prior musical experience.

Music Therapy and Engagement

Music therapy is the clinical and evidence-based use of music interventions designed to meet an individual's goals (AMTA, 2011). One review of literature (Prickett, 2000) included 123 research articles that supported the therapeutic uses of music for older adults and found that almost half the studies focused on uses of music therapy for persons with ADOD. These researchers addressed the ways in which music is used to resolve problems associated with aging, memory, reminiscence, and a variety of other physical and social concerns. Music therapy goal areas often associated with older adults include, but are not limited to, opportunities for emotional intimacy, social interactions, sensory stimulation, experience in structure, and awareness of self and the environment. All goal areas lead to engagement (AMTA, 2012).

Engagement refers to the act of being occupied or involved with an external stimulus, which includes concrete objects, activities, and other persons (Cohen-Mansfield et al., 2011). Music is used as an effective medium to build or enhance engagement because it can lead to structured experiences that facilitate interactions. These experiences are customized to individual interests, needs, and abilities to ensure engagement (Gitlin et al., 2008). Outcomes from a number of studies indicated nursing home residents were frequently disengaged from their environments and from interactions with others, which contributed to loss of physical function, social isolation, behavior symptoms, and poor quality of life (Alessi, Yoon, Schnelle, Samarra, & Cruise, 1995; Mor et al., 1995). A number of factors that impeded engagements included residents who displayed agitation or apathy (Buettner, 1988), newly admitted residents with depression (Achterberg et al., 2003), and residents with cognitive, physical, visual and/or hearing

impairments (Resnick, Fries, & Verbrugge, 1997; Schroll, Jonsson, Berg, & Sherwood, 1997).

When persons with severely regressed dementia are in residential care there is little programming in which they can participate or engage purposefully and meaningfully due to the insidious deterioration of physical, psychological, and/or social responses (Clair, Bernstein, & Johnson, 1995). Several researchers produced increased engagement outcomes in studies of specially designed music therapy interventions that seemed to appropriately arouse participation (Clair, 2008; Clair & Bernstein, 1990a, 1990b; Clair, Bernstein, & Johnson, 1995; Mathews, Clair, Kosloski, 2000; Clair & Ebberts, 1997; Pollack & Namazi, 1992). Clair and Ebberts (1997) reported that music therapy programming comprised of singing, dancing, and rhythm playing increased levels of engagement between family caregivers and individuals with AD. Clair et al., (1995) concluded rhythmic activities provided opportunities for persons to form engagements and be purposefully involved with others who were otherwise lost from the progression of the disease.

Arousal

To create a meaningful experience that leads to engagement, the resident must first become aroused in the experience. Thaut (2008) defines “arousal” as multiple processes in the nervous system that relate to states of heightened physiological activity. Arousal states are measured on a continuum of how alert, excited, or attentive one is to external stimuli (Thaut, 2008). In music, arousal is triggered by the melody, harmony, rhythm, and form. Arousal occurs in response to one or all of these musical elements (Thaut, 2008).

Music elements elicit responses that can lead to arousal, which is characterized by engagement in an emotional response to the external stimuli (Thaut, 2008). When arousal occurs

engagement is likely to occur (Thaut, 2008). Arousal is facilitated by experiences designed to match an individual's level of alertness and slowly shift it until the individual is participating at a level appropriate to his or her needs. By eliciting arousal levels, the client is stimulating reward and pleasure systems in the brain that form or lead to engagement (Thaut, 2008). Outcomes of a study by Clair and Bernstein (1990a) indicated persons with severely regressed dementia participated in rhythm playing and demonstrated higher response rates to vibro-tactile stimulation than to non-tactile stimulation using music. Furthermore, these individuals participated for longer time durations with music than without music. The researchers speculated that higher levels of arousal with music seemed to increase engagement and that vibro-tactile stimulation from the music was a possible factor. Studies by Clair (1991), Clair and Bernstein (1990a, 1990b), and Clair, Tebb, and Bernstein (1993) have shown that individuals in late stages of dementia can participate and engage meaningfully using rhythm because entrainment with the rhythmic stimulus does not require cognitive functioning. It is not required for auditory cuing to facilitate the motor outcomes where motor movements is entrained with a rhythmic stimulus (Thaut, 2008) and; therefore, allows persons with AD to engage with loved ones, even when all cognitive functioning has been lost (Clair et al., 1995).

Rhythm and the Brain

Rhythm is an organization of time (Thaut, 2008). It is perceived as structured reality that is predictable (Clair & Memmott, 2008). Rhythm and other elements of music are processed in various cortical structures of the brain including the frontal cortex and the limbic system and music evokes both cognitive and emotional responses that are rewarding (Blood & Zatorre, 2001). The non-cognitive processing of music and rhythm in the brain leads to opportunities that use music to facilitate responses in persons with AD who have experienced structural brain

losses due to the disease.

Several researchers revealed that people with late stage dementia could interact with others by using rhythm (e.g. Cevasco & Grant, 2006). Engagement in rhythm includes playing with accuracy and complexity (Clair et al., 1995; Clair & Ebberts, 1997) imitating rhythms (Groen, 2001), and playing in synchrony with others (Hart, 1990). Individuals with dementia respond to rhythm activities because playing rhythm instruments is highly motivating. Rhythm playing in a group provides a sense of belonging, because individuals within a drumming experience actively make music together (Reuer, Crowe, & Bernstein, 2007). While playing rhythm, participants sustain repetitions of a steady beat, which acts to bring individuals together physically, emotionally, and mentally (Reuer et al., 2007) through a process known as rhythmic entrainment.

Rhythmic entrainment occurs through direct projections of rhythmic pulses to the motor system that begins with temporal encoding of information in the auditory system (Thaut, 2008). When the brain receives an external auditory stimulus such as a rhythmic beat, the brain interprets it as an auditory cue to regulate motor timing and coordination (Thaut, 2008). The rhythmic sound acts as a sensory timer, which regulates brain mechanisms that control timing, sequencing, and coordination of movements (Thaut, 2008). The brain organizes rhythmic sounds so that the body changes or modulates movements to respond to the sound. The sound travels from the auditory cortex through thalamic projections that are shared with cortical motor areas, which excites motor neurons into a state of readiness in order to facilitate the execution of movements (Thaut, 2008). The process of entrainment is sustained into late stages of dementia (Clair & Bernstein, 1990a) even after persons have lost all cognitive functioning associated with memory and executive function.

Responsibilities of Activity Professionals & Activity Staff for Activity Participation

According to the National Certification Council for Activity Professionals (NCCAP), activity professionals are required “to provide activity services and programs, which enable individuals to maximize their potentials in activity participation” (NCCAP, 2012). Activity Directors and activity staff are trained and qualified to assess, develop, implement, document, and evaluate programs for individuals who are residents in care facilities. Viable activities for those who have late stage dementia are difficult to design and implement due to the lack of cognitive abilities and the continuing loss of cognitive function. Rhythm activities can be viable activities for those who have late stage dementia because they are easily adaptable and provide a rhythmic framework for engagement.

Guidelines for serving individuals with AD have changed from providing mere diversion activities to providing activities that fill social, spiritual, physical, and intellectual needs and additional activities that maintain and reinforce skills for each individual (Murphy, 2003). In order for activity professionals to provide services that meet federal mandates for all levels of functioning, it is necessary for them to acquire skills to implement an array of interventions that are readily accessible and easily adapted for individual functioning.

The Omnibus Budget Reconciliation Act (OBRA) requires activity departments to provide cognitive measurable activities (Murphy, 2003). The types of activities must support an individual resident’s assessment and care plan and must have positive psychosocial outcomes. In order for activities to meet targeted outcomes, activity staff members are required to write objectives that incorporate activity analyses in three areas: physical, cognitive, and social behaviors (Cunninghis & Best-Martinin, 1995; Elliot & Sorg-Elliott, 1991; Hawkins, May, Roger, 1996). To place activities into care plans, the Joint Commission on Accreditation of

Health Care Organization (JCAHCO) (2002) requires individualized assessment in the following areas: educational needs, preferences, abilities and readiness to learn, status, needs, hobbies, and ability to participate in structured group activities. Activity professionals are trained to perform individualized assessments using the JCAHCO criteria and assume professional accountability in the design and implementation of individualized interventions based on the assessment outcomes. Yet they generally lack skills to provide activities that engage persons with late stage dementia.

When individuals have progressed into late stage dementia, assessment outcomes show great needs in many areas, yet there is little to no cognitive function for successful activity engagement. Persons in late stage dementia simply cannot participate in activities they once enjoyed in their leisure. Consequently, there is a dire need for activities that require very little to no cognitive function yet have strong potential to draw individuals with dementia together with others to share common experiences. The potential for rhythm playing with percussion instruments is strong and past research has indicated successful experiences in persons who have late stage dementia (Clair & Ebberts, 1997; Clair & Bernstein, 1990a; Clair, Bernstein, & Johnson, 1995). Yet few activity professionals have the skills to conduct sessions using drum playing. There is a need to provide training to facilitate skill development that can lead to successful implementation of rhythm activities.

Training

The need to develop activities for all residents in assisted residential care facilities is important; however, developing appropriate activities for those in late stages of dementia is particularly challenging. Researchers have shown that engagement in activities can have positive effects on persons with dementia, such as increased levels of happiness, elevated alertness,

decreased boredom (Baker et al., 2001; Kovach & Henschel, 1996; Schreiner, Yamamoto, & Shiotani, 2005), improvements in the performance of activities of daily living (Schnelle, MacRae, Ouslander, Simmons, & Nitta, 1995) and improved quality of life (Schreiner et al., 2005). Providing outside resources and training to activity staff may aid in the development of rhythm activities that can be used for residents who are difficult to engage thereby contributing to quality of life through meaningful interactions.

Rhythm activities require staff training to promote meaningful and successful engagement. Kolanowski, Buettner, Litaker, and Yu (2006) found that activity professionals that use multiple interventions are often unable to engage residents in activities if the activity is not meaningful to the residents. Activities that are not meaningful or too difficult to perform, lead to agitation, which commonly leads to disengagement. Persons who do not engage in activities are more likely to seclude themselves, which leads to boredom that often results in negative behaviors (Kolanowski et al., 2006). A study of musical engagement of persons with mid-stage AD concluded that engagement levels within the first 15-minutes of a music therapy assessment can accurately predict individuals who are likely to participate in subsequent sessions (Clair, Mathews, & Kosloski, 2005). Individuals who are engaged in singing, exercise movements, or rhythm playing within the first 15-minutes of a session are more likely to continue engagement over the course of time; however, persons who show no interest or engagement within the initial 15-minute assessment period are not likely to engage in later sessions. Activity providers may find that early engagement in musical experiences is an indicator of the likelihood of ongoing participation.

Extensive research has been done with nurse practitioners and the use of music as an intervention for individuals with AD. Gerdner (2001) designed a protocol “Individualized Music

for Elders with Dementia” (IM) and trained a nursing staff to implement it within a residential assisted care facility. Successful outcomes demonstrated that the nursing staff with little to no previous music training could be trained to implement the music with individuals who had AD. Therefore, it may be possible to train activity professionals within residential care facilities to implement structured rhythm activities.

Sung, Chang, and Abbey (2008) evaluated a nursing staff’s musical knowledge with regard to Gerdner’s IM protocol within residential care facilities and reported that a greater improvement in the knowledge of the music protocol occurred among nursing aids compared to nurse practitioners. The nurse practitioners’ daily job responsibilities were of a greater demand compared to the nursing aids, therefore, making it difficult to provide extended services past the physical demands of the job requirements. In another study, Sung, Lee, Chang, and Smith (2011) utilized Gerner’s IM protocol to determine a nursing staffs’ attitude in regard to using music for older adults with dementia. The researchers reported that nursing staff held positive attitudes, but more than half of the nursing staff stated that there was not enough time or resources available to implement individualized music with patients (Sung et al., 2011). This supported earlier evidence that nurses in residential facilities were willing to learn about the benefits associated with music (Sung et al., 2008); however, heavy nursing responsibilities prohibited individualized rhythm activities. These two studies indicate that training nursing staff to implement rhythm activities is not appropriate due to their ongoing workloads and time demands. Even though nursing staff have been trained to implement rhythm activities it is necessary to identify other facility staff members, who have responsibilities to engage residents, to learn rhythm activities. If nurses can be successfully trained then it is possible that activity leaders can be successfully trained to implement rhythm activities that are beneficial to evoking engagement for persons

with AD.

There is some evidence that rhythm activities can be learned and successfully implemented by non-music volunteers as indicated by Reuer, Crowe, and Bernstein (2007) who designed a group rhythm and drumming protocol for older adults and trained volunteers to implement it. A board-certified music therapist taught a four-week training program and acted as the core instructor for volunteers who were responsible for learning a drumming protocol. After the four-week training program volunteers were allowed to implement drumming with older adults. The volunteers were required to meet once a month for supervision, but were not required to take refresher courses or to consult or report back to the music therapist after implementing the drumming entertainment.

Implications from the Reuer, Crowe, and Bernstein program (2007) indicate individuals can be trained to implement drumming activities; however, volunteers may not be the best choice to implement the program since the training is somewhat demanding. By utilizing volunteers, facilities were able to provide drumming activities to many residents; however, the volunteers required just as much, if not more, training than fulltime staff, which made using them more costly than training fulltime staff. The increased cost associated with training volunteers, especially when they quit or discontinue volunteer services, makes such a volunteer program impractical. This dilemma points to the need for incorporating drumming activities into activity programs run by professional activity staff.

It seems a more successful implementation of a rhythm activities is through appropriately trained activity professionals who are employees of residential care facilities. Employees are more likely to have the commitment to learn and implement rhythm activities to meet individuals' assessed needs, especially for those residents who have difficulties

participating in other activities. Trained activity professionals can build a framework for implementing ongoing rhythm activities that continue to promote appropriate outcomes for individualized care plans. As professionals learn to successfully use rhythm activities with low functioning individuals they can provide a continuum of care that can lead to confidence and personal satisfaction. Clair, Mathews, and Kosloski (2005) demonstrated that the efficacy of incorporating activity professionals into a program for persons with dementia by training activity leaders to use rhythm activities to form engagement. Four activity leaders with little musical background were trained by a credentialed music therapist to successfully implement rhythm playing, exercising with music, and singing with groups of persons with dementia. Outcomes demonstrated that activity staff achieved consistent engagement among the participants from session to session (Clair, Mathews, & Kosloski, 2005).

Summary, Statement of Purpose and Research Question

There is evidence in the literature that (a) rhythmic activities are engaging for persons in late stage dementia, (b) activity professionals can develop the skills necessary to implement rhythm activities, and (c) training activity directors to engage persons with late stage dementia are preferred over volunteers or nurses. To date, there is no known research regarding successful rhythm activities implementation by activity professionals for persons with dementia in residential assisted care facilities. The purpose of this study was to determine if activity leaders with little to no formal music training could successfully engage persons with late stage Alzheimer's-type dementia in rhythm activities following training by a board-certified music therapist. The following research question was addressed:

- 1) Can activity leaders with little to no music background be trained by a board certified music therapist to engage individuals with late stage Alzheimer's type dementia in rhythm activities?

CHAPTER 3

Method

Setting for the Study

The investigator identified one residential facility located in a large metropolitan area in the Southwestern United States that served people with dementia. The director of the facility was telephoned and provided with a brief explanation of music therapy related to rhythm activities to determine interest in the research study. Appendix A provides the telephone script. After the administrator of the residential facility expressed interest, the investigator scheduled a meeting to provide a mock session of the rhythm activity, answer questions, and to ensure that services would be provided at no cost. A copy of the Human Subjects Committee approval notice [See Appendix B] from the researcher's degree granting institution and copies of the activity leaders [See Appendix C] and the residents' informed consent documents [See Appendix D] were presented at the same time. The director of the facility signed a written statement [See Appendix E] to allow the investigator to conduct research with the facilities residents' that met appropriate criteria.

Participants

The activity leader ($N = 1$) read and signed a consent form and completed an intake questionnaire [See Appendix F] to determine eligibility to participate in this study. A brief questionnaire was provided to determine the activity leaders' music knowledge and background. Little to no music knowledge or background was defined as a person who did not study, participate, or perform music as a means to entertain or educate others. After a review of the questionnaire the investigator determined the activity leader's eligibility using the following inclusion criteria: Employment at a residential care facility as a director of activities for

residents; little to no prior music training; ability to speak, write, and understand English; and willingness to sign the informed consent. Music knowledge or background of the activity leader was intentionally limited so that the person that participated in this study held similar backgrounds to those persons who generally hold activity leader positions across the country. Once criteria were met the activity leader was asked to solicit participation from residents and their guardians or Power of Attorney (POA). No additional exclusion criterion was used to determine ineligibility for this study.

A total of eight residential participants with a diagnosis of late stage Alzheimer's-type dementia ($N = 8$), three males and five females took part in this study over a two-week period. The families of all eight residential participants read and signed a consent form before their ward was allowed to participate. Residents were randomly selected to participate in the training sessions ($n = 4$) or experimental sessions ($n = 4$) based on personal availability (e.g. residents had pre-scheduled doctors appointments and family visits). Formal data collection was not conducted with those residents that participated in the training sessions. These residents were asked to participate so that the investigator could teach the activity leader how to implement a rhythm activity to persons similar to those who participated in the experimental sessions. The collection of data occurred with only those in phase two, the experimental group.

In order to participate in this study, all residential participants were required to meet the following inclusion criteria: reside in a facility that provides care for residents with dementia; have a diagnosis of late stage Alzheimer's-type dementia; demonstrate functional skills to speak and understand English; ambulate; tolerate being in an environment where activities are held; and require written consent to participate from their legal guardians or POA. Activity leaders described the study to potential participants and their guardians to determine interest. For all

those interested, the activity leader provided the informed consent and collected it later.

Materials

The following materials were required in order to successfully implement the study: (a) an activity room large enough for four residents to be seated in a semi-circle with the activity leader in front of them, (b) a chair for each resident, the trained observer, and the investigator, (c) two egg shakers, one mallet, and one paddle drum for each participant and the leader, (d) a rolling stool for the activity leader to have seated mobility.

Procedures

Rhythm activities designed for this study were developed to facilitate engagement in persons diagnosed with late-stage Alzheimer's disease and who reside in an assisted residential care facility. The series of activities were simple so that activity leaders who had little to no previous music training could implement the rhythm activity. It was designed to increase residents' engagement in a group activity that is structured through rhythm. A board-certified music therapist who was the investigator for this study trained the activity leader.

Implementation of this study was provided in two phases.

Design

Phase one (Activity leader training sessions) Week one.

During phase one, the activity leader participated in three separate 60-minute training sessions with the investigator and the four training participants. Day 1: The investigator presented written materials that detailed the rhythm activity [See Appendix G], the 'Room Set-Up' [See Appendix H] and ended the session by modeling the rhythm activity. Appendix I outlines the details of the first training session. The first 10-minutes were used to discuss 'Room Set-Up' and arrange the chairs in a semi-circle with approximately one foot between chairs. The

leader's rolling stool was placed at the front and center opening of the semi-circle, facing towards the residents' chairs, so that the activity leader and residents were face to face.

Furthermore, time was allotted to teach the activity leader about the rhythm instruments (e.g. egg shakers, paddle drums, and mallets) and she was instructed how to play and pass out instruments.

Finally, the investigator described the series of activities that comprised the rhythm activity.

Approximately 30-minutes after the training started the investigator invited the four residential training participants into the session using the assent form located in Appendix J. A facility staff member escorted all training participants. The staff member that escorted residents was given instructions about where to seat residents; however, this person did not receive training, because she exited the area once the residents were in the room. Once residents were seated accordingly, the investigator provided a demonstration of the rhythm activity with the training residents, while the activity leader observed. After this session, a facility staff member escorted the participants to their next scheduled activity. The investigator stayed with the activity leader during the remaining 10-minutes to answer questions and to provide additional demonstrations, as needed.

Day 2: During the second, 60-minute training session the investigator instructed the activity leader to refer to the 'Room Set-Up' page in the packet and to arrange the room accordingly. Appendix K outlines the details for the second training session. Once the room was set, the investigator demonstrated steps of the rhythm activity and the activity leader imitated the process without residential participants present. Approximately 30-minutes after the training session started, the investigator invited the four residential training participants into the session, escorted by a facility staff member. The investigator and activity leader co-lead the rhythm activity. After the training session, a facility staff member escorted the residential participants to

their next scheduled activity. The investigator stayed with the activity leader during the last 10-minutes to answer questions and to provide additional demonstrations as needed.

Day 3: During the final 60-minute training session the investigator observed the activity leader independently set up the room. The activity leader demonstrated each step of the rhythm activity while the investigator acted as a participant for the first 30 minutes of the session.

Appendix L outlines the details of the third one-hour training session. The investigator offered suggestions and demonstrated techniques as needed. Approximately 30-minutes after the training session started the activity leader invited the four residential training participants into the session, escorted by a facility staff member, and implemented the rhythm activity. The investigator acted only as an observer and provided additional prompts; such as play louder and be consistent with the tempo of the beat. During this session the residents showed lots of difficulties attending to a 20-minute activity resulting in the investigator making an immediate change from 20-minutes to 12-minutes. It was important that the length of each session be consistent so that the collection of data was consistent when the experimental sessions started. After the training session, a facility staff member escorted residential participants to their next scheduled activity. The investigator stayed with the activity leader to answer questions and confirm the schedule for the following week.

Non-Music Activity, Bingo

The day prior to the start of phase 2 the activity leader ($N = 1$) provided a 12-minute non-music activity, Bingo, to four experimental participants ($n = 4$) to establish typical levels of engagement and determine inter-observer reliability. The types of observed behaviors collected during the non-music activity, Bingo included: (a) participates to task, (b) follows instructions, (c) verbally responds with words/phrases related to Bingo, and (d) looks in the general direction

of the activity leader or the Bingo card. See Appendix M for the data collection form used to record responses during the Bingo activity. These types of responses collected were consistent with the types of responses collected during the rhythm activity.

The non-music activity, Bingo was implemented at the same time of day as each of the rhythm activities. During the 12-minute Bingo activity, a trained observer and the investigator collected responses using a time-sampling approach, for each experimental participant. A time-sampling approach was used to accurately record behaviors that might indicate if engagement was present. Engagement can be defined as the act of being occupied or involved with an external stimulus, which includes concrete objects, activities, and other persons (Cohen-Mansfield et al., 2011); for that reason, the following behaviors indicated the presence of engagement during the rhythm activity: (a) whether the resident plays an instrument and if so, (b) whether the playing is entrained with the activity leader's rhythm, (c) the use of vocalizations (in relation to rhythmic chants), and (d) presence of eye contact (with activity leader or an instrument). Any type of behavior that qualified as engagement was collected and recorded as presence of engagement, meaning more than one type of behavior could occur within the same time interval. The time-sampling approach used 10-second 'observe' intervals and 5-second 'record' intervals.

During the Bingo activity the observer and investigator collected engagement behaviors for each of the experimental participants. The duration of the Bingo activity was 12-minutes. Within each 12-minute activity there were 48 observe time intervals, with observe intervals 10 seconds in length followed by record intervals of 5 seconds. Within each 10-second observe interval each participant could potentially engage in four types of engagement behaviors. For each 10-second observe interval, the observer noted whether or not each type was exhibited. To

indicate how prevalent each type of engagement behavior was exhibited, the researcher separately tallied the total number of intervals, 48, resulting in a percentage that provides a level of engagement for each resident on each type of behavior. These percentages for each type of engagement behavior observed were used to compare levels of engagement during the rhythm activity to the non-music, Bingo activity.

Phase two (Experimental sessions) Week two.

The day immediately following the Bingo activity, the activity leader implemented the 12-minute rhythm activity to the same four experimental participants that participated in the Bingo activity ($n = 4$). The time allotted for gathering participants, implementing the rhythm activity, and cleaning up was 20-minutes; however, the same 12-minute rhythm activity was implemented. The rhythm activity was implemented once a day at 10:30 a.m. for three days in a row. The activity leader chose the time of day, as it was a time she had a break in her regular work schedule. The Bingo activity and rhythm activities were implemented at the same time each day. At the start of each session, a facility staff member escorted experimental participants to the designated area. The four experimental participants were seated according to the predetermined 'Room Set-Up.' The rhythm activity implemented was consistent with the rhythm activity taught to the activity leader during phase one. It began with *Egg Shakin' Blues* [See Appendix N & Appendix G-Part 2], written by Gary Johnson, MT-BC, followed by *Paddle Drum Playing* [See Appendix G-Part 3], and ended with *Call and Response Drumming* [See Appendix O & Appendix G-Part 4]. Following each experimental session, a facility staff member escorted these participants to their next scheduled activity. Immediately after the rhythm activity, the investigator stayed to confirm time and date of next session.

The investigator was present during each experimental session to monitor the activity leader. The investigator only collected data at the non-musical activity, Bingo, so that it could be used with the results from the trained observer to determine reliability. Results from each session and for each resident were analyzed to determine if residents engaged in a rhythm activity when implemented by an activity leader. Although the investigator was present at each experimental session no additional instructions, prompting, or feedback was provided until data collection was complete to control for the amount of instruction provided to the activity leader upon completion of phase one.

During each of the three 12-minute rhythm activities, a trained observer collected responses using a time-sampling approach. The time-sampling approach is consistent with the same approach used to collect engagement responses during the Bingo activity. For each participant, the number of time intervals (48) from each rhythm activity was added together ($48 + 48 + 48$) to equal 144 for each type of engagement observed. The total 'yes' responses for each type of engagement (4) observed was added together and divided by 144. This number provided an average for the three combined experimental sessions. It resulted in a percentage that provided levels of engagement for each resident. The types of engagement responses observed were reported separately as percentages and compared to the levels of engagement from the Bingo activity. A trained observer collected observations and was the data used for the analysis portion of this study.

<p>PHASE 1</p> <p>Week # 1</p> <p>Training Participants</p> <p>(<i>n</i> = 4)</p>	<p>Bingo Activity</p> <p>(Day prior to the start of phase 2)</p> <p>Experimental Participants</p> <p>(<i>n</i> = 4)</p>	<p>PHASE 2</p> <p>Week # 2</p> <p>Experimental Participants</p> <p>(<i>n</i> = 4)</p>
Training Session #1 = 60 min.	Data Collection- 1 time; 12 minutes.	Experimental Session #1 = 20 min.
Training Session #2 = 60 min.		Experimental Session #2 = 20 min.
Training Session #3 = 60 min.		Experimental Session #3 = 20 min.

Table 1: Timeline Outline

Data Collection

An individual who was an acquaintance of the investigator, but not a board certified music therapist was asked to volunteer as an observer for the data collection portion of this study. The Human Subjects Committee from the researcher's degree granting institution required signed consent from the volunteer. These forms were provided through the researcher's degree granting institution. Prior to the start of the study the observer and investigator met to discuss the data collection process and forms. During phase one, the observer attended each of the three training sessions. The observer was seated in the same room with the residential participants, the activity leader, and the investigator. To minimize distractions the observer was seated in the corner of the room at a table and used headphones. The headphones allowed the use of an audio prompting device that was inaudible to those in the room. The observer practiced 'observing' resident's responses for 10 seconds and then 'recording' the responses for 5 seconds. At the final training session the investigator met with the trained observer to answer questions and confirm the time of the next session.

Observer Reliability.

To avoid experimenter bias and to assure accurate data collection, the observations of the trained observer and investigator were tested for reliability. Reliability was tested only for the

Bingo activity. During the Bingo activity, each experimental participant ($n = 4$) was observed for a total of 12 minutes by the investigator and the trained observer. An audio prompting device paired with a headphone splitter was used. This provided the necessary accommodations for the investigator and the trained observer to observe and record at the same time intervals. The lengths of each observe interval was 10 seconds and the length of each record interval was 5 seconds. The audio prompting device provided an observe prompt and then a record prompt. At the conclusion of the Bingo activity, one of the four participants data collection forms were selected at random, by the trained observer, to use for reliability testing. The same participant was pulled from the investigators data collection forms and used to test reliability between the observer and the investigator. The formula used to test reliability is as follows: $\# \text{ of agreements} / (\# \text{ of agreements} + \# \text{ of disagreements})$. Criterion for reliability testing was set at .80, which is consistent with research in the field of music therapy.

Data Analysis

The data analysis for engagement in the Bingo activity and the rhythm activity were conducted in the same manner. The only difference is that the collection of data only occurred one time during the Bingo activity, whereas the collection of data for the rhythm activity occurred during three separate 12-minute rhythm activities. This approach of data collection for the rhythm activity was conducted to ensure that the results obtained were consistent.

CHAPTER 4

Results

Reliability Testing

Reliability testing was calculated for one participant from observations collected during the Bingo activity. The measure of reliability testing between the trained observer and the investigator revealed a high level of agreement 97.9 % to 100%. A score of 100 percent for follows instructions, verbalizes in relation to Bingo, looks in the general direction of the activity leader or the Bingo card, and 97.9 percent agreement for participates to task. The percentage value exceeds the criterion set for this study and it was therefore, accepted for the reliability testing. These outcomes indicate that the criteria set for the data collection was very clear, and that the observed behaviors and data collection procedure was highly reliable between observers.

Results

The investigator reported the results of the four residential participants as case studies. Findings reported the averages of exhibited engagement behaviors calculated at each of the three experimental sessions. The results were reported per resident, and the data was used to compare the percentages of engagement levels from the rhythm activity to the Bingo activity.

Resident A

On the first day of implementation of the rhythm activity, Resident A, yielded the following percentage for each type of engagement: plays instrument according to function, 70%; plays instrument and entrains to the beat, 54%; vocalizes in relation to rhythmic chant, 2%; and presence of eye contact (with the activity leader or instrument), 54%. At the start of day one, the resident appeared to be upset, as she was asleep prior to activity starting. She engaged in the *Egg Shakin' Blues* and entrained to the beat, but her verbalizations indicated she was not happy about

participating in the rhythm activity. Although she indicated displeasure she did not try to leave. Additionally, on the second day of the rhythm activity, Resident A yielded the following percentages for each type of engagement, respectively: 95%, 91%, 2%, and 93%. During this session the resident smiled at others and followed verbal directions. At the third and final rhythm activity, Resident A, yielded the following percentages: 95%, 39%, 25%, and 89%. The resident participated throughout the activity with lots of smiles; however, she had some difficulties with holding the egg shakers and entraining to the beat that in the previous day she did with ease.

Resident A's exhibited engagement behaviors for each of the three experimental sessions were added together and averaged. The averaged percentages from each type of engagement observed during the rhythm activity were compared to the averaged percentages of engagement observed during the Bingo activity. Resident A, yielded the following averaged percentages for the rhythm activity: 88%, 62%, 10%, and 79%; the following average percentages for the Bingo activity were as follows: 8%, 0%, 0%, and 77%. These findings show that engagement levels increased in the rhythm activity when compared to the levels of engagement during a Bingo activity.

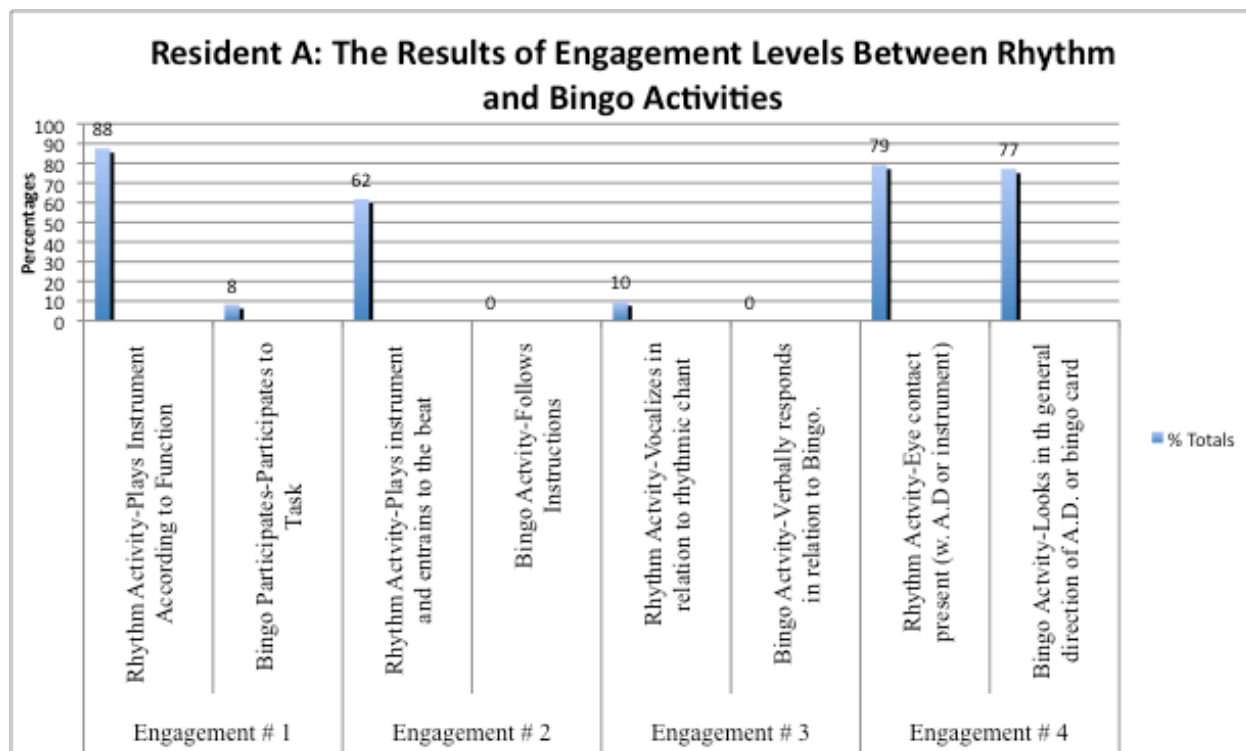


Figure 1: Resident A: Comparison of Engagement Levels Between Rhythm and Bingo Activities.

Resident B

On the first day of implementation of the rhythm activity, Resident B, yielded the following percentage for each type of engagement: plays instrument according to function, 0%; plays instrument and entrains to the beat, 0%; vocalizes in relation to rhythmic chant, 0%; and presence of eye contact (with the activity leader or instrument), 0%. At the start of day one, the resident ambulated with assistance to the music area. Upon entering the area he appeared to be very upset. He sat down, but refused to participate. When presented with instruments he appropriately grasped them, but did not play instruments accordingly. He seemed to look in the general direction of the activity leader, but seemed to be looking past her. Towards the end of the rhythm activity he started talking to someone that was clearly not in the room. Additionally, at the second rhythm activity Resident B yielded the following percentages for each type of engagement, respectively: 4%, 4%, 0%, and 6.25%. During this session the resident

appropriately grasped egg shakers, but immediately placed them into his pants. He refused to remove the egg shakers even through verbal prompting. He engaged in off topic talking. When the drums were presented he seemed interested in playing as he hit the drum, but immediately stopped playing. He remained seated for the remainder of the activity, but seemed to stare into the distance. At the third and final rhythm activity, Resident B, yielded the following percentages: 60%, 6.25%, 0%, and 54%. The resident arrived to the room in a positive mood as indicated by his smile. He participated in *Egg Shakin' Blues* and paddle drumming, but required lots of verbal prompting to play the drum. Toward the end of the session he stopped playing the drum and placed it in his lap. He remained seated for the remainder of the activity.

Resident B's exhibited engagement behaviors for each of the three experimental sessions were added together and averaged. The averaged percentages from each type of engagement observed during the rhythm activity were compared to the averaged percentages of engagement observed during the Bingo activity. Resident B yielded the following averaged percentages for the rhythm activity: 21%, 3.5%, 0%, and 20%; the following average percentages for the Bingo activity was 0% engagement across all engagement levels. These findings show that engagement levels increased in three out of the four types of engagement behaviors observed. Resident B had no change when areas related to vocalizations between the rhythm and Bingo activities. These findings suggest that the activity leader could engage Resident B in areas related to playing an instrument, entraining to the beat, and eye contact; however, engagement to vocalizations remained unaffected.

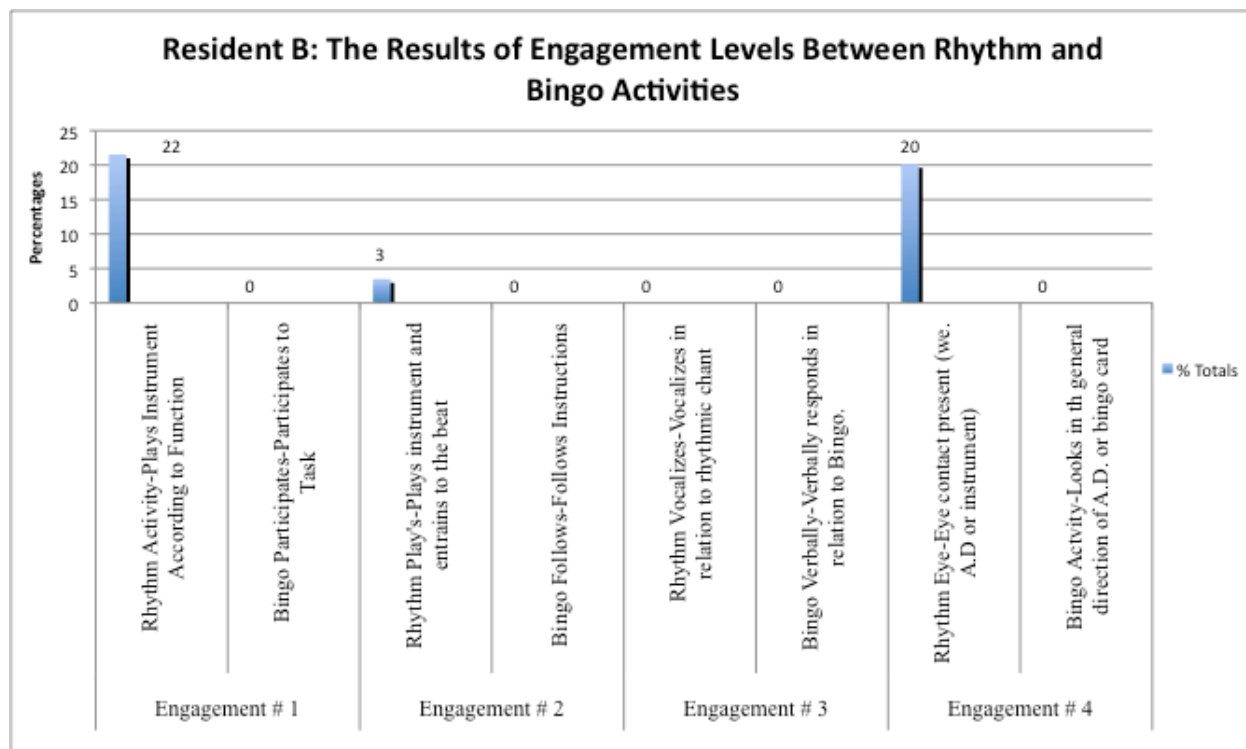


Figure 2: Resident B: The Results of Engagement Levels Between Rhythm and Bingo Activities.

Resident C

On the first day of implementation of the rhythm activity, Resident C, yielded the following percentage for each type of engagement: plays instrument according to function, 95%; plays instrument and entrains to the beat, 93%; vocalizes in relation to rhythmic chant, 2%; and the presence of eye contact (with the activity leader or instrument), 85%. At the start of day one, the resident appeared to be in a good mood as evidenced by her smiles. She participated throughout the entire session, but had some difficulties with eye contact. She alternated looking at the activity leader and the floor. Additionally, at the second rhythm activity Resident C yielded the following percentages for each type of engagement, respectively: 50%, 50%, 4%, and 50%. During this session she appropriately participated. She seemed happy as evidenced by the constant smiles; however, approximately eight minutes into the session she closed her eyes and placed the drum on her lap. She remained seated, but seemed to alternate between closing her

eyes and gazing into the distance. At the third and final rhythm activity, Resident C, yielded the following percentages: 93%, 93%, 4%, and 75%. She participated with higher levels of response than compared to the previous day. She seemed distracted as evidenced by her looking away from the activity to another area of the room.

The averaged percentages from each type of engagement observed during the rhythm activity were compared to the averaged percentages of engagement observed during the Bingo activity. Resident C, yielded the following averaged percentages for the rhythm activity: 80%, 79%, 3%, and 70%; the following average percentages for the Bingo activity were as follows: 0%, 4%, 0%, and 10%. These findings show that engagement levels increased in the rhythm activity when compared to the levels of engagement during a Bingo activity.

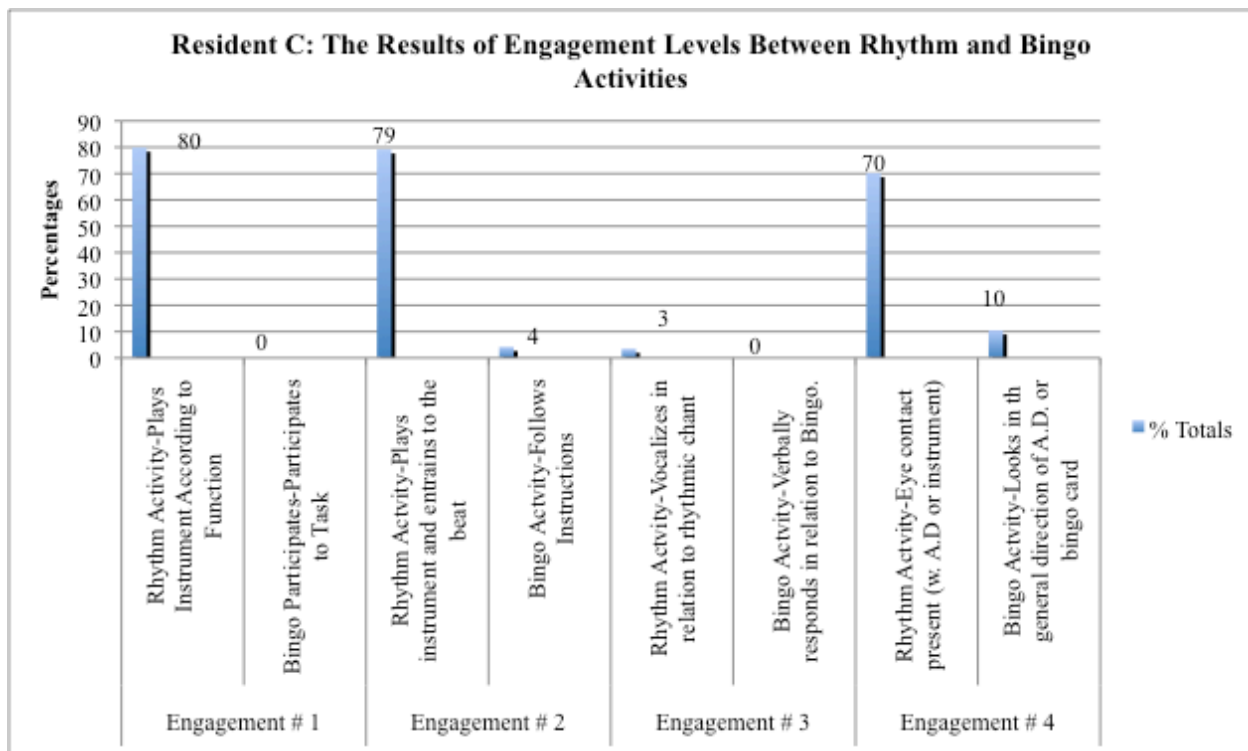


Figure 3: Resident C: The Results of Engagement Levels Between Rhythm and Bingo Activities.

Resident D

On the first day of implementation of the rhythm activity, Resident D, yielded the following percentage for each type of engagement: plays instrument according to function, 23%; plays instrument and entrains to the beat, 23%; vocalizes in relation to rhythmic chant, 0%; and presence of eye contact (with the activity leader or instrument), 50%. At the start of day one, the resident appeared to be uninterested in the rhythm activity. She required lots of verbal prompting to hold egg shakers as well as to shake them. She needed hand over hand assistance to hold the mallet and paddle drum. She eventually sat the drum on her lap and looked in the general direction of the activity leader. She was prompted to pick the drum up, but she refused and remained seated until the end of the activity. Additionally, at the second rhythm activity Resident D yielded the following percentages for each type of engagement, respectively: 40%, 42%, 2%, and 94%. During this session she participated throughout the egg shaker experience and looked in the general direction of the activity leader. When the drum was presented, Resident D grabbed it, but eventually placed it on her lap and refused to participate. At the third and final rhythm activity, Resident D, yielded the following percentages: 48%, 42%, 4%, and 85%. At the start of the session she mentioned that the sound hurt her ears. She seemed uninterested in playing egg shakers, as indicated by her placing the shakers in her lap. However, she spoke the words associated with the *Egg Shakin' Blues* chant. When the drum was presented, she grasped it and immediately started playing. She continued playing through the remainder of the session.

The averaged percentages from each type of engagement observed during the rhythm activity were compared to the averaged percentages of engagement observed during the Bingo activity. Resident D, yielded the following averaged percentages for the rhythm activity: 37%, 35%, 15%, and 76%; the following average percentages for the Bingo activity were as follows:

6%, 13%, 0%, and 0%. These findings show that engagement levels increased in the rhythm activity when compared to the levels of engagement during a Bingo activity.

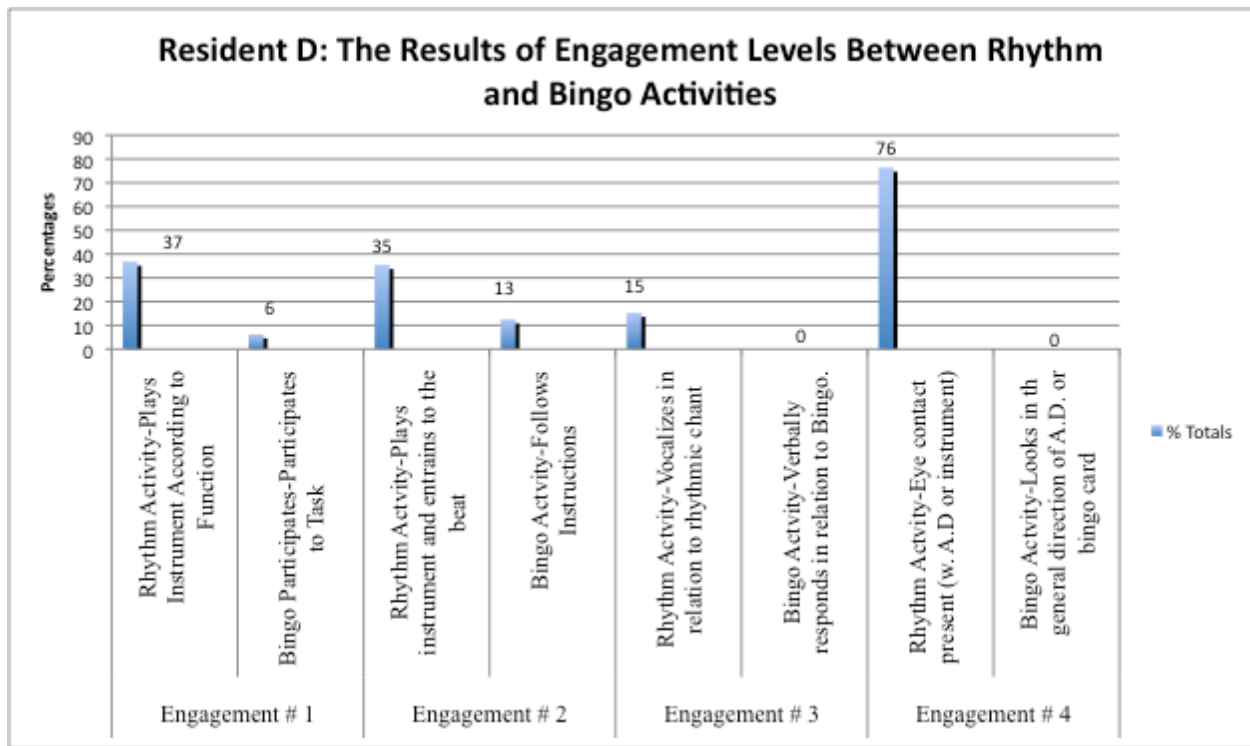


Figure 4: Resident D: The Results of Engagement Levels Between Rhythm and Bingo Activities.

CHAPTER 5

Discussion

The purpose of this study was to determine if an activity leader with little to no formal music background could engage individuals with late stage Alzheimer's-type dementia in rhythm activities following training by a board-certified music therapist. The findings presented in chapter 4 suggests that an activity leader with little to no music background is capable of engaging residents with late stage Alzheimer's-type dementia when provided training by a board-certified music therapist.

Based on the quantitative measures used, the rhythm activity showed a higher percentage of engagement behaviors when compared to the engagement levels of a common non-music activity, Bingo. The percentage of engagement levels was consistently the highest for all residential participants during the observed behavior, 'eye contact present.' Although it is not known, this engagement likely resulted because residents were motivated to watch the person who was making the rhythmic sounds occur. It is also possible that residents were interested in watching the activity leader as she was leading an activity that was different than sessions she typically implemented.

The type of engagement level that seemed to yield the lowest engagement levels were 'vocalizes in relation to rhythmic chant' and 'verbally responds in relation to Bingo.' This area of engagement was the most misleading as the residents were only given the opportunity to vocalize for the first four minutes of the rhythm activity. After the first four minutes there were no longer any opportunities to engage in vocalizations; however data continued to be collected for the remaining eight minutes of the session

Other types of engagement behaviors that may have increased levels of engagement might include tapping the mallet on ones leg instead of the drum, changes in facial affect, and interacting with others while engaging in a rhythm activity. These types of engagement would be collected more accurately if future investigators use a video recording device to examine responses.

Outcomes from this study collectively show that the levels of engagement increased from the non-music activity to the rhythm activities. However, there were some instances that residents did not show consistent increased levels of engagement across all sessions. For example, Resident B only had a 3% increase of engagement from the Bingo activity to the rhythm activity, when observing behavior, entrains to beat/follows directions. Resident C had a 75% increase of engagement for the same behavior, which illustrates that increased levels of engagement were not consistent across all sessions and between each resident. Collectively, because the results showed an increase of engagement levels this study suggests that the activity leader was able to learn and implement a rhythm activity to engage individuals with Alzheimer's-type dementia.

Limitations of this Study

A very large and profound implication to this study was soliciting participation from residential facilities. The investigator of this study met with approximately 35 residential facilities in a metropolitan area of the Southeastern part of the United States to solicit participation. During these visits the investigator met with the residential director and/or the activity director to provide a brief description of music therapy, requirements to participate, a mock session of the rhythm activity, and to ensure the service be provided at no cost. In most instances each facility seemed interested in the study as indicated by verbal responses, facial

affect, and questions asked. On several occasions residential directors' as well as activity directors' would agree to participate. If the directors agreed to participate in the study then the investigator provided consent forms for all participants. As expected, the facility required a certain amount of time to read through the consent forms to determine if it was in their best interest. The investigator provided approximately one for an interested facility to determine participation. After waiting one week, the investigator called the interested facility to ask about consent forms and answer any questions. Without fail, and on many occasions the facilities indicated they were no longer interested in participating in the study. When asked, "What can the investigator do to make this an experience more beneficial to you and the residents?" The following were the types of responses provided: the company will not allow you to use residents, the families of the residents are not interested, we do not want to lead the activity, not enough residents with Alzheimer's-type dementia, and lastly, the schedule has already been set for the next 6 months. Although there were many uncontrollable factors pertaining to soliciting participation, the investigator was finally able to secure a facility. The investigator met with the residential director and the activity director. At the time of presentation, the residential director shared that he was also pursuing participants for his master thesis and without any hesitation agreed to let the facility, the activity director, and its residents participate, provided all participants met inclusion criteria. Nevertheless, it is possible that this facility would have agreed to participate; however, it is very likely that the reason the residential director agreed to participate so quickly was due to the common thread that he and the investigator shared.

Secondly, the rhythm activity designed by a board certified music therapist for this study provided a viable framework for eliciting engagement in those with Alzheimer's-type dementia. However, the results of this study may have been extremely different if the activity leader would

have implemented the rhythm activity for the proposed 20-minutes instead of 12-minutes. The original 20-minute activity planned for this study was too long for the residents' as well as the activity leader. The proposed 20-minute activity was immediately changed during the last day of the training session. This occurred to ensure that the duration of each experimental session was consistent for the purposes of data collection. A number of factors could have resulted in this change, such as, the varying differences of residents' moods that day, a temperature change outside (sunny vs. cloudy), dietary changes, and many other unplanned and unexplainable issues. It is not certain, but very possible that the residents participated in the first two training sessions for 20-minutes because the music therapist was implementing the sessions, while the activity leader observed and co-lead, respectively. By changing the duration of time on the rhythm activity, it showed that while the activity leader was able to engage these residents, she was not able to engage the residents for the amount of time originally proposed.

Additionally, the time commitment required by participating staff and residents should be an area to reduce. The current study required a two-week time commitment, and seemed to take a lot of time out of the activity leaders' everyday job requirements. The activity leader was not only responsible for attending the training and experimental sessions, but for soliciting participation from family members, providing additional information about the rhythm activity, and collecting consent forms. The investigator provided personal contact information to the activity leader to make available to family members of interested participants; however, the facility would not give the investigator the residents' personal information, as it interfered with HIPPA laws. Therefore, if the family members had additional questions about the study, the activity leader had to be involved, once again requiring more time.

To reduce the time commitment required for this study, it might be more beneficial to provide the activity leader with a video replicating the implementation of the rhythm activity. This would provide him or her opportunities to watch the rhythm activity being implemented, as many times as needed, to learn the techniques. Then, before the activity leader could implement the rhythm activity with the residents, a board-certified music therapist could attend one or two practice sessions to observe and assist the activity leader with implementation techniques.

The results of this study provide a framework to indicate the following, (a) Activity leaders are able to learn a rhythm activity, however, results will differ when compared to a trained and educated MT-BC, (b) residents are likely to engage in rhythm activities when led by an activity leader, and (c) MT-BC's are valuable to increasing quality of care/quality of life to those residing in assisted care facilities.

Suggestions for Future Research

The data analysis clearly showed a higher percentage of engagement behaviors observed in the rhythm activity than in the non-music activity. From the investigators' viewpoint, one reason this may have happened can be supported by previous literature related to auditory processing systems in the brain. Thaut, 2008 stated that rhythm is an organization of time. From that statement alone one can infer that the rhythm activity clearly provided structured organization that the Bingo activity was unable to provide. The rhythm provided structured opportunities for participants to respond, which provided further opportunities to predict and anticipate what was going to come next. When the participants were seated in the Bingo activity it seemed to lack structure. The activity leader had to provide lots of verbal prompting to follow simple tasks, such as, pick up a marker and place it on the card, or prompts to keep eyes open. There was one participant that tried leaving the room on several different occasions. Eventually

another staff member had to stand beside him to keep him from leaving; however, the participant never joined in the game. The Bingo activity became this vicious cycle of prompting, giving directions, and trying to keep one person awake. The participants were not motivated to play Bingo, nor did the activity seem to have any context to what or how the person was feeling. The stress of leading the Bingo activity seemed to leave the activity leader feeling frustrated and the participants angry or not awake.

In order to facilitate higher levels of engagement in the Bingo activity it would be beneficial for the activity leader to sing or chant out the numbers. This may help to engage those residents who are having a hard time hearing and possibly cut down on the distractions related to repeating numbers. If the activity leader could sing the answers to a familiar melody then it could result in socially appropriate forms of interactions between residents, which helps to meet needs associated with life quality.

During the rhythm activity, the activity leader was able to meet the participants at a level that matched his or her arousal and slowly increase the arousal with time. At the start of the rhythm activity participants would sit down and immediately close their eyes, but within moments after receiving an egg shaker participants were alert, eyes open, playing an instrument, and participating in a group activity. The rhythm activity provided a feeling of group cohesiveness even though words were not being exchanged between the participants.

This study demonstrated that a small sample of persons with late stages of Alzheimer's-type dementia engaged in a rhythm activity when implemented by an activity leader. While the population sample size for the experimental portion of this study was small ($N = 4$) it would be interesting to know if the same results would occur with a larger sample size, as well as with a greater number of activity leaders. To recruit a greater number of residential facilities some type

of compensation would likely increase interest and participation commitment. This type of compensation could be some type of monetary value; however, it is recommend that the compensation be a set of instruments given to the facility, so that the activity leader could continue to implement the rhythm activity to elicit engagement and meaningful interactions even after the MT-BC is no longer available.

Conclusion

This study aimed to show that activity leaders with little to no music background could learn a rhythm activity to be used to engage persons with late stage Alzheimer's-type dementia. This study does not suggest that an activity leader should replace the experience and expertise of a board-certified music therapist. It does suggest that by training activity professionals to use techniques associated with music therapy, he or she is more likely to help residents engage in a rhythm activity. This provides more opportunities for the MT-BC to be available to those residents that require the specialized skills, training, and education of an MT-BC.

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APPENDIX A
PHONE SCRIPT

APPENDIX A
Phone Script

Hello, this is _____ (state your name) may I please speak to _____
(name of administrator).

Hello, Dr./Mrs./Mr. _____. My name is _____ (insert your name), I am a board-certified music therapist. I am interested in speaking with you about the benefits of music therapy and how it can be used with residents with mid-to-late stages of dementia at your facility. I would like to meet with you to discuss a music therapy study that I have designed to provide additional support to activity directors that work with residents, who are difficult to engage, so that meaningful activities can continue to be provided even late into the disease process. This study will be provided at no cost to you or the facility.

I would be willing to discuss it in further detail or provide you with a sample session in the future to show the positive effects music provides. When will be the best time to meet with you to discuss the music opportunities?

Date: _____ Time: _____

If the recipient says, "no" state the following:

Thank you for your time. Can I leave my contact information with you so that if you have questions, concerns, or want to think about it you can contact me?

If the recipient says, "yes" provide the following information:

Name, Phone Number, and email address

If the recipient says, "no" state the following:

Thank you again for your time. Have a nice day!

APPENDIX B

HUMAN SUBJECT COMMITTEE'S APPROVAL NOTICE



6/7/2013
HSCL #20717

Sarah Coury
2803 Riverside Parkway, #5001
Grand Prairie, TX 75050

The Human Subjects Committee Lawrence has received your response to its full IRB review of your research project,

20717 Coury/Clair (MUSIC) Activity Leader Facilitation of Rhythm Activities to Engage Persons with Late Stage Alzheimer's Type Dementia: A Feasibility Study

and found that it complied with policies established by the University for protection of human subjects in research. The subjects will be at minimal risk. Unless renewed, approval lapses one year after approval date.

The Office for Human Research Protections requires that your consent form must include the note of HSCL approval and expiration date, which has been entered on the consent form sent back to you with this approval.

1. At designated intervals until the project is completed, a Project Status Report must be returned to the HSCL office.
2. Any significant change in the experimental procedure as described should be reviewed by this Committee prior to altering the project.
3. Notify HSCL about any new investigators not named in original application. Note that new investigators must take the online tutorial at https://rps.drupal.ku.edu/human_subjects_compliance_training.
4. Any injury to a subject because of the research procedure must be reported to the Committee immediately.
5. When signed consent documents are required, the primary investigator must retain the signed consent documents for at least three years past completion of the research activity. If you use a signed consent form, provide a copy of the consent form to subjects at the time of consent.
6. If this is a funded project, keep a copy of this approval letter with your proposal/grant file.

Please inform HSCL when this project is terminated. You must also provide HSCL with an annual status report to maintain HSCL approval. Unless renewed, approval lapses one year after approval date. If your project receives funding which requests an annual update approval, you must request this from HSCL one month prior to the annual update. Thanks for your cooperation. If you have any questions, please contact me.

Sincerely,

A handwritten signature in cursive script, appearing to read 'Christopher Griffith'.

Christopher Griffith, J.D.
Assistant Coordinator
Human Subjects Committee - Lawrence

cc: Alicia Ann Clair

APPENDIX C

ACTIVITY LEADERS' INFORMED CONSENT DOCUMENT

APPENDIX C

Activity Leader Informed Consent

Activity Leader Facilitation of Rhythm Activities to Engage Persons with Late Stage Alzheimer's-Type Dementia: A Feasibility Study

INTRODUCTION

The School of Music at the University of Kansas supports the practice of protection for human subjects participating in research. The following information is provided for you to decide whether you wish to participate in the present study. You may refuse to sign this form and not participate in this study. You should be aware that even if you agree to participate, you are free to withdraw at any time. If you do withdraw from this study, it will not affect your relationship with this unit, the services it may provide to you, or the University of Kansas.

PURPOSE OF THE STUDY

The purpose of this study is to determine if activity leaders with little to no formal music training can successfully engage persons who have Alzheimer's-type dementia in rhythm activities following training by a board-certified music therapist. You are being asked to participate to learn rhythm activities to use with residents at your facility to encourage engagement and provide additional enjoyment for persons with dementia.

PROCEDURES

A professional music therapist will provide training to you (the activity leader) to use for residents with dementia that reside in an assisted care facility. You will be asked to answer a brief 8-question survey to determine eligibility. If eligible you will be asked to complete a short online course that consists of nine-modules that will train you to help as a researcher in this project. At the end of each module is a 5 multiple questions about the information you read regarding human subject research. After you have completed the online course you will be asked to identify residents that may be interested in participating in this study. Once you, your residents', and their guardians have signed the informed consent the study will begin. You will participate in three 60-80 minute training sessions provided by a board certified music therapist. During week one, training session one, you will learn how to play instruments, setting up the room, and observe rhythm activities lead by the investigator to a group of 4 adults with late stage Alzheimer's disease. During week one, training session two, you will help set up the room, help place instruments, and co-lead rhythm activities with the investigator to a group of 4 adults with late stage Alzheimer's disease. During week one, training session three, you will be supervised while setting up the room in regards to chair and instrument placement, and be supervised while you lead rhythm activities with one group of 4 adults with late stage Alzheimer's disease. During week two, training session one, two, and three you will act as sole leader of a 20-minute rhythm activity to a group of 4 resident's who are different than the resident that participated during week one. The investigator and investigators' assistant will be present during week two to record reactions of participants, which will provide the outcomes for this project.

BENEFITS

The benefits of this research is better programming for those who have dementia and are no longer capable of participating in traditional activities in the residential care facility. The benefit you receive is helping to improve levels of engagement in residents with dementia, using music to encourage

engagement, and increasing awareness about music therapy. Participating in this study should cause no more discomfort than you would experience in your everyday life.

PARTICIPANT CONFIDENTIALITY

Your name will not be associated in any way with the research findings. If you would like additional information concerning this study before or after its completed, please feel free to contact us by phone or email.

Permission granted on this date to use and disclose your information remains in effect indefinitely. By signing this form you give permission for the use and disclosure of your information for purposes of this study at any time in the future.

REFUSAL TO SIGN CONSENT AND AUTHORIZATION

You are not required to sign this Consent and Authorization form and you may refuse to do so without affecting your right to any services you are receiving or may receive from the University of Kansas or to participate in any programs or events of the University of Kansas. However, if you refuse to sign, you cannot participate in this study.

CANCELLING THIS CONSENT AND AUTHORIZATION

You may withdraw your consent to participate in this study at any time. You also have the right to cancel your permission to use and disclose further information collected about you, in writing, at any time, by sending your written request to: *Sarah Coury, 2803 Riverside Parkway, #5001, Grand Prairie, TX, 75050*

If you cancel permission to use your information, the researchers will stop collecting additional information about you. However, the research team may use and disclose information that was gathered before they received your cancellation, as described above.

If you have any questions about your rights as a research participant you may contact the Human Subjects Committee Lawrence Campus (HSCL) office at (785) 864-7429 or (785) 864-7385, write the Human Subjects Committee Lawrence Campus (HSCL), University of Kansas, 2385 Irving Hill Road, Lawrence, Kansas 66045-7568, or email irb@ku.edu.

KEEP THIS SECTION FOR YOUR RECORDS. IF YOU WISH TO PARTICIPATE TEAR OFF THE FOLLOWING SECTION AND RETURN IT TO THE RESEARCHER (S)

Activity Leader Facilitation of Rhythm activities to Engage Persons with Late Stage Alzheimer's-Type Dementia: A Feasibility Study

HSCL # _____20717_____ (Provided by HSCL office)

PARTICIPANT CERTIFICATION:

I have read this Consent and Authorization form. I have had the opportunity to ask, and I have received answers to, any questions I had regarding the study. I understand that if I have any additional questions about my rights as a research participant, I may call (785) 864-7429 or (785) 864-7385, write the Human Subjects Committee Lawrence Campus (HSCL), University of Kansas, 2385 Irving Hill Road, Lawrence, Kansas 66045-7568, or email irb@ku.edu.

I agree to take part in this study as an activity leader participant. By my signature I affirm that I am at least 18 years old and that I have received a copy of this Consent and Authorization form.

[Please check the box below:]

- I agree to take part in this study as an activity leader participant. I understand that no identifying information will be used in the publication of this study.

Type/Print Participant's Name	Date
Participant's Signature	

QUESTIONS ABOUT PARTICIPATION should be directed to:

Sarah Coury
Principal Investigator
School of Music
448 Murphy Hall
University of Kansas
Lawrence, KS 66045
(785)764-5492
scoury25@gmail.com

A.A. Clair, Ph.D
Faculty Supervisor
School of music
448 Murphy Hall
University of Kansas
Lawrence, KS 66045
(785) 864-4784
aclair@ku.edu

APPENDIX D

RESIDENTIAL PARTICIPANTS' INFORMED CONSENT DOCUMENT

APPENDIX D
Guardian/Power of Attorney Informed Consent

Activity Leader Facilitation of Rhythm Activities to Engage Persons with Late Stage
Alzheimer's-Type Dementia: A Feasibility Study

INTRODUCTION

The School of Music at the University of Kansas supports the practice of protection for human subjects participating in research. The following information is provided for you to decide whether you wish your ward to participate in the present study. You may refuse to sign this form and not allow your ward to participate in this study. You should be aware that even if you agree to allow your ward to participate, you are free to withdraw at any time. If you do withdraw your ward from this study, it will not affect your relationship with this unit, the services it may provide to you, or the University of Kansas.

PURPOSE OF THE STUDY

The purpose of this study is to determine if activity leaders with little to no formal music training can successfully engage persons who have Alzheimer's-type dementia in rhythm activities following training by a board-certified music therapist. Your ward is asked to participate in a group with the activity leader to help his/her learning and to also experience rhythm activities that are enjoyable for persons with dementia.

PROCEDURES

A professional music therapist will train the activity leaders for your ward to do rhythm activities. Your ward may be assigned to a group of persons who will either participate in the 1) three 30-minute training sessions led by the music therapist and your activity leader or 2) three 20-minute rhythm sessions which will serve as the activity leader's competency test. The activity leader will conduct a bingo activity the day before 20-minute rhythm sessions begin. The investigator and the investigators' assistant will be present during week two to record reactions of participants, which will provide the outcomes for this project.

RISKS

By participating in rhythm activities your ward should experience no more discomfort than he/she would experience in his/her everyday life. Although participation may not benefit you directly, we believe that the information obtained from this study will help develop better programming for people diagnosed with Alzheimer's type dementia. Your wards' participation is solicited, although strictly voluntary.

BENEFITS

The benefit of this research is better programming for those who have dementia and are no longer capable of participating in traditional activities in the residential care facility. The benefit

for your ward is the opportunity to participate successfully with other residents in rhythm activities that are appealing to persons with dementia.

PAYMENT TO PARTICIPANTS

Your ward will not be paid for participating in this study.

PARTICIPANT CONFIDENTIALITY

Your ward's name will not be associated in any publication or presentation with the information collected about your ward or with the research findings of this study. Instead, the researcher will use a study number or a pseudonym rather than your ward's name. Your ward's identifiable information will not be shared unless (a) it is required by law or university policy, or (b) you give written permission.

Permission granted on this date to use and disclose your ward's information remains in effect indefinitely. By signing this form you give permission for the use and disclosure of your ward's information, excluding your ward's name, for the purposes of this study at any time in the future.

REFUSAL TO SIGN CONSENT AND AUTHORIZATION

You are not required to sign this Consent and Authorization form and you may refuse to do so without affecting your right to any services you are receiving or may receive from the University of Kansas or to participate in any programs or events of the University of Kansas. However, if you refuse to sign, your ward cannot participate in this study.

CANCELLING THIS CONSENT AND AUTHORIZATION

You may withdraw your consent to participate in this study at any time. You also have the right to cancel your permission to use and disclose further information collected about your ward, in writing, at any time, by sending your written request to: *Sarah Coury, MT-BC, 2803 Riverside Parkway #5001, Grand Prairie, TX 75050*

If you cancel permission to use your ward's information, the researchers will stop collecting additional information about your ward. However, the research team may use and disclose information that was gathered before they received your cancellation, as described above.

QUESTIONS ABOUT PARTICIPATION

Questions about procedures should be directed to the researcher(s) listed at the end of this consent form.

PARTICIPANT CERTIFICATION:

I have read this Consent and Authorization form. I have had the opportunity to ask, and I have received answers to, any questions I had regarding the study. I understand that if I have any

additional questions about my rights as a research participant, I may call (785) 864-7429 or (785) 864-7385, write the Human Subjects Committee Lawrence Campus (HSCL), University of Kansas, 2385 Irving Hill Road, Lawrence, Kansas 66045-7568, or email irb@ku.edu.

I agree for my ward to take part in this study as a research participant. By my signature I affirm that I am at least 18 years old and that I have received a copy of this Consent and Authorization form.

[Please check the boxe below:]

- I agree to allow my ward to take part in this study as a research participant. I understand that an observer will be present to record the reactions of my ward in reference to rhythm activities. I understand that no identifying information will be used in the publication of this study.

Type/Print Participant's Name

Date

Guardian/Power of Attorney Signature

Relationship to Participant

Researcher Contact Information:

Sarah Coury, MT-BC
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APPENDIX E
FACILITY APPROVAL FORM

APPENDIX E
Facility Approval Form

I have reviewed the research study regarding Activity Leader Facilitation of Rhythm Activities to Engage Persons with Late Stage Alzheimer's-Type Dementia: A Feasibility Study, proposed by Sarah Coury, a graduate student in music therapy at the University of Kansas. In my capacity as Director/Administrator of _____ (name of facility), I am authorized to act on behalf of _____ (name of facility) in approving this study. By signing below, I confirm that I have approved the study for implementation at _____ (name of facility) with residents diagnosed with Alzheimer's disease who assent to participate in the study. I also confirm that the review of the research study by the Human Subjects Committee at the University of Kansas is sufficient for implementation of the study, and that no further internal review at _____ (name of facility) is necessary to conduct the study.

Name of director:

 Signature

 Date

 Print Name

APPENDIX F
ACTIVITY LEADER QUESTIONNAIRE

APPENDIX F
Activity Leader Questionnaire

1. Have you ever participated in a musical performance group?
 - a. Yes
 - b. No

2. In what type of music performance group did you participate?
 - a. Choir at church or other
 - b. Band
 - c. Dance
 - d. Marching Band
 - e. Please List any others: _____
 - f. Not applicable

3. If you participated in a music group when was the last time you did so?
 - a. Less than 6 months ago
 - b. 1 year ago
 - c. 1-5 years ago
 - d. 5-10 years ago

4. Do you enjoy presenting to an audience (e.g. telling jokes, giving speeches, master of ceremonies, etc)?
 - a. Yes
 - b. NoPlease indicate what type of performance: _____

5. Rate your comfort level to lead a music activity to persons with late stage dementia _____ (1=very uncomfortable 5=comfortable)

6. How long have you worked for the current facility?
 - a. < 1 year
 - b. 1-5 years
 - c. 5-10 years
 - d. 10 + years

7. How many years of experience do you have as an activity leader?
 - a. < 1 year
 - b. 1-5 years
 - c. 5-10 years
 - d. 10 + years

8. Do you have any interest using music in your activities for adults with dementia?
 - a. Yes
 - b. No
 - c. Not Sure

APPENDIX G
RHYTHM ACTIVITY

APPENDIX G

Rhythm Activity for Engagement of Persons Diagnosed with Late Stage Alzheimer's-Type Dementia: A Feasibility Study

Purpose:

A series of rhythm activities are comprised to make-up one rhythm activity. It is designed to facilitate engagement in persons who are diagnosed with late stage Alzheimer's-type dementia and who reside in an assisted care facility. The activity is simple so that activity leaders and staff who have little to no music background can implement it.

Materials: A vacant room appropriate for four adults to be seated next to one another in a semi-circle (approximately 1 foot in between each person), individual chairs (residents can use wheelchairs as needed), 2 egg shakers per individual, 1 paddle drum per individual, and 1 mallet per individual, and a rolling stool for activity leader.

Part 1, Room Set Up

- Arrange residents in a semi-circle facing the center of the circle
- Place a chair or a roller stool at the center of the semi-circle facing the residents, so that when the activity leader sits down he/she is face-to-face with residents.
- Place egg shakers in a box, to the right, directly next to the rolling stool.
- Place paddle drums with mallets, on the left, directly next to the rolling stool.

Part 2, Egg Shakin' Blues, 4 Minutes Duration

- The activity leader will hand each resident two-egg shakers, one for each hand.
- After all residents have egg shakers the activity leader will return to the center of the semi-circle.
- The activity leader will begin playing egg shaker at a steady beat of approximately 60 beats per minute. The level of activity leader's egg shaker should be sufficiently audible for all to hear.
- If the residents do not immediately join in playing egg shaker, the activity leader will provide a verbal prompt while modeling shaking the egg. (_____(Person's name), shake your egg!!)
- The activity leader & residents will shake the egg shaker in a steady beat using movement changes indicated in the following chant:
 - "I'm gonna shake, shake, shake it uh-huh. I'm gonna shake, shake, shake it uh-huh, all day long. I'm gonna shake, shake, shake it up high. I'm gonna shake, shake, shake it up high, all day long. I'm gonna shake, shake, shake it down low. I'm gonna shake, shake, shake it down low, all day long."
 - Other chant phrases can be added including, shake it to the side and shake it to the other side; shake it by my nose; shake it by my ear; shake it by my other ear; more phrases as indicated by the leader.
 - To close the activity the leader will say, "I'm gonna hand my egg shaker to the leader. I'm gonna hand my egg shaker to the leader, all day long" (can replace leader with the leader's name)
 - As the activity leader picks up each egg shaker a mallet is slipped into the resident's hand.

- After all residents are holding a mallet each resident is handed a paddle drum. The activity leader will adapt Egg Shakin' chant to "I'm gonna play, play, a new instrument..."

Part 3, Paddle Drum Playing, 4 Minutes Duration

- The activity leader will move back to his/her chair in the middle of the circle while holding a paddle drum and mallet.
- The leader will strike the head of the drum using a mallet, at a speed that approximates 60 beats per minute. (This is as fast as the second hand moves on a clock). A metronome will be provided to help residents entrain to the beat.
- If the resident does not strike the head of the drum after 20 seconds from the time the activity leader strikes his/her drum then the leader will prompt individual by stating, "Name, play with me?"
- The leader will continue to play at a tempo that allows for successful participation for 2 continuous minutes.
- If all residents are participating and entraining to the beat, change the playing as follows and provide verbal prompts, while alternating between the following:
 - Play drums loudly, softly, slightly faster, slightly slower.
- If residents never entrain, continue to provide a steady beat of 60 beats per minute. If the leader tries to slow the beat down anymore the beat is lost and entrainment becomes more difficult.
- When it is time to stop, the activity leader will use a countdown, "5-4-3-2-1, sticks up."

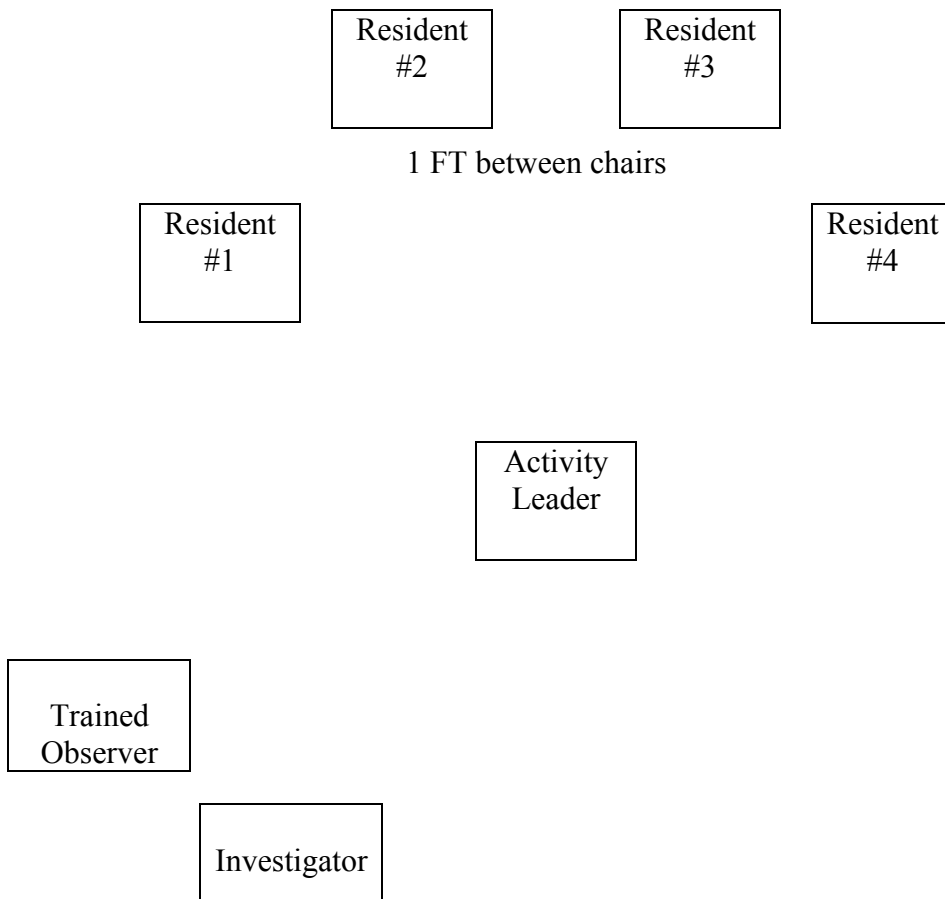
Part 4, Call Response Drumming, 4 Minutes Duration

- Once residents stop playing his/her drum the leader will begin a call and response activity.
- The activity leader will say, "Do what I do, Play the Drum," while striking the drum and providing a steady 4 beat quarter note pattern.
- After the resident's appear to be following the activity leader's rhythm, the activity leader will state, "STOP!" and hold up his/her mallet and drum. The activity leader will verbally state, "my turn" while moving his/her upper body away from the residents and playing the following rhythmic pattern (quarter, quarter, eighth, eighth, quarter note). Then the activity leader will gesture with mallet and drum extended to the side and state, "your turn" while moving his/her upper body toward the residents. At this time, the activity leader should be paying attention to those residents who are replicating rhythms, as well as to those who are having difficulty.
- The activity leader will repeat the same rhythmic pattern with each pattern 4 times. Rhythmic patterns can be found in APPENDIX K.
- After each new pattern the activity leader should always return to the original steady 4 beat rhythm, using quarter notes.
- After the activity leader has implemented 4 different rhythmic phrases he/she will start the same cycle over, but this time fading verbal cues.
- If residents follow the call and response activity with the verbal cues faded, then the activity leader will fade the physical cues.

To end the music activity, the activity leader will use a countdown, "5-4-3-2-1, sticks up." Activity leader will immediately provide positive verbal reinforcement to each resident while gathering up his/her paddle drums. Prompt resident about returning to the following day's music activity.

APPENDIX H
ROOM SET UP

Appendix H
Room Set Up



APPENDIX I
TRAINING SESSION #1

APPENDIX I

Training Session 1

The purpose of training sessions provides opportunities for activity leaders to work with a board-certified music therapist to learn and practice the skills needed to properly implement a music activity for person's with dementia in order to maintain or increase engagement levels.

Training Session #1

1. Greet the activity leader.
2. Provide additional paper copies of the music activity packet (appendix E).
3. Discuss 'Room Set-Up' by turning to appropriate page in the packet (appendix F).
4. Use the materials page to teach names of instruments, appropriate instrument care, and placement of instruments.
5. The investigator will show the activity leader how to play the egg shakers and paddle drums.
6. The investigator will talk about each activity and kinds of responses.
7. The investigator will provide opportunities for the activity leader to ask questions.
8. The investigator will invite training participants into the room for rhythm activity.
9. Once training participants are all set up according to the room set up, the investigator will implement a 20-minute music activity designed for the study.
10. The activity leader will observe while the investigator implements the rhythm activity.
11. At the conclusion of the rhythm activity the investigator will provide opportunities for questions and feedback to the activity leader.
12. Investigator will provide additional support to activity leader, as needed.

SESSION TIMELINE

1-10 minutes- Greet/Set-Up/ Instruments

10-25 minutes- Teach rhythm techniques

25-30 minutes- Gather training participants

30-50 minutes-The investigator implements rhythm activity to training participants

50-60 minutes- Training participants will be escorted back to appropriate areas.

Investigator and activity leader will meet to answer questions and discuss areas of concern or need. Investigator will provide personal contact information to the activity leader.

APPENDIX J

ASSENT

APPENDIX J
Assent Form

My name is [researcher name]. I am interested learning about enhancing engagement for adults using rhythm, because I want to know if your activity leader can use rhythm activities with you. I invite you to come to a rhythm activity that will happen for about 20 minutes, 3 times a week for one week.

Your guardians or Power of Attorney (POA) said it's OK for you to participate in this study. You will be asked to play percussion instruments using egg shakers and a paddle drum with your activity leader. The benefits to you will be an enjoyable activity that will add to your quality of life. Participating in activities should cause no more discomfort than you would experience in your everyday life.

The benefits you will gain from participating in this study is better programming for those who have dementia and are no longer capable of participating in traditional activities in the residential care facility.

Other people will not know if you are in my study. I will put things I learn about you together with things I learn about other participants, so no one can tell what things came from you. When I tell other people about my research, I will not use your name, so no one can tell whom I am talking about.

I will be happy to answer any questions you may have now.

APPENDIX K
TRAINING SESSION 2

APPENDIX K

Training Session 2

Training Session #2

1. The investigator will ask the activity leader set up the room and provide feedback.
2. The investigator will place the rolling stool at the center of the circle so that when the residents sit in the chairs they are face-to-face with the activity leader that is seated on the rolling stool. (Wheelchairs can be used in place of chairs if needed)
3. Egg Shakers will be placed on the right side of the rolling stool on the floor and the paddle drums with mallets will be placed on the left side (these should be easily accessible).
4. The investigator and activity leader will practice co-leading portions of each rhythm activity without training participants present.
5. The investigator will provide verbal feedback about starting and ending an activity, transitioning, and maintaining various levels of engagement.
6. The investigator and activity leader will gather training participants.
7. Training participants will be seated according to room set up.
8. Once the training participants are seated the investigator and activity leader will lead the rhythm activity from start to finish while alternating start/stop cues, transitions, and providing reinforcement verbal support to activity leader.
9. At the end of the rhythm activity the investigator and activity leader will assist training participants back to their designated areas (This step may change if other staff are able to assist).
10. At the conclusion of the music activity the investigator will provide opportunities for questions and feedback to the activity leader.
11. Feedback will be provided so that strengths are highlighted and areas to improve (e.g. making eye contact, keeping a steady beat, encouraging residents).
12. Investigator will provide additional support to activity leader, as needed.

SESSION TIMELINE

1-10 minutes- Greet/Room Set Up/Feedback

10-30 minutes- Investigator and activity leader co-lead the rhythm activity WITHOUT training participants present.

30-40 minutes- Investigator and activity leader invite training participants to participate.

40-60 minutes- Investigator and activity leader co-lead the rhythm activity WITH training participants present.

60-minutes- Training participants will be escorted back to appropriate areas. Investigator and activity leader will meet to answer questions and discuss areas of concern or need.

APPENDIX L
TRAINING SESSION #3

APPENDIX L

Training Session 3

Training Session #3

1. The activity leader will set up the room.
2. Egg Shakers will be placed on the right side of the rolling stool on the floor and the paddle drums with mallets will be placed on the left side (these should be easily accessible).
3. The investigator will participate as a resident without the presence of other training participants.
4. The activity leader will begin implementing rhythm activity.
5. After activity leader has implemented a practice run through with the investigator acting as the participant then they will invite training participants to participate.
6. Training participants will be seated according to room set up.
7. Once the training participants are seated the activity leader will lead the rhythm activity from start to finish while the investigator provides verbal support throughout session.
8. At the end of the rhythm activity the investigator and activity leader will assist training participants back to their designated areas (This step may change if other staff are able to assist).
9. At the conclusion of the rhythm activity the investigator will provide opportunities for questions and feedback to the activity leader.
10. Feedback will be provided so that strengths are highlighted and areas to improve (e.g. making eye contact, keeping a steady beat, encouraging residents).
11. Investigator will provide additional support to activity leader, as needed.

SESSION TIMELINE

1-5 minutes- Greet/Room Set Up

5-25 minutes- Activity leader implements rhythm activity while investigator acts as participant.

25-30 minutes- Gather training participants and seat according to room set up.

30-45 minutes- Activity leader implements rhythm activity from start to finish.

45-60 minutes- Transition training participants back to appropriate areas. Investigator and activity leader will meet to answer questions and discuss areas of concern or need.

APPENDIX M
NON-MUSIC DATA COLLECTION FORM

Data Collection Form

Session #: 1, 2, 3 (Circle corresponding #)

Resident Name: _____

Observer's Name: _____

	Participates to Task	Follows Instructions	Verbally responds with phrases/words related to BINGO	Looks in General Direction of the Activity Leader	Non-Engagement
1	Y/N	Y/N	Y/N	Y/N	
2	Y/N	Y/N	Y/N	Y/N	
3	Y/N	Y/N	Y/N	Y/N	
4	Y/N	Y/N	Y/N	Y/N	
5	Y/N	Y/N	Y/N	Y/N	
6	Y/N	Y/N	Y/N	Y/N	
7	Y/N	Y/N	Y/N	Y/N	
8	Y/N	Y/N	Y/N	Y/N	
9	Y/N	Y/N	Y/N	Y/N	
10	Y/N	Y/N	Y/N	Y/N	
11	Y/N	Y/N	Y/N	Y/N	
12	Y/N	Y/N	Y/N	Y/N	
13	Y/N	Y/N	Y/N	Y/N	
14	Y/N	Y/N	Y/N	Y/N	
15	Y/N	Y/N	Y/N	Y/N	
16	Y/N	Y/N	Y/N	Y/N	
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28	Y/N	Y/N	Y/N	Y/N	
29	Y/N	Y/N	Y/N	Y/N	
30	Y/N	Y/N	Y/N	Y/N	
	Y= _____	Y= _____	Y= _____	Y= _____	
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	Y= _____	Y= _____	Y= _____	Y= _____	
%	N= _____	N= _____	N= _____	N= _____	

* Adjust the number of time sample spaces accordingly.

Key To Data Collection Form

Operational definitions for each category on the form are as follows:

Engagement Present

Participates to task- the resident is physically playing and/or attempting to participate in Bingo activity.

Y= yes, participation is present in Bingo

N= no, participation is not present in Bingo

Follows Instructions- the resident follows verbal directions of the non-music activity, Bingo. He/She places game piece on the board, follows a verbal prompt to place game piece on the board.

Y= yes, follows instructions is present

N= no, follows instructions is not present

Vocally Responds with words/phrases related to Bingo- the resident repeats a letter or number, asks the activity leader to repeat the letter or number.

Y= yes, vocally responds with words or phrases is present

N= no, vocally responds with words or phrases is not present

Eye Contact- looks in the general direction of the activity leader or at the game card during Bingo.

Y= yes, looks in the general direction of the activity leader or at the game card

N= no, does not look in the general direction of the activity leader or at the game card.

Non-Engagement Present

All other behaviors that occur will be considered non-engagement and will be tallied under the “non-engagement” column.

APPENDIX N

EGG SHAKIN' BLUES

BY GARY JOHNSON, MT-BC

Egg Shakin' Blues

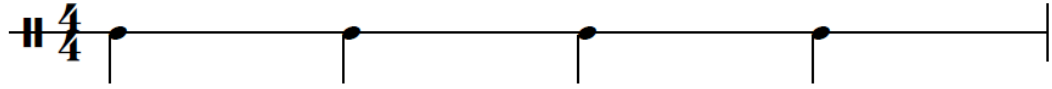
Gary Johnson, MM, NMT, MT-BC

I'm gon-na shake, shake, shake - (uhuhuh) I'm gon-na shake, shake, shake
 5
 (uhuhhu) I'm gon-na shake, shake, shake (uhuhuh) all day long. I'm gon-na
 10
 shake, in the mor nin' - I'm gon-na shake in the_ noon time, - I'm gon-na
 14
 shake, up - high, - I'm gon-na shake down - low, - I'm gon-na
 shake in the evenin' - all day long! I'm gon-na
 shake in the middle, - all day long!

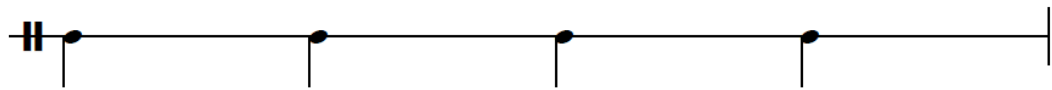
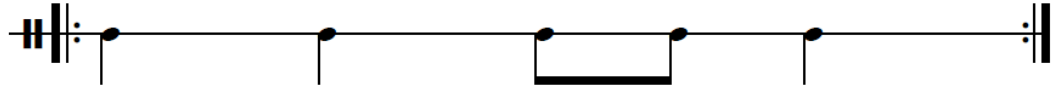
APPENDIX O
RHYTHMIC NOTATION

Rhythmic Notation

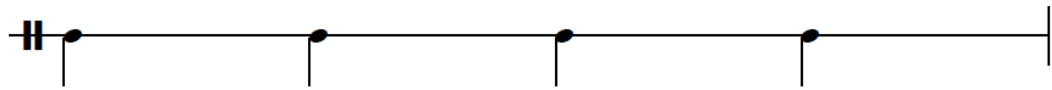
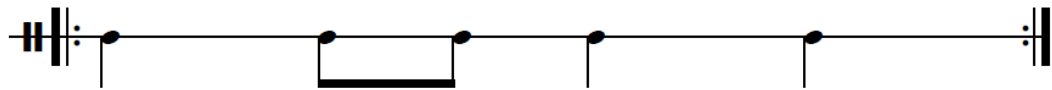
Sarah Coury



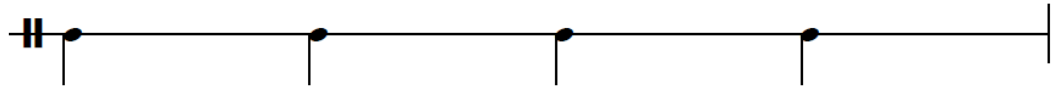
Example #1



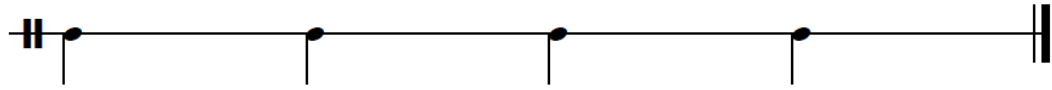
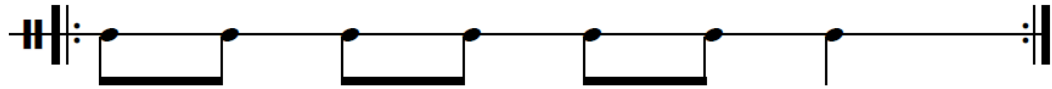
Example #2



Example #3



Example #4



APPENDIX P
MUSIC DATA COLLECTION FORM

Music Data Collection Form

Session #: 1, 2, 3 (Circle corresponding #)

Resident Name: _____

Observer's Name: _____

	Engagement				Non-Engagement
	Plays Instrument According to Function	Plays instrument and entrains to the beat	Vocalizes in relation to rhythmic chant	Eye Contact Present (with therapist or at instrument)	Any other behavior present that does not describe engagement
1	Y/N	Y/N	Y/N	Y/N	
2	Y/N	Y/N	Y/N	Y/N	
3	Y/N	Y/N	Y/N	Y/N	
4	Y/N	Y/N	Y/N	Y/N	
5	Y/N	Y/N	Y/N	Y/N	
6	Y/N	Y/N	Y/N	Y/N	
7	Y/N	Y/N	Y/N	Y/N	
8	Y/N	Y/N	Y/N	Y/N	
9	Y/N	Y/N	Y/N	Y/N	
10	Y/N	Y/N	Y/N	Y/N	
11	Y/N	Y/N	Y/N	Y/N	
12	Y/N	Y/N	Y/N	Y/N	
13	Y/N	Y/N	Y/N	Y/N	
14	Y/N	Y/N	Y/N	Y/N	
15	Y/N	Y/N	Y/N	Y/N	
16	Y/N	Y/N	Y/N	Y/N	
17	Y/N	Y/N	Y/N	Y/N	
18	Y/N	Y/N	Y/N	Y/N	
19	Y/N	Y/N	Y/N	Y/N	
20	Y/N	Y/N	Y/N	Y/N	
21	Y/N	Y/N	Y/N	Y/N	
22	Y/N	Y/N	Y/N	Y/N	
23	Y/N	Y/N	Y/N	Y/N	
24	Y/N	Y/N	Y/N	Y/N	
25	Y/N	Y/N	Y/N	Y/N	
26	Y/N	Y/N	Y/N	Y/N	
27	Y/N	Y/N	Y/N	Y/N	
28	Y/N	Y/N	Y/N	Y/N	
29	Y/N	Y/N	Y/N	Y/N	
30	Y/N	Y/N	Y/N	Y/N	
#	Y= _____	Y= _____	Y= _____	Y= _____	
	N= _____	N= _____	N= _____	N= _____	
%	Y= _____	Y= _____	Y= _____	Y= _____	
	N= _____	N= _____	N= _____	N= _____	

*Adjust the number of time sample spaces accordingly.

Key To Data Collection Form

Operational definitions for each category on the form are as follows:

Engagement Present

Plays instrument According to function- the resident is physically playing and/or attempting to play the instrument as directed by activity leader.

Y= yes, instrument is utilized

N= no, instrument is not utilized

Entrainment- the resident shows a definite tapping to the beat of music. *This includes entrainment while playing paddle drums.* Other areas common ways to keep the beat includes clapping, stomping, snapping, and head nodding.

Y= yes, entrainment is present

N= no, entrainment is not present

Vocalization- the resident is actively chanting the words provided in Egg Shakin' Blues

Y= yes, vocalization is present

N= no, vocalization is not present

Eye Contact- looks in the general direction of the activity leader or at the instrument.

Y= yes, looks in the general direction of the activity leader or at an the instrument

N= no, does not look in the general direction of the activity leader or instrument.

Non-Engagement Present

All other behaviors that occur will be considered non-engagement and will be tallied under the "non-engagement" column.