STUDENTS' PERCEPTION OF USING MUSIC AS PEDAGOGY IN THE LEARNING PROCESS

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Dianne McAdams-Jones

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This dissertation has been
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College of Saint Mary

We hereby certify that this dissertation, submitted by your name, conforms to acceptable standards and fully fulfills the dissertation requirements for the degree of Doctor in Education from College of Saint Mary

Lois Linden, Ed. D, RN, CNE
Chair

_____

Pat Morin, Ph.D., R.N.
Committee member

_____

Donna Ehrlic, Ph.D., R.N.
Committee member

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Using Music as Pedagogy in the Learning Process

Advisor: Dr. Lois Linden

ABSTRACT

Today's students are a part of a different learning environment. They live and learn in an environment that uses technology. One piece of technology that is easy to notice on many students is the iPod or some other brand of musical technology plugged into their ears.

No formal research on benefit to recall when listening to the lecture notes being sung or perceptions of student nurses for benefit gained from studying with music was located.

A mixed method experimental qualitative phenomenological inquiry research study was conducted using a purposive sampling strategy where pre-nursing and beginning level nursing students first participated in a two-sample t-test to determine degree of recall when lecture notes were delivered through music. There was no statistical significance between the two groups.

Afterwards, a narrative inquiry was conducted to ascertain perceptions of pre-nursing and beginning level nursing students regarding benefit to be gained when studying and listening to music and if there was benefit to recall when lecture notes were set to music. Emerging themes, patterns, and descriptions of feelings were identified from the narrative inquiry. From this graph, meaning emerged demonstrating perceptual domains of ***feelings (emotions), cognition and environment***. In each domain positive perceptions of effects experienced were discussed as a result of listening to music while studying or as a result of having their lecture notes set to music.

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CHAPTER I
PROBLEM AND PURPOSE

Introduction

It is not difficult to find students on any campus throughout the world who owns an iPod or some form of musical paraphernalia that fits conveniently in their ears. In October, 2007, America Online (AOL) introduced the latest twist: Aim Tunes, a plug-in for the popular AOL Instant Messenger (AIM), which lets users tap into the music collections of instant messaging contacts, discuss music, and listen to songs from users' libraries while connected (Jefferson, 2007). Realizing how much students are listening to music, it calls into question how much, if any, the role of music might be playing in the learning environments of these students. It is apparent to educators that the methods by which students learn are an important factor in the teaching environment and educators are constantly looking for more ways to bring students into the learning environment which makes learning more students centered (National League for Nursing, 2007). Little research has been conducted that explores what role, if any, music might play in the learning process of students or if music might be a possible teaching strategy. This study will explore the benefit to recall of lecture notes being sung for students to use while studying and the possibility of using music as a learning enhancement. Listening to music while studying, a behavior observed in some students, and if this listening to music enhances study is another focus of this study.

Background and Definition of Terms

Several terms associated with music and learning was found in the literature and was brought to the forefront of discussion in order to gain a clearer understanding of students' perceptions of how they use music during study. For this study, *Culture* is defined as the accumulated habits, attitudes, and beliefs of a group of people who define their general behavior and way of life as the total set of learned lifestyles of a people. Culture is important in this study as the efforts of this study centered on the behaviors and attitudes of learning as seen through the eyes of pre nursing and first year nursing students. Students are a culture of their own. It is important to understand the culture of the population being studied. *Student* is defined as a group of people enrolled in a formal program of education. *Pre-nursing students* is defined as those students enrolled in pre-requisite nursing courses. These students are not formally in the nursing program yet their success in this coursework is essential to gaining entrance into the program. *Beginning level nursing students* is defined as students enrolled in the first nursing course on the beginning level of nursing. Many formal programs of learning, nursing included, are organized on levels that are synonymous with the term *semester* used by other disciplines in the educational process. *Attitude* is defined as a positive or negative state of mind (Webster, 2003). An attitude is essential to understand because a culture of people will exhibit a certain attitude about them. In the culture of students who listen to music while they study, their attitude relevant to this behavior (studying with music) is one of the foci of this study. *Music* is defined as vocal, instrumental or mechanical sounds having rhythm, melody or harmony (Webster, 2003). *Experimental group* is defined as the group that

receives the song and notes for listening and studying. *Control group* is defined as the group that only receives the lecture notes in writing for studying. *Musical Jingles* is the making of a tune based on the use of words from a concept, idea or thought. The term *learning styles* is defined by Kolb and Kolb (2006) as how one "takes in" and "processes" information. Nursing school presents the student with many terms not seen or used in high school e.g. bed pan, urinal, ambulate, lung expansion, to name a few. The pre nursing student or first level nursing student may find it necessary to associate new terms with something familiar; how this is done may be identified differently with each individual student. Another focus of this study seeks to know how each individual pre nursing and first level nursing student perceives the benefit of recall when listening to music while studying.

A student can find many books about study tips which will lend themselves to exploring methods which are suggested to improve study habits. Some of these methods will suggest the student a) do difficult tasks first, b) allow longer time for the difficult tasks, c) when boredom sets in, switch tasks or environments, (Campus Health, 2010) and the list goes on. However, because all persons process information differently (Kolb & Kolb, 2006), students will continue to utilize those aids which enhance their studying the most. Other students will continue to look for a particular behavior that may enhance studying and while doing so may decide to utilize music due to its popular presence.

Another prominent reason to try music during study may be due to its popularity and portability. Music paraphernalia such as the iPod and AIM tunes has connected people with music at the push of a button (Jefferson, 2007). Further, most popular cellular phones advertised through Verizon, AT&T, Sprint and other service lines will function as MP#3 players. With an MP#3 player, music is at the fingertips. If a student likes listening to

music, the inclination to do so is even more prevalent because of the cellular phone being in close possession. It is easy to see why the student may experiment with listening to music while studying even if that student has never experimented with this behavior in the past. Nursing students are seen using popular music paraphernalia similar to other college students. Nursing students develop certain study habits in their culture of learning similar to other college students. No two nursing students will process information alike, but there may be some similarities in how they process information. Because there may be some similarities in ways student's process information, this study may contribute to information used in preparing to teach these students.

Statement of the Problem

Educators have been challenged to provide classroom experiences that involve students, are interactive, and are more learner-centered. If students are listening to music widely, educators might capitalize on this phenomenon by bringing music into classrooms. Perceptions which may raise one's awareness of how music may be used as a learning enhancement is little exposed in the literature. Some of the general population has listened to music since childhood. Some of the general population has sung some kind of music for different purposes and different occasions since childhood (Cantor, 2006). Homework tips by Grace Fleming in a Home Work Study Tips poll of over 300 respondents revealed 41% who use music to concentrate (New York Times, 2010).

The problem is little to no research has been done of the benefit from setting content to be learned to music nor the perceptions of the pre-nursing and beginning level nursing students regarding having content to be learned set to music. The purpose of this study was to determine the pre-nursing and beginning level nursing student's degree of recall when content to be learned is delivered through music and to describe the emotions

and perceptions of the pre-nursing and beginning level nursing students when lecture notes are delivered through music.

Purpose of the Study

The purpose of the study is to:

1. To determine the pre- nursing and beginning level nursing students degree of recall when content to be learned is delivered through music.
2. Describe the emotions/attitudes and perceptions of the pre-nursing and beginning level nursing students when lecture notes are delivered through music.
3. To explore pre-nursing and beginning level nursing students' perceptions of using music a s a learning enhancement.

Research Questions

1. What is the benefit to recall when pre-nursing and first level nursing students listen to and study their lecture notes being delivered through music?

2. What are the perceptions of pre-nursing students and first level nursing students of the benefits when lecture notes are delivered through music?

3. What are the perceptions of pre-nursing and beginning level nursing student of using music as a learning enhancement?

Since little is known of the nursing student's perceptions of how music is used to study or if it enhances their study, there was minimal data to analyze or to shed light on this subject. Student nurses are learning and those who teach student nurses (professors and other faculty members) may be interested in how these student nurses learn.

Understanding student nurses' perceptions concerning how they study and why they use music in their learning process may add additional teaching strategies to the teaching tool box of current nursing faculty. Understanding how student nurses learn may also bring the nursing faculty to a more student approach in the teaching and learning process.

Research Design

This study employed a mixed method, experimental qualitative phenomenological inquiry research design. In the experimental portion, it was examined if a certain treatment influences an outcome. This experiment was done by randomizing individuals for a group that provided a specific treatment to one and withholding the treatment from the other group (Creswell, 2009). For the qualitative portion, a semi-structured interview was conducted which collected lived human experiences about listening to music while studying (Creswell, 2009).

Experimental research examines results of an experiment. The purpose here is to note if a specific treatment affects an outcome. A true experiment was used in this study where the subjects were randomized in the assignment. The outcomes are assessed when a certain treatment is applied to one group but this same treatment is withheld from the other group. Both groups are then scored and the outcomes of these scores are assessed (Creswell, 2009).

The qualitative portion of this study used phenomenological inquiry. Phenomenological research places the researcher in the position to identify the true nature of human experiences as seen through the eyes of the participant. These are lived experiences and can be seen through the lens of philosophy which makes this style of collecting data more than a method. This style of collecting data involves using small

numbers of subjects where they are studied intensely looking for patterns or themes and relationships in which meaning surfaces (Creswell, 2009). Themes and relationships are examined throughout the process until they are exhausted. During this process, the researcher must bracket his or her personal/lived experiences with this study such that he or she may understand the personal/lived experiences of the participants being studied (Creswell, 2009).

Significance to Education

Education centered on the learner is a new paradigm hailed by educational theorists and regional accrediting agencies (The Committee on Academic Programs and Teaching, 2005). In the learning process, students process information differently (Kolb & Kolb, 2006). As educators, the cultural context of students should be acknowledged for it is here that educators must meet students in order to create positive learning environments. Students have been observed to listen to music on devices such as the iPod. Other educators (Binkiewicz, 2006), have observed digital listening devices as a trend. If music could be used as an effective learning enhancement, nursing educators might have more incentive to move away from the podium and become more student centered by using teaching strategies that are harmonious with the students' learning environments or their attitudes of preferred learning styles thereby positively influencing learning outcomes.

Grace Fleming (2009) makes a point of how students learn in many different ways through seeing, hearing and enjoying first hand experiences. Because as educators, teachers and faculty, it is important to have the students learn in an environment that fits that students' personal or preferred learning style. Faculty, when teaching, might be interested in matching that student's attitude of preferred or personal learning style with

his/her teaching style. Having this knowledge on board regarding the nursing student's attitude about their learning preference could help the faculty meet the student in a common learning environment. An example of this matching of teaching style and attitudes of learning style can be envisioned when the student who is an auditory learner performs poorly when only power point lecture style is used to share information in the learning environment as opposed to when demonstrational videos are use in the learning environment.

Having different learning preferences among nursing students' does pose a heavy teaching burden upon faculty members. Making a plan or strategy to meet each nursing students' learning needs can become a daunting task. Combining music in teaching strategies could be helpful when attempting to meet the students on common ground. After the faculty has gained knowledge which includes attitudes of student nurses' preferred learning styles, it is significant that faculty make every effort to include some of all styles preferred.

Summary

The purpose of this study was to determine the pre- nursing and beginning level nursing students' degree of recall when content to be learned is delivered through music and to describe the emotions and perceptions of the pre-nursing and beginning level nursing students when lecture notes are delivered through music. Additionally, pre nursing and first level nursing students were asked to share their experiences in learning with music. In this chapter, the problem, lack of research discussing students' attitudes regarding using music in study or having their lecture notes set to music was stated. Background

information, purpose of the study, research questions, research design, significance and potential contributions were also described.

Chapter II presents a review of selected relevant literature. Research and theoretical literature concerning music, the affect of music on humans in different settings and learning styles is examined and given analysis under Kolb's Experiential Learning Model. Chapter III includes discussion of methods and research design. Using NViovo (NVivo, 2008))and Mini Tab software (Minitab, 2010), Chapter IV presents results of the *t*-test and a narrative description of each participants experience with tables and models depicting each students ' attitude relative to the use of music during studying. A modified synopsis of the original interviews introduces the reader to each participant.

Chapter V offers a discussion of the findings where the participant's experiences are shared and compared with several emerged themes being analyzed. Significant patterns, thoughts, categories, statements, themes and formulated ideas and meanings along with exhaustive descriptions are examined and scrutinized.

Assumptions

The investigation, grounded in relevant literature on music and its affect on an individual began with the assumption that music is listened to during study by students because there is benefit to be gained during the process of listening and studying. What benefit is unknown but because individuals rarely repeat unpleasant behaviors there must be a pleasant benefit to be had as students are observed to study while listening to music. No two people will process information in the same way, yet information is presumed to be processed when students listen to music while studying.

CHAPTER II

REVIEW OF LITERATURE

Literature Review

The literature search found many articles on music and its effect on patients or the general public. Other than nursery rhymes and biblical verses in song; there was little research found which explored the effects of listening to music which sang the learning material while studying. There was one which studied the effects of listening to music while taking a test where no significant difference in test scores was found between any conditions studied (Cockerton, Moore & Norman, 1997). Databases were searched for the following terms: *cognitive, learning, Kolb, social learning, cognitive learning, and music in learning.* The terms *music* and le*arning* were crossed with *learning styles* and synonyms of these terms. Databases from 1990-2008 were searched and included ERIC, Cochrane Library, Education, and Academic Search Premier. Seventy possible journal articles were located with these strategies.

Inclusion and Exclusion Criteria for Study

Of the 70 articles retrieved, thirty-nine were included, 1 paper, 1 You Tube video, 1 blog, and 4 books. The only articles included focused on music and the effect of music on the individual. Of the thirty-nine included, 4 were quantitative, one was qualitative, and the remaining were literature reviews, papers or manuscripts. The quantitative studies were concerned with the effects of music on patients in the health care setting with all results pointing to decreased stress and anxiety in the patient as a result of listening to music. The one qualitative phenomenological study conducted spoke with

high school and elementary students ascertaining their attitudes about listening to music. All of the inclusive articles were significant to the discussion of music having an effect on an individual.

When learning, students will receive information and process it in different ways: through audio and visual, logic reason with intuition and analyzing what is seen either in spurts or steadily. Teaching methods also vary. Some teachers lecture, others lead through self discovery and demonstration; some teachers concentrate on tried and true principles and application while some emphasize memory and others place emphasis on understanding (Kolb, 1984).

This study will include learning experiences and the social cognition (Vygotsky, 1978) associated with music of babies to adults showing the affect of experiential learning (Kolb, 1984) from infancy to adulthood with subsequent social effects in later years. This is particularly useful as the attitudes of pre-nursing students and beginning level nursing students regarding use of music during study have been little studied. The author wishes to connect the experience of using music in infancy through adulthood exploring social cognition (Vygotsky, 1978) as well as experiential learning (Kolb, 1984). This process might help to support some of the students' attitudes regarding why they use music to study as young adults in college.

A Brigham Young University Study showed that 5-month-old babies can recognize up beat songs. The study furthers that babies 9-months-old can distinguish between the down-beat of Beethowen's Seventh Symphony (Flom, 2009). If babies are responding to music at such an early age, the perception here might be there is no

surprise in young adulthood that students are still responding to music and possibly using it as a learning enhancement.

As the toddler (age 2-4yrs) progresses through preschool using music and song in nursery rhymes, the child reflects upon this process of singing words in song and reciting or singing those words. Toddlers are extremely observant. Toddlers are exploring, learning what is around them. Playing songs that teach gospel principles is extremely effective because children love music and learn much from the songs they hear and sing (Mormonchic, 2010). From a religious standpoint, the song, "I am a child of God", teaches the child a sense of "belonging" and builds "self esteem" based on the beliefs of this religion. This is important because this is an example of positive thinking and positive self-esteem building while learning through music (Mormonchic, 2010 and Vygotsky, 1978).

This same principle is repeated in nursery rhymes through early years of primary education (pre-school and first grades). Here is where songs about body parts e.g." *Head, shoulders, knees and toes*" might be sung (Vygotsky, 1978). When a body part is mentioned it is touched, shaken, or wiggled. The children are taught if they see a word (nose) sung in the song, "Point it out". Further, if an action is mentioned, "Mimic it" e.g. "put your left foot in, take your left foot out". And lastly, sing the actions when possible (The Mother Goose, 2001).

Other nursery rhymes which teach body parts and actions include, "Sing a Song of Sixpence" where the blackbird snips off the maids nose. The teacher (or mother) might use one hand to flap and wobble similar to a bird in flight which lands on the child's nose. This is entertaining and helps the child learn a body part. Then there is

"Eensy Weensy Spider", which gives the child and opportunity to imitate the adult and become engaged working physically with the teacher thereby practicing motor skills. These activities using music and song gives the child an experience and brings about recall to the child, promotes learning while they build self esteem in a fun fashion because many children love music (The Mother Goose, 2001).

The central thought of experience-based learning, (EBL or experiential learning) is that the experience of the learner speaks directly to the planning and delivery executed by the teacher. Experience, past and present, in some fashion is a part of all learning. Much of the basis for EBL rose up out of retaliation against pure didactic teaching styles with little student engagement and involvement. EBL supports a more participative learner-centered approach which forces the teacher to prepare learning experiences in class that engage the student such that the student can formulate some meaning from the learning experience (Kolb & Kolb, 2006).

Using Vygotsky's (1978) social cognition learning model culture is viewed as the prime determinant of development in an individual. Humans have created culture, and every human child develops in that cultural context. Therefore, a child's learning development is affected in ways large and small by that culture in which he or she is enmeshed (Vygotsky, 1978).

Understanding that some children are often brought up in a musical world relating to kindergarten songs instilling letters, words, names, the alphabet and discipline through nursery rhymes, this strategy of teaching continues into religious activities where bible verses are learned and on through elementary school where discipline is often taught with song, e g. *"It's time to put the toys away"* (Mormonchic, 2010). As well as this method

of singing thoughts, ideas and concepts is a teaching strategy, it is widely understood as a learning tool for the student. Children have been learning through music over time and educators continue to use this method as a teaching strategy for children (The Mother Goose, 2001).

When the child leaves the lower primary grades (1^{st}-3^{rd}) and enters the higher primary grades (4^{th} -8^{th}) they begin to listen to popular music more which becomes a frequent pass time. Hearing these age groups singing popular songs as a pass time is not uncommon. The problem becomes the words that are being sung. Many researchers write that these words affect the listener's behavior. This has been a concern to parents and mental health professional since rock and roll began in the 1950's (Bosaki, Francis-Murray, Pollon & Elliot, 2006). If the words are negative, then the listener assumes the negative behavior of the negative words and this behavior is repetitive just as the negative words are repetitive in the songs (Bosaki, et al 2006). The idea emerging from the aforementioned and engaging the reader is "music affects feelings."

Music gets points across to an audience. This discussion will expose the power of feeling through lyrics in a song. Recently, a song, called OSYM (a Turkish acronym of The Student Selection and Placement Center) composed and performed by a punk band called Deli (which in English means "Crazy") was featured on You Tube. The Student Selection and Placement Center decides which students go to a university based on a 3-hour, multiple choice exam held yearly. The song lamented how ridiculous of the Turkish government to allow one examination to decide a person's future with regard to choice and education career. The song was highly effective in its message. This song was listened to and it made an impression on the listeners, one being the Turkish

government. The band was brought to trial, presumably for criticizing government policy (Fletcher, 2007).

Again, there is little study on music and it's affect on students during study, but much is studied on the power of music. In support of the use of music in learning and recall, articles which attest to the strength of music as a messaging tool will be explored. Music is an effective messaging tool. Why is music such an effective messaging tool and why do people seem to remember what they hear when it is in tune? Oliver Sacks, the famed neurologist and author of *Awakenings,* stated that he "has always suspected we were a musical species" (Gehr, 2008, p.24). He commented on how amazed he was at the amount of the brain that is recruited for music. Sacks, (2007), noted that music, no particular kind, but plain music that "beats in time" has been used to coordinate individuals with Parkinson's disease. Because Parkinson's patients are uncoordinated, stumble, and stutter, they lack the ability to coordinate speech with movement. Adding music to their environment facilitates coordinated movement and these patients then become more focused. This fact reinforces the investigator's belief that there is some link to memorization of "coordinated movement" associated with music and studying. In Alzheimer's disease, the music has to be familiar to the patient and it helps them to recall events, scenes, and emotions (Sacks, 2007). According to Sacks, the music calms the Alzheimer's patient. Music in this instance is affecting the "emotion" of the patient.

Music is emotional. "I want to socialize!" would seem to be what some students ages 6 and older adult learners are saying when plugged into the iPod. Starkman (2007) said that watching students in general, it is clear that they use electronic technology to socialize by listening to music. Across the different elementary grade levels,

conversations between the researcher and students gave indication that musical paraphernalia are some of the top electronic items coveted. Starkman had conversations with three groups of students in Seattle about electronics and technology. An elementary, middle and high school comprised the schools from where the students were members. Their favorite tool for retreating into solitude was Apple's MP#3 player: the iPod (Starkman). The investigator believes that these musical pieces, because they allow on line instant messaging as well, actually foster socialization in that the student can be alone in listening to the iPod yet socializing at the same time with friends whom they can "tune in" to with the push of a button . As Starkman described it: "It satisfies two basic contradictory needs: (a) to be left alone and at the same time (b) to socialize" (Starkman, 2007, p.34).

As often and as frequently as students across campuses are listening to music, when researching topics on listening to music through databases, fewer than five articles were found that discussed students being associated with music. Frequently research discussed the effect that music has on patients in the health care setting; one such study was conducted by Yung, Szeto, French, and Chan (2002) in a controlled trial of music and preoperative anxiety in Chinese males undergoing transurethral resection of the prostate. At the time of the study, it was purported that there were no other studies of this type. In this quasi-experimental design, three groups were used: (a) music intervention, (b) nurse presence, and (c) control. The study was conducted in a theater-holding area where the temperature was set between 20 and 22 degrees centigrade. Explanations were given and the 42 Chinese male surgical patients prepared to undergo transurethral resection of the prostate prior to sedation. After determining potential eligible

participants, 12 of the remaining subjects were disqualified and 30 remaining subjects were involved in the experiments. Of these subjects, music intervention significantly reduced all blood pressure levels and states of anxiety (Yung et al.). The music had an effect of reduction in anxiety in the autonomic nervous system, thus, producing a relaxation response, and creating a sense of well-being. It cannot be assumed that all patients or all students are affected in the same way by music; however, it does raise the question if listening to music reduces anxiety in well individuals.

In a study conducted by Lee (2005) it was statistically significant that music was used therapeutically to reduce anxiety. Lee's objective in the study was to investigate the effect of music on the physiological responses and anxiety levels of patients receiving mechanical ventilation. This study noted that ventilation, although sometimes life-saving, is often associated with levels of anxiety requiring a sedative, which has inevitable implication on costs and complications. A randomized control trial design was used. Sixty-four subjects were randomly assigned to undergo either 30 minutes of music intervention or a rest period. A survey assessing the patient's satisfaction with music was also taken prior to the study. Lee's findings indicated increased comfort behaviors and decreased physiologic indices (such as blood pressure, respiration, and heart rate) in patients who listened to a 30-minute session of music (Lee).

The aspect of environmental control was reinforced by Love and Burns (2007), in a study conducted where music could be indicated for control of the environment. In this exploratory and observational study, 10 girls and 10 boys were placed in a block play area. Music was played in one cubicle and no music was played in the other cubicle. The girls and boys were supervised by two assistant teachers. These assistant teachers

had no knowledge of the study being conducted. A factorial analysis of variance with estimated frequency was used. The results showed that in the classroom where the music was played there was more sustained play. In addition, more dyadic (two-part activity) play occurred when slower music was played in the background. This study also showed that music in the environment affected the participants' behavior and promoted sustained activity. The participants were more focused, and their attention span was longer in the room where the music was played (Love & Burns). The Love and Burns study showed that students found they are more focused when they listened to music or when it was played in the background.

Binkiewicz (2006), a history teacher, used music to teach concepts and to aid the learner in retaining the concepts taught. Binkiewicz discussed the fact that she had experienced a positive learning outcome when she used music as a "pedagogical tool" (p. 515). She reported that seeing her students use iPods frequently and even coming to her class with them attached to the ear inspired her to begin to use music in her classroom. She noted that music in the environment; that is, listening to music, not only got the student's attention as a positive personal factor but it also involved the student. Consequently, the students perceived they retained the concept to be learned more easily when taught with music (Binkiewicz, 2006).

To add to the learning experience, Binkiewicz would choreograph musical dance steps to depict concepts she taught. For example, in demonstrating Clinton's New Democrat Strategy, Binkiewicz (2006) described President Clinton as not liberal and not conservative. She created a dance to draw her students into the discussion where the dance would "slide to the right" if the policy was liberal and "slide to the left" if the

policy was conservative (Binkiewicz, p. 516). It is interesting to note how learner outcomes can be affected by music. Binkiewicz's (2006) research raises the question of what other positive learning outcome can be had when music is the teaching/learning tool.

Learning incorporates the total human being including the feelings, reflections, thinking and doing (Kolb, 1984). Over time, an individual is thought to develop a certain preference as to how this learning takes place. Students are rapidly taking advantage of technology in the market place. MP3 players are widely used by teens and young adults being the choice of entertainment. Being aware of student's use of technology with more frequency, it is apparent that educators would want to explore more ways to take advantage of this new form of electronic technology. According to Gee (2003) as the use of this technology becomes more visible this type of technology could soon be recognized as a form of literacy. These types of technology generated pedagogies may be more effective in teaching the students than traditional teacher-centered pedagogies (Gee, 2003).

Students who listen to music from the MP3 player during quiet time in class have been noted to stay focused during class and further, to observe quiet time before and during class. This affords quiet to other students who require an environment free of noise (Stiler, 2007). It could be concluded here that music is providing relaxation to the student and the student can focus better as a result of listening to the music on the MP3 player.

School libraries have seen the advantage of e-technology where books and other reading materials are on line. These institutions are beginning to invest in audio books as

opposed to hardcopies (Minkel, 2002). Students especially benefit when specific lecture content is downloaded for listening via e-technology. Similarly, specific lecture content set to music being downloaded for listening could be equally as beneficial in that it is an efficient method of content delivery and it is accessible twenty-four seven to the student. This method is even more efficient as it complements note taking.

With today's student who is busy with classes, a job and family, delivering lecture content via music (to be listened to at the leisure of the student) is a compelling thought. Having a student keep a concept learned from the lecture content in his or her head via musical lyrics potentially could increase content retention.

Some students will say they keep songs in their heads. Some students will continually sing a song as a way of making a statement generic to an issue they might be working through. Some students find music as a way to express themselves. Students are the center of education. Quality education is discussed on the forefront repeatedly. Meeting the students needs, making education an engaged venture, involving the students and ultimately matching the students learning preferences is the dream studied by scholars and chased by educators (Campus Health Services, 2010). In almost every case, because the dream is becoming increasingly difficult to bring to fruition, it is dismissed by many as a fable.

Use of MP3 players, iPods, Pod Casts and such are felt by many educators to enhance creativity and higher levels of thinking. Catering to a more teacher driven restrictive didactic classes is stifling the abstract thinking of the students (Cantor, 2006). Howard Gardner's multiple intelligences brought to the forefront an opportunity for matching the visual and performing arts (abstract thinking) with all of the different

learning styles abound in every classroom. Gardner's theory supports Kolb's position that no two people learn alike thus it is the educator's responsibility to make an attempt to match student's learning preferences (Gardner, 1991). Art based teaching stimulates learners to break down concepts into parts then combining these parts into sensible wholes then making judgments about that 'whole". This is exactly what Benjamin Bloom called analysis, synthesis and evaluation (Cantor, 2006 p.62). It would not be illogical to suppose that students might be receptive to learning theory or skills enhanced in some way by music.

Some learning experiences will focus on one skill or another. In nursing, different skills are taught at different times. When using the arts to teach, it is equivalent to swimming where multiple muscles are used. When using the arts in teaching, their minds, hearts and bodies are engaged (Cantor, 2006). Engaging multiple skills (mind, hearts and bodies) while teaching, more of the senses (muscles) are being used and the student is far more engaged and on task. Using the arts stimulates the student's mind and forces more senses to be pleasurably used. This could potentially explain why music seems to focus some students, because so many senses are involved and motivated.

Motivation is a key element to success. How do you motivate an unmotivated learner? One of the most distressing tasks a teacher can face is the motivation of an unmotivated learner. When teaching nursing skills the student has to not only be motivated, the student has to be engaged, because nursing is not only theory, it is a practice. Motivation cannot be a "one time" experience for the student. Motivation in a student has to be fed continually, either internally by the student or externally by the environment. Motivated students could be said to be more engaged. The teacher can

develop proactive and practical teaching strategies that meet the students' motivational need when the psychology of motivation is understood (Soric, 2009). Students may be motivated by extrinsic factors such as rewards, grades, extra points that are immediate and short term as opposed to intrinsic factors such as enjoyment or satisfaction which aim to foster their success in the chosen career. Some students are more motivated to stay focused and engaged when listening to music and it is not difficult to understand why using music to enhance their learning is more proactive on the teacher's part and a more engaging activity for the student.

To further expose the benefits of music in positive effects on people, studies have been implemented which show positive effects of music in the background. Performance on tests with music in the background has been examined. In Cockerton, Moore, and Norman's (1997) study, the effects of background music on test performance was designed to examine whether music would lower arousal and facilitate performance scores on a cognitive test. Participants were randomly assigned to an order. Order 1 participants experienced the music condition first followed by no-music condition. This condition was reversed under order 2. Participants were instructed to assume a comfortable armchair situated in a soundproofed room. They were given classical music to listen to, then questions from the intelligence test, then a relaxation period, followed by more questions without music in the background. The results suggested that intelligence test performance was significantly enhanced as a function of background music. It was surmised that perhaps the classical and natural sounding music used may have stress-reducing effects (Cockerton et al.).

It is noted again that little has been studied regarding attitudes of students and their perceptions of the affects of music on learning. However, there were a greater number of articles discussing the affect of music in the environment on patients while they received health care. For this study, articles which discussed the affect of music on various patients were incorporated

From this category, frequently surfacing were experimental research articles investigating the effects of music on anxiety in patients receiving surgery in short-stay areas. Cooke (2005a) conducted a descriptive randomized control trial study of 180 patients. In this study, it was concluded that day-surgery patients who listened to music during their preoperative wait had statistically significantly lower levels of anxiety than patients who received routine care void of music. In a similar investigation, Cooke (2005b) conducted an integrative review of 12 previous studies focusing on the effects of music on anxiety in short-stay waiting periods. In this review, the studies included ranged from samples of 9 to 198. The results showed that preoperative anxiety decreased when music was used in the short-stay area. Cooke (2005b) believed the nurse, as a provider of care, should augment patient care with the inclusion of relaxation strategies such as music.

In addition to decreasing anxiety in patients, Good (2001) investigated the effect of relaxation and music or the combination of relaxation and music on postoperative pain during ambulation and rest. The aim of Good's study was to measure the combination of relaxation and music on postoperative pain across and between 2 days and the two activities of ambulation (i.e., rest and ambulation) each day. This randomized control trial was conducted from 1995 to 1997. The results showed that pain decreased significantly

from the 1st day to the 2nd day. Pain was also significantly reduced by music on both the 1st and 2nd day postoperatively with rest and then with rest and ambulation. The shortened hospital stay could have been associated with reduction of pain, thus promoting a more positive attitude (Goode, 2001). The postoperative stay was shortened and recovery was accelerated (Good).

It could be questioned if attitude is improved by music. At the University of Medical Sciences in Tehran, Hejazi, Ashayeri, Mahmoodi, and Omidi (2005) studied the effect of music on 48 students with depression. Twenty-four students became the experimental group and 24 became the control group. Content validity and test–retest methods were used to assess validity and reliability. Every other day for 8 days the experimental group listened to desired music. Results showed depression to decrease in the experimental group (Hejazi et al.).

Lashua and Fox (2006) studied children in a school of reform noting that these students were drawn to singing or rapping stories of their lives and injustices in society; they could release stress in this manner of rapping. A fair amount of depression and additional stress can be experienced by student nurses relative to the overwhelming amount of studying required and the cumulative stress of tests sufficient to initiate depression. Nursing students may employ music as a vehicle by which depression is lessened, thus enabling student nurses to study more.

If employing music as a vehicle to lessen depression is aiding student nurses to study more, then types of music being listened to by nursing students are worth exploring (Mulder, 2007). Much of this music has a heavy beat. Some of this music is rap and hip-hop. The roots of rap music are from African oral traditions, which include speaking

rhythmically with storytelling, call and response patterns, and rhythmic beats (Iwamoto, 2007). In Iwamoto's qualitative inquiry using purposive sampling, eight diverse college students gave their varying opinions on rap and hip-hop music. In the interviews, the eight students (one Caucasian, two Asian Americans, two African Americans, and three Latinos) discussed why they like rap and hip-hop music and why they listen to it. The participants in Iwamoto's study tended to use rap music to counter negative moods and to vent daily frustrations. This piece of information is interesting when considering there must be much angst and frustration in studying for exams and keeping up with study assignments in nursing.

Rap music has been defined as a form of political commentary of the conditions of lower-income African Americans. Rap music emerged in New York City during the mid 1970s; in the 1980s, rap music gained American mainstream appeal (Iwamoto, 2007). Iwamoto stated that hip-hop reflects the cultural movement among African American youth through lifestyles, clothing, and language. Rap music has been defined as a mechanism through which frustration and stressors are released, thereby providing a coping skill that produces certain psychological and physiological responses. Again, this would serve to understand why possibly pre-nursing and first level nursing students might use this type of music when they are overwhelmed with studying and testing in nursing school.

The limitations of Iwamoto's (2007) study focused on validity; that is, the sampling procedure included a small number of participants—not representative of all ethnic groups—who were knowledgeable of rap and hip-hop. The social life and stressors encountered by the participants decided their level of identification with rap music

(Iwamoto). It is commonplace among nursing students to hear them comment on their frustrations with the course material, the amount of hours involved, and the amount of study involved. Thus, it is understandable that the music nursing students listen to might serve as an outlet for frustrations and to counter their negative moods. Having this vehicle could afford more relaxed persona, thus enhancing the mood required for a receptive and productive study period.

Bittman (2004) explored the psychological input of music on 1st-year nursing students with the aim of reducing burnout and negative mood states. Burnout is a disheartening trend that is often irreversible. The present study considered healthy lifestyles of student nurses, affording student nurses the ability to cope with the stresses of school and practice as well as improving the care nurses give. The working hypothesis was as follows: A six-session, cost-effective, group-based recreational music-making protocol provided to nursing students at the beginning of their clinical education will result in diminished burnout and total mood disturbance. “Burnout” was defined in this study as a syndrome comprised of three known variables: (a) emotional exhaustion, (b) depersonalization, and (c) reduced personal accomplishment. Burnout is assessed by the Maslach Burnout Inventory, which measures each variable discussed above. Mood is defined as a conscious state of mind or a prevailing attitude predisposing to action. Six mood factors were studied: (a) tension/activity, (b) fatigue/inertia, (c) confusion/bewilderment, (d) depression/ dejection, (e) anger/hostility, and (f) vigor/activity (Bittman).

Students were introduced to the protocol of the study followed by a 5-minute Yamaha Mind Body Wellness Exercise focusing on breathing, movement, imagery, and

awareness. The students were allowed to express themselves throughout the program with a variety of musical instruments, drums being the most frequently used, to afford a relaxing and enjoyable musical experience (Bittman, 2004).

The participants were given 12 questions and the drums; they were challenged to express themselves through "tapping out" a feeling or an emotion elicited by the 12 questions. The control group, which answered the questions in the traditional fashion with paper and pen, showed an increase in distress and mood trends, and the other two experimental groups, which answered the questions with the drums, showed a decrease in distress and mood trends. Six weeks after the first study intervention, a persistent decrease in stress was recorded for these two intervention groups. Based on these results, an independent economic impact analysis was conducted by Tripp Umbach Health Consultants to ascertain potential savings in the context of reducing student dropouts. It was determined that 7 out of 52 nurses will leave the profession for noneconomic reasons and may be influenced to stay an additional year due to the experience in connectivity and relaxation as a result of this recreational music-making intervention (Bittman, 2004)

No two students will learn the same. Given the prevalence of music technology use by students and adults alike, the use of music technology in the classrooms is now more than a thought. The use of music technology in the classroom would seem a likely application of available communication given its popularity among the masses, student nurses included. Even with this technology being used by many, teaching strategies will vary. Some instructors currently use a variety of methods in their classrooms often placing emphasis on application and then others placing emphasis on understanding. Using a variety of teaching strategies in the classroom would seem to confront the matter

of frustration which seems to mount in the classrooms of today. Faculty is frustrated with the types of students coming to class today and students are frustrated because of study loads and frequent testing requirements.

Theoretical Framework

People have different learning styles. No two people will learn exactly alike. Alice and David Kolb in explaining experiential learning theory posit that learning is the major determinant of human development and how individuals learn shapes the course of their personal development (Kolb & Kolb, 2006, p. 4). The research expounded on experience as the source of learning. Experiential learning involves a direct contact and relationship with the content or phenomena being studied. Kolb describes four phases of learning; concrete experience, reflective observation, abstract conceptualization and active experimentation. Yamazaki (2002-2003) identified and discussed cultural influence and its impact on the learning process as well. This study encompassed pre-nursing students and first level nursing students who are a culture of their own learning via experience. This group of students learned through experience because the nature of the nursing profession is "hands on." This study probes further into the attitudes of pre nursing and first level nursing students' attitudes of how they learn during study, particularly their attitude of how they learn when studying with music and if they perceive music as a beneficial learning enhancement.

Vygotsky (1978) theorized that human development and learning occur in socially and culturally shaped contexts. The experience of the human being shapes who that human being becomes (Vygotsky, 1978). Vygotsky's social cognition learning

model posits that the prime determinant of individual development is the culture of that individual. Humans have created culture, and the context of that culture influences the development of every human child. Therefore, a child's learning development is affected in ways large and small by that culture whether it is the environment or the home in which he or she is enmeshed (Vygotsky, 1978).

Further, because pre-nursing and beginning level nursing students having experienced childhood, this study will explore use of music in teaching and learning during this phase of development. The learning experiences with music will be explored from childhood to adult hood where nursing may be chosen as a career

Experience-based learning is a very familiar model of learning behavior. This theory as explained is the process whereby knowledge is created through the transformation of experience (Kolb, 1984). The cycle begins in childhood where the child has an experience with music; this is the concrete experience. Music may be introduced in the nursery as well as preschool where nursery rhymes are taught through music and song (Vygotsky, 1978). Additionally some religious organizations will teach gospel principles to their Pre School and primary learners through the use of music and song (Mormonchic, 2010). This might be the concrete learning experience. No two students will learn or process information in the same manner. Kolb makes a point of stating that students preferentially process what is taken in by using various methods. It might be here that the student observes and processes what is seen, conceptualized and eventually experienced. Experience is one of these methods. It is with this theory of learning developed by Kolb (1984) and Vygotsky's theory of social development (1978) upon which this research is predicated.

Summary

The students, not to mention faculty, are all different. When mismatches exist between learning styles of the students and teaching styles of the professor inattentiveness in students could occur. Inattentive students could experience poor testing and become unresponsive which could lead to hostile classes, discouragement with curriculum, themselves and the courses; they may even change majors (Campus Health Services, 2010). To avoid this, the professor must take every opportunity to match teaching styles with learning styles. Balancing instructional methods as opposed to trying to teach to each student's preferred style might lead to more comfortable levels in learning. If the learning environment is more comfortable, students may achieve higher grades and attitudes might improve. If the learning environment is familiar and friendly to the student, based on previous learning experiences, then learning may be more conducive for the student perhaps because it fits a preferred learning style.

To hope for fun and music in the classroom might be going "overboard" but humor makes a class more "user" friendly. As faculty, students are assigned and the teaching is an act of natural progression. However, making a class interesting and fun opens the doors for creativity and connections which cross the curriculum. Humor and music are both physically good for the human being. However, humor and music are no substitute for good content delivery and pedagogy. Music is a tool similar to a hammer which can build things up or tear things down (Campus Health Services, 2010). The good professor needs a variety of tools in the "tools for teaching kit". It is because of the aforementioned statement that this research is done to explore the attitudes/emotions of students regarding how they recall with the use of music and their perceptions of using music to deliver the lecture content.

Individuals learn differently and no two people will learn exactly alike. Alice and David Kolb (2006) explained how an individual learns and how that learning shapes the course of their development. Their research expounded on experience as the source of

learning throughout a human's development. Humans grow and develop. Throughout the beginning level and pre-nursing student's development, there was learning based on experience (Kolb & Kolb, 2006). That experience is the underpinning of this study and how that experience and social development (Vygotsky, 1978) contributed to the beginning level and the pre-nursing students' perception of their preferred learning styles which incorporate the use of music.

CHAPTER III
DESIGN AND METHODS

There has been little research conducted to determine the pre- nursing and beginning level nursing students' degree of recall when content to be learned is delivered through music or to describe the emotions/attitudes and perceptions of the pre-nursing and the beginning level nursing students when lecture notes are delivered through music. Because of the aforementioned, a mixed method, experimental qualitative phenomenological inquiry research study was conducted. The mixed method of the design gave the researcher a report of two distinctive strands of quantitative and qualitative research. The true test performed in the quantitative session gave rise to valuable information regarding whether students learn content if delivered through music. The qualitative strand shared attitudes, perceptions and emotions of pre -nursing and beginning level nursing students when lecture notes are set to music (Creswell, 2009).

The primary purpose of this research was to determine the pre-nursing and beginning level nursing students' degree of recall when content to be learned is delivered through music and to describe the emotions, attitudes and perceptions of the pre-nursing and beginning level nursing students when lecture notes are delivered through music and if they perceive using music as beneficial during study. Because this study was interested in lived experiences of the nursing students a phenomenological narrative was conducted.

In this phenomenological study several questions that were asked of the participant that attested to how the participant studied with music and the benefits of studying with music were asked. The participants were asked specifically if they used music while studying and if so, why? (Appendix A). The participants were asked to give examples of how using music to study assisted them in their learning process. Each participant was queried so as to allow them to elaborate and continually identify themes and patterns that addressed their use of music in studying.

In the true experiment the participants were allowed to first take a test about the *content to be learned*. Then they were randomized into 2 groups where one group listened to *content to be learned* delivered through music and the other group studied the *content to be learned* via reading notes about the content to be learned. After this fifteen minute learning session, they were tested a second time on the *content to be learned*. A *t*-test was performed to analyze the data. A *t*-test is performed to assess whether the means of two groups are statistically different from each other. This test is especially appropriate with a two-sample *t*-test randomized experimental design such as was used in this study (Boswell & Cannon, 2007).

Narrative Inquiry Design and Methods

Narrative research is used in many studies of educational practice and experience, mainly perhaps because as educators and particularly as nurses, we recount stories about life and we listen to stories about life in our daily profession. One way to add structure to these stories is to organize them into meaningful units. Phenomenological research is about lived experiences (Creswell, 1998). People live in a culture and likely take on some of its characteristics. Vygotsky (1973) theorized that human development and learning occur in socially and culturally shaped contexts. The experience of the human being shapes who that human being becomes. So in a narrative piece of research, the

reader should leave the document understanding more about how those people (the participants in the research) became who they are (Creswell, 1998).

A thematic emergent approach was used in this study. After the data was collected it was transcribed and re-analyzed for accuracy. From the transcribed data, patterns of experience were coded through either direct quotes or summarizing common ideas. Then, for this study, the patterns were placed on a graph in excel so they could be sorted for more sub themes and common experiences. The next step in thematic analysis was the identification of relative data to these patterns of experience and then placing under this data the discussions of all talk that corresponded to each of these patterns. For this study, NVivo software (2008) was used to sort the perceptual domains which emerged and to relate patterns of experience to these domains. Then, these related patterns of experience were combined and catalogued into sub themes. Themes were defined as units derived from patterns of conversation, conversation topics, vocabulary, and recurring activities. Themes were identified by bringing together pieces of experiences and ideas which do not make sense when standing alone. Thus, themes from the participants' stories were like pieces of a puzzle; hence these puzzle pieces fitted together paint a picture that makes sense to the reader (Aronson, 1994). The emergent perceptual domains from this study were, a) cognitive domain, b) environmental domain and the c) emotional domain where attached to each were repeated, recurring patterns of thoughts and activities.

Data Collection

Data collection consisted of the sample, the selection and sampling strategy and the setting along with the procedure for consent and protection of human subjects (Creswell, 1998).

Setting

The study was conducted in the west, the mid west and on the east coast. Recruitment was solicited through advertisement via posted flyers and word of mouth at the three institutions (Appendix F). The Deans of the schools of nursing were contacted at each school and the process for conducting the research was orchestrated through each dean. Institutional Review Board approval was obtained from College of Saint Mary (Appendix D). Fliers were posted on each campus and the interested participants contacted the researcher or the Dean to discuss time commitments, eligibility criteria and to sign up as a potential participant. Because moderate sized groups participated, the Deans of the schools ensured there were rooms scheduled to accommodate the participants and the use of sound instrumentation. Confidentiality was protected and each student voluntarily agreed to participate as well as each student signed an Informed Consent (Appendix G).

Potentially interested pre-nursing and beginning level nursing students contacted the researcher via e-mail to discuss time commitment, eligibility criteria, location, date and time of the study.

The researcher traveled to the mid west and to the east coast to conduct the study.

Study Sample

The targeted population for this study was pre-nursing and beginning level student nurses of an Associate degree programs. A flyer was posted on each specified campus inviting beginning level and first semester nursing students to participate (Appendix F).

Because moderate sized groups participated, the Deans of the schools ensured there were rooms scheduled to accommodate the participants and the use of sound instrumentation. Those pre-nursing and beginning level nursing students responding were asked to report to a designated location on the respective campus. This study was

introduced to these students at this location and the students were given an overview of the study and its purpose.

Sampling and Selection

The pre-nursing and beginning level nursing students who responded were screened for eligibility during their first contact with the investigator. During the screening their status as nursing students was confirmed and their knowledge of building a robot was assessed. Any student who was not a beginning level or pre-nursing student was exempted from the study. Any student under the age of 19 (per mid west college IRB, Appendix D) or who had a knowledge of building a robot was exempted from the study. Convenience sampling was used as a specific group, pre-nursing and beginning level nursing students were targeted (Creswell, 2009). Once this target group was identified random sampling was used as it provided each pre-nursing and beginning level nursing student an equal opportunity at participation in either the control group or the experimental group (Creswell, 2009). This process was conducted by distribution of age groups and sex.

A previous study was conducted by this investigator which collected the perceptions of gender and different age groups regarding the use of music as a learning enhancement and having the content to be learned set to music for studying. This pilot allowed for error and corrections of these errors giving the current study more rigor and validity.

Through random sampling of age groups from 19-55 yrs, this study equally distributed the age range in the control group and the experimental group. The number of males and females were equally distributed in both the control and experimental groups through random sampling. While there was no distinction made between the perceptions of male vs. female or the perceptions of participants between age groups, the results represented those of a diverse range of participants whose demographics were

equally distributed between the control and experimental groups. These results represented aggregate data only.

Males are enrolled in nursing programs in smaller numbers. Their participation in the groups was randomly placed so as to have an equal distribution of males in the control group and an equal number of males in the experimental group. For this study, there were only two male participants and they were equally distributed by placing one male in the control group and one male in the experimental group. This was done by draw of an odd number which went to the control group in one setting and to the experimental group in the other setting. This occurred once in the west coast study and once in the east coast study. Advanced level nursing students were excluded because of their advanced knowledge level in basic nursing content. This precluded advanced studying habits or advanced knowledge from compromising the validity of the study.

Additionally, generations may be a factor in the use of music (AIM, 2007). The following age groups were evenly distributed among both groups: ages 18-25, ages 26-35, ages 36-45 and ages 46 and above. This breakdown of ages was random but gave a span of 7-9 years between each section. Males were not included in this breakdown because for the purposes of this study it was preferred there be an equal distribution of this sex in each of the two groups and further breaking this sex down by age might compromise the equal distribution. The groups were sequentially randomly selected as follows: participant's ages 18-25 were counted and if there were 21 pre-nursing or beginning level nursing students in this age group, then the numbers 1-21 were jumbled and placed in a hat. These pre-nursing and beginning level nursing students ages 18-25 were asked to pull a number from the hat until each student had a number. The pre-nursing and beginning level nursing students holding even numbers went to the control group and the pre-nursing and beginning level nursing students holding odd numbers went to the experimental group. This procedure was repeated until each age section has been placed in either the control group or the experimental group.

The interview sample was chosen via random sampling from both groups. A random selection of numbers from 1-25 were jumbled and placed in a hat. Students from each group were asked to pull numbers from this hat. At least 1student from the control group and at least 1 student from the experimental group whose number included a "5" were asked to complete the interview. This same procedure was followed in order to select no more than 2 students from the mid west sample, no more than 3 students from the east coast sample and no more than 5 students from the west coast sample. The pre-nursing and beginning level nursing students with these numbers were asked for permission to interview. If any of pre-nursing or beginning level nursing students with those numbers declined the interview then the procedure was repeated until the number of agreeable pre-nursing and beginning level nursing students were reached.

Consent Procedure and Protection of Human Subjects

The proposed research study was submitted to the west, mid west and east coast Universities for Institutional Review Board approval (Appendix D). The participants were given a detailed explanation of the study to include risks, time commitments, confidentiality issues, and consent procedures. Eligibility requirements were established and appropriate screening was instituted. Per College of Saint Mary IRB only students age nine-teen and older were eligible to participate. Students not meeting this requirement were excluded. Only pre-nursing and beginning level nursing students who had no knowledge of building a robot were approved for the study. Volunteers not meeting this requirement were excluded from the study. The interview portion which included a taped audio interview was discussed with the participants.

Written consent was obtained from each participant and interviewee. Informed consent documents were thoroughly explained and signed and each participant received a

copy of the signed consent for their records (Appendix G). No compensation was awarded the participants. Informed consent documents described the study and procedures, risks and benefits, withdrawal options and participant confidentiality (Appendix J). No known risks, benefits or costs to the participants were associated with the study. Participants were informed they could decline answering questions during the experiment and during the interview; they were made to understand they could stop participating at any time during the experiment and during the interview.

The interviews were transcribed by an experienced transcriptionist and coded so there was no connection to the interviewee. This provided anonymity and confidentiality and the interviews were locked in a cabinet in the researcher's home.

Data Generation

In-depth interviews utilizing open-ended questions were the process used to generate data. The interview (Appendix A) lasted 15 to 30 minutes each. Questions concerning if the interviewee "studied with music', "why they studied with music" and "if there was any perceived benefit gained when studying with music" were asked. Privacy during these interviews was afforded so there was no feeling of being rushed through the process.

Privacy of the environment was essential to promote freedom and honesty in responses. The interviewee was allowed to choose a location in the building where that interviewee felt most comfortable and safe in discussing feelings regarding use of music during study. Communication was unhurried and the discussion was open and free. Before conducting these interviews a pilot interview of two nurses had been conducted to test the open ended style of the questions for clarity and revelation of any need for

revisions. The pilot interview gave the researcher a level of confidence in the questions being used for this interview. Data from these two interviews were not included in this study.

Open ended questions as the following gave the researcher a comfortable place to address study habits with music:

1. Do you study with music?
2. Tell me about how you listen to music when you study?
3. Describe the benefits and problems of listening to music while studying for you?
4. If your lecture notes were set to music, how do you think this might affect you?

The interview concluded with the following question: Is there anything else you would like to tell me about how you use music when you study?

Insights gained from these individual interviews with the member check participants and additional findings and clarifications were incorporated into the analysis. In addition to audio-taped interviews, field notes were recorded using reflective journaling recorded during and just after the interviews which served to catch other relevant observations not recorded on tape such as body language. At the conclusion of the study, audio-taped interviews and any other study material linking participants to study data were destroyed.

For the quantitative portion of the study, a pre test and a post test was used (Appendix C). The lyrics to the song (Appendix B) represent the content to be delivered and thus are the notes that were studied. The pre test was administered to the entire group collectively (Appendix C). This established base-line knowledge of the material to be studied. The post-test was given after the control group had studied the lyrics for

fifteen minutes and after the experimental group had studied the lyrics and listened to the music for fifteen minutes (Appendix C). This post-test gave the researcher data on the benefits gained when comparing studying the content to be delivered only vs. studying the content to be delivered and listening to the music simultaneously.

Data Management

The interview (Appendix A) was audio taped. Field notes were used for reflective journaling immediately following each interview (Boswell & Cannon, 2007). For the interview process, each recorded session was coded with a pseudonym for either "control group" or "experimental group" such that there was no identifying data to connect the interview to anyone in the study. The same identifying data was used on the transcription of the interview so that there was no reference to the interviewee or anyone else involved in the study. A separate licensed entity was contracted to do the transcribing of the interviews. The transcription and the audio recording were matched and reviewed for accuracy. This transcribed data was coded using NVivo software (2008), used by the researcher only and kept in word files on a flash drive. All written field notes were used by the researcher, research coder and research assistant only.

Member-check interviews were recorded using field notes and coded for anonymity. Full identification of each participant was kept in a code book separately from the audio tapes and field notes which were accessible only by the researcher. These files were coded and double locked in the office of the researcher until analyzed. Once the interview data, electronic and written had been analyzed, it was destroyed.

The pre and post tests results (Appendix C) were entered in the Minitab system (2010) which is a quantitative data evaluative program and once the data was analyzed, both pre and post tests were double locked in the researcher's home where they will reside for 3 years. After the 3 years period the data will be destroyed.

Reliability

A pilot interview was conducted on 2 first year nursing students to test the open ended questions, to provide clarity and offer an opportunity for revisions. Additionally, two faculty members from a local university reviewed the questions and offered suggestions for clarification. These suggestions were included and the revisions were made.

A test/retest method was conducted on the pre/post-test. The main components of this method to estimate reliability are a) implement the measurement tool at two different times for each subject, b) compute the correlation between the two separate measurements and c) assuming there is no change in the overall condition which is being measured, then the test results for each implementation should produce similar or the same results (Creswell, 2009). A pilot study was conducted using the pre/post-test tool. The lyrics (lecture notes) were given to 5 first year nursing students. The pre/post-test was implemented 2 separate times on the same 5 first year students. The scores were correlated and there were no differences in the scores on the first session or second session. None of the results from the pilot of the interview tool or the pre/post-test tool were used in this study.

Validity

Validity is the strength of the conclusion, inferences or propositions (Boswell & Cannon, 2007). In this study, the researcher sought to know if there is a relationship between studying with only the content to be learned (lyrics Appendix B) vs. studying with the content to be learned (Appendix B) and music. Basically, did the study measure what it was supposed to measure? Internal validity was used to evaluate this study. Boswell and Cannon discussed several situations which could threaten internal validity. Testing Threat, Instrumentation Threat, Single Group Threat, Mortality Threat and Resentful Demoralization Threat were looked at for this study (Boswell & Cannon, 2007). The researcher took precautions to avoid threats to internal validity. The single group threat was removed by employing a control group and an experimental group so as to have a comparison between the two. Since the two groups were tested at the same time for pre-test and at the same time for the post-test, the threat of selection-maturation where there is growth between the pre and post tests was removed. The process of random sampling used made the two groups as comparable as possible. The two groups were as equivalent in sex and age as possible. This equivalency of sex and age controlled the differential exposure to music which may have existed in the younger population as compared to the older population or different usage in males vs. females. There was no testing threat as the two groups were not able to study for the test prior to the pre-test. Based on the screening process used during recruitment, each student was at the same level of knowledge when they take took the pre-test precluding the test threat. Their scores increased slightly after manipulation of the groups. This process removes the testing threat to internal validity. The Instrumentation Threat was removed by having the entire experimental group to listen to the music with the lyrics in one room under one

roof. This removes the chance of better acoustics in one room as opposed to the other causing the lyrics not to be as plain for one of the groups. Since neither of the groups communicated with the other during the testing procedures, there was no knowledge of what one group "has" or "has not" which could cause one of the groups to "lose interest" in the study. The study flowed rapidly and smoothly from pre-test, to manipulation and then to post-test being conducted in 30 minutes or less. There was little opportunity for students to drop out during these 30 minutes and this did not happen but it could have happened and it would have introduced the Mortality Threat (Boswell & Cannon, 2007).

Some of the lecture notes related to nursing and some of the lecture notes discussed how to build a robot. The latter subject is included to increase internal validity of the test. It is assumed that first year nursing students may be aware of some nursing skills but the likelihood of the average student having knowledge of how to build a robot was perceived to be less than likely. Students in each group were asked collectively if they possess knowledge on how to build a robot. Those students having knowledge on how to build a robot were excluded from the study.

Experimental Bias was removed based on the random selection of the groups and the fact the experimenter's knowledge of the groups' backgrounds such as social habits and study habits was nonexistent.

Procedure

The pre and post test measurement tool concerning the lecture notes was used (Appendix C). The research project was discussed with the students as a group. Collectively, the participants were given a pre test (Appendix C). After the pre-test, the randomly chosen samples were taken to 2 different rooms. The control group was taken

to one room where they were given the lecture notes (lyrics to song, Appendix B) only to read and study for fifteen minutes. The experimental group was taken to another room and given the lecture notes (lyrics to the song, Appendix B) and they listened to these lyrics (Appendix B) in a song for a total of fifteen minutes simultaneously. After each group obtained their materials (Control group: the lyrics and Experimental group: the lyrics and the song) for a total of fifteen minutes they were given an opportunity to write a post test (same information as the pre-test Appendix C). The scores on the pre test were compared to the scores on the post test. This percent difference between the pre test and post test scores defined the percent (either higher than pre-test or lower than pre-test) of information retained as a result of manipulation.

Data Analysis

The questions in the interview were conducted face to face and audio recorded. Questions were open ended and posed to the interviewee in different ways until there were repeated themes and trends or saturation of the data occurred (Boswell and Cannon, 2007). The key in qualitative research is to learn about the issue from the participants and then address the questions that will pull this information forward. Qualitative research is interpretive where the researcher is involved in an experience with the participants (Boswell & Cannon, 2007). As the data evolved, more questions emerged along with explanatory behaviors and feelings. Transcribed data from the interviews was analyzed by identifying trends and themes. NVivo (2008) software was used to code and categorize these themes where trends and constant comparison were used with continuous theme review. As themes emerged information was color coded and categorized by these themes where trends, behaviors, thoughts, perceptions and constant comparison were used with continuous theme review (Creswell, 2009). For this study, the researcher took the color coded themes and inserted them into an excel sheet. This process allowed the researcher to identify recurring patterns which emerged into

identified perceptual domains. The perceptual domains identified were *cognitive, emotional* and *environmental*. The questions were open ended leaving the student an opportunity to answer and expand on the question while answering. Questions were asked regarding how studying the lecture notes being sung influenced recall, if they listened to music during study and why do they listen to music during study and if there was any benefit to be gained from listening to music during study. This study examined the benefits to recall of studying lecture notes sang to a tune and the perceptions and attitudes of pre-nursing and beginning level nursing students if lecture notes were set to music.

The pre-post-test (Appendix C) results were entered in the Minitab system (Minitab, 2010). The Minitab system is software which analyzes quantitative data. A two-sample *t*- test was performed. The *t*-test assesses whether there is a difference between the means of two groups. The t-test showed where the control and experimental group means were located thus deciding if these two means are statistically different. The differences between the scores for the two groups, control and experimental, were analyzed and the difference between their means relative to the spread of variability of the scores was calculated (Boswell & Cannon, 2007). The differences in the scores denoted changes in the learning at post-test and after the experiment compared to pre-test (Creswell, 2009).

In the thematic approach, themes emerge allowing the method of the analysis to follow the culture of the data itself. The themes were put in an excel sheet and abstracted out. These were identified as the essential elements when without these aspects the same meaning could not be derived from the experiences of the participants. The tree dominant themes noted and are termed for this research *the perceptual domains*. The three perceptual domains pulled from this process were a) cognitive, b) environmental and c) emotional.

From these three domains other sub themes emerged which continually painted a picture of the participant in the perceived learning process. The perceived cognitive domain revealed participants who identified how music seemed to assist in recall by allowing their senses to repeat experienced reading excerpts when the music was played again. This incident may have taken the participant back to childhood when content to be learned was delivered in music, such as nursery rhymes and biblical verses.

From the perceived emotional domain, the participant described feelings of contentment, relaxation, being soothed when music was included in their study. These feelings were perceived to have a profound effect on their study habits. These feelings were perceived as having contributed to more fun during study and longer study hours.

From the perceived environmental domain, the participant described how music would drown out the noise in the background. The participant furthered that the music used for this purpose was either up-beat to "keeps me moving" or slow classical for the purpose of a constant sound in the background to drown out other distracting noises.

After exhaustive dwelling with the text and subsequent reduction of individual narratives, the researcher entered the data into the NVivo software and tree nodes were identified. These tree nodes displayed the perceptual domains and subsequent parent nodes were attached. The parent nodes represented all of the talk, behaviors and activities surrounding the perceptual domains. With this information a model clearly displaying recurring themes, thoughts, ideas, behaviors and activities was developed so the culture of the music listening while studying community could be savored.

Summary

Chapter III provided a discussion of research design and methods. The study's quantitative test was discussed and the phenomenological aspects of the narratives were shared with in-depth description of the setting, sampling, consent procedure, data collection, data management, data generation, data analysis methods and the introduction of the perceptual domains which were discovered.

Chapter IV will offer a summary of both quantitative and qualitative data. Chapter IV will shed some light on each participant's experience with music and that participants' perceived benefit from the affect of the music. A few samplings of interviews will serve to give the reader a flavor of the participants' emotions experienced from using music during study and perceptions of studying content to be learned when that content is set to music.

CHAPTER IV
SUMMARIES AND FINDINGS

Introduction

Popular culture and advancing technology make it increasingly difficult to impossible to teach on a traditional format anymore. Students are "plugged in" and in many cases "tuned out". Faculty is faced with more challenges as the techno savvy student enters the classroom. This student is capable of multitasking. This student does not like to read, instead this student would prefer to be "plugged in" and listening to music. Can this student be successful in study habits while listening to music? The purpose of this study was to determine the pre nursing and beginning level nursing

student's degree of recall when content to be learned is delivered through music and to describe the emotions/attitudes and perceptions of pre nursing students when lecture notes are delivered through music.

Data Analysis

In this chapter a description of the results of the two-sample *t*-test is presented and a narrative description with tables and models will follow presenting participants' emotions/attitudes and perceptions of why they use music when studying and if they perceive it to enhance their recall. The first section will discuss the results and implications of the experiment. The second section will introduce the interviewees to the reader and discuss the results of the interviews as they relate to the research.

The two–sample *t*-test is one of the most commonly used hypothesis tests by the company Six Sigma (Minitab, 2010) who manufactures the Minitab software used in this study. The two-sample *t*-test is applied to compare whether the average difference between two groups is really significant or if it is due to random chance. This test aids in understanding if there is any success rate after manipulating the experimental group. Although the results of the test are somewhat variable, there is indication that using music with the lyrics (content delivered) is superior to merely using notes. It is generally preferred that the Alpha p-value be set at <0.05 and that the results of the test carry a p-value of <0.05. This would indicate there was no significant difference between either of the two groups studied since the p-value for this study was 0.096 (Creswell, 2009).

To add more rigors to the study, the researcher chose to conduct a phenomenological study to assess lived experiences with these phenomena of delivering the content to be learned through music.

Since two groups are included, the one group is the control group; the other group is the manipulated group, e. g. the group upon which the experiment was performed. The two groups were close together and the manipulation/treatment circumstances are well controlled. The difference from the standard application of the *t*- test was the use of the differences instead of the raw numbers. The "estimate for the difference" was shown as the difference of the two means: 7.26-5.84 = 1.42. The *t*-test for difference = 0. The equality for the two differences is music (after minus before) = notes (after minus before) (Creswell, 2009).

Thus setting the Alpha value at $p<0.1$ instead of $p<0.05$ would show some superiority in using music to study as opposed to using the notes only with which to study which had a p-value of 0.096. The number of degrees of freedom is a measure of how certain we are that our sample population is representative of the entire population - the more degrees of freedom, usually the more certain we can be that we have accurately sampled the entire population (Creswell, 2009).

Two-Sample T-Test
For music-diff vs. notes- diff

Table 1

	Number	Mean	Standard Deviation	Standard Estimate of Mean
Music-diff	31	7.26	3.51	0.63
Notes-diff	31	5.84	4.84	0.87
Estimate of the difference		1.42		

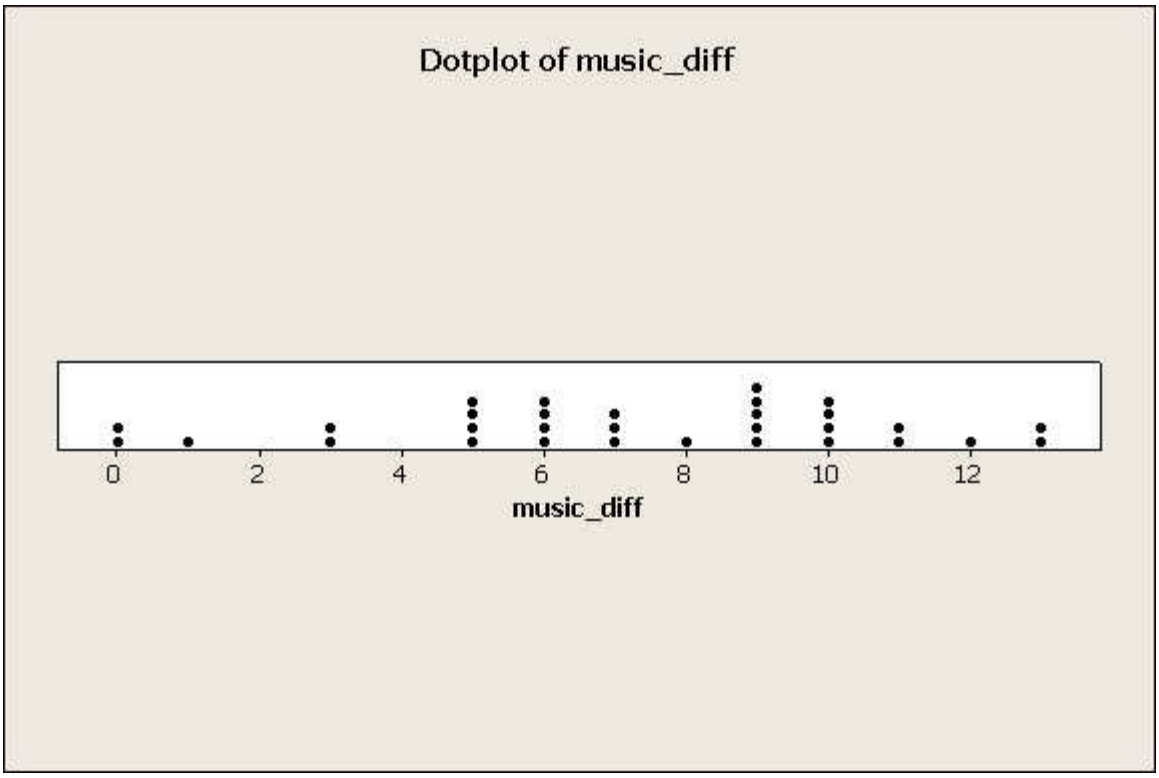
Alpha Value $p<0.1$

The estimate for difference was 1.41935 with a T-value of 1.32 and a p-value of 0.096. The degrees of freedom equaled 60 which indicated this study represented at least 60% of the population.

Essentially, the formula for the t-test is a ratio. The top part of the ratio shows the difference between the two averages (means). The bottom is the measure of the spread (as if on a bell shaped curve) of the scores (Creswell, 2009).

When analyzing the above, the averages for the two groups showed minimum to low variability within the two groups causing only a suggestive difference and some superiority where music is used for studying the content to be learned as opposed to just the lyrics being studied to learn the content. Statistically, there was no significance between the scores of the two groups. Additionally the degrees of freedom here suggest the sample was representative of sixty percent of the general population.

Figure 1

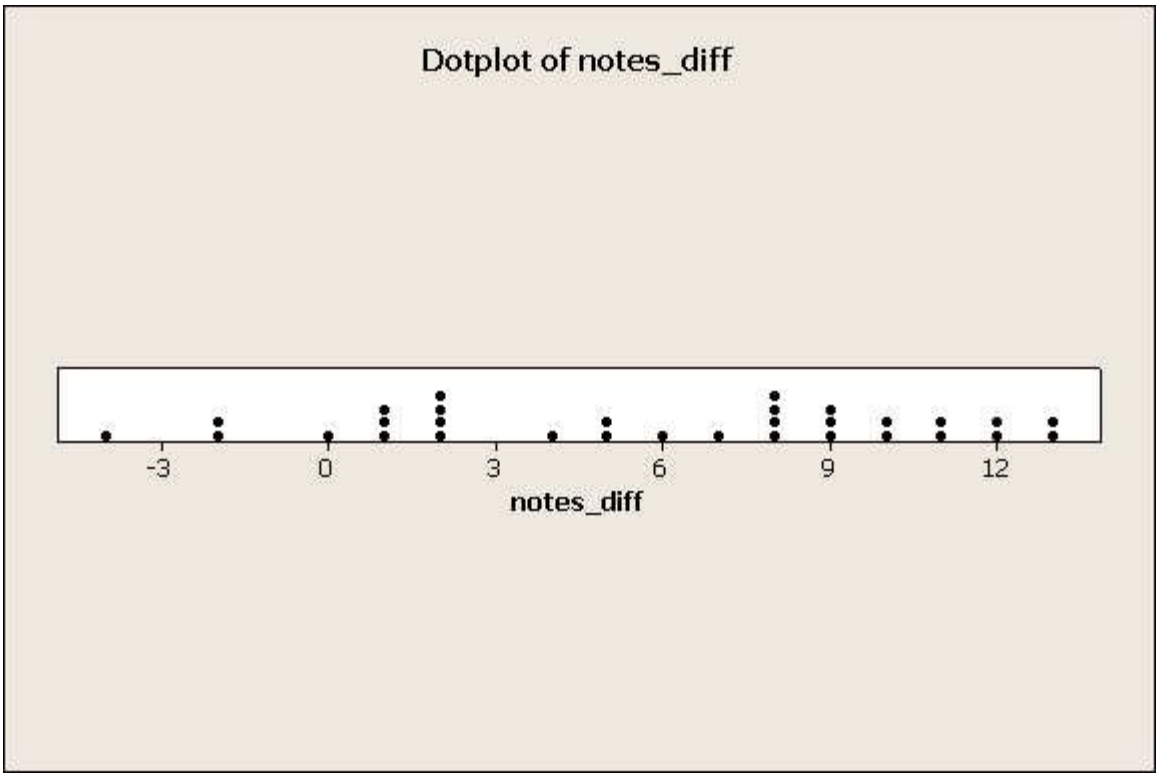


N=31 Alpha value P <0.1

This music dot plot shows the students using music to aid in studying experienced some superiority over the group of students using lyrics/lecture notes only to aid in studying. However, there was no statistical difference between the two groups; thus, there was no statistical significance to this test.

Figure 2

This music dot plot shows the students using music to aid in studying experienced some superiority over the group of students using lyrics/lecture notes only.



N=31 Alpha value p<0.1

In the analysis of this dot plot because of the variability participants using only the lyrics are suggested to have had less success with recall. However, with an alpha value set at p<1, there is variable significance. This simply means there was some suggestive benefit here using music and lyrics (content to be learned) as opposed to mere content to be learned alone; however, there was no statistical significance from this test.

The qualitative portion of the study however gives the experiment more fuel in favor of using music when studying. There were 10 pre-nursing and first level nursing students interviewed. All of the interviewees stated they had been surrounded by some kind of music all of their lives, that they enjoyed music and that they used music during

study in some way, shape or form. The researcher chose to sort the data in tables and graphs first for a better understanding of what themes were consistently coming through.

For the qualitative section of this study, 10 participants were interviewed on their perceptions of listening to music while studying and on their perceptions of studying the content to be learned when that content is set to music. Five thematic categories emerged from the data. These thematic categories were: (a) types of music being listened to when studying, (b) benefits and uses of listening to music while studying (c) influence of studying with music on recall, (d) opinion on turning lecture notes into music and (e) learning habits associated with music during childhood. Each of these thematic categories is presented in the succeeding sections, including the themes that emerged from these thematic categories.

Theme 1: Participants Used Music Jingles to learn when they were Young.

For the thematic category, learning habits associated with music during childhood, the most popular response was making jingles (3 out of 10 participants, 30%). Other responses included: church songs (2 out of 10 participants, 20%), the use of actual songs (1 out of 10 participants, 10%), songs from TV (1 out of 10 participants, 10%), and rhyming words (1 out of 10 participants, 10%). Table 1 and Figure 1 contained the summary of participant responses based on this thematic category.

Thirty percent of the participants reported jingles as a learning tool when they were young or for their own children. Participant #2 said: “I like to teach them like the phone number . . . their address, date of birth, things they have to know . . . like to get into kindergarten . . . You put it to a little jingle . . . type song. . . .So they can retain it better.” Participant # 4 also shared how jingles were used in elementary. Participant #4

said: “Well the making the jingles, that probably goes back to like elementary school when the teachers would do that with me or middle school.

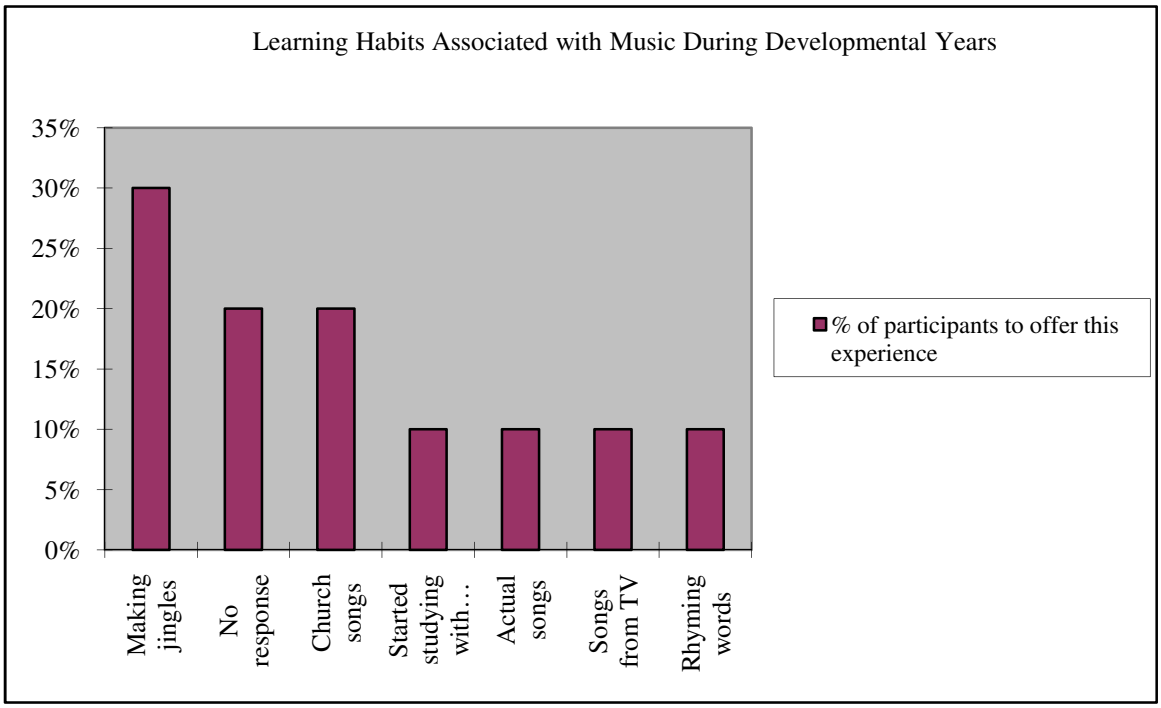


Figure 3 Distribution Chart of Learning Habits Associated with Music during Childhood

Table 2

Learning Habits Associated with Music during Childhood

Thematic Codes	# of participants to offer this experience	% of participants to offer this experience
Making jingles	3	30%
No response	2	20%
Church songs	2	20%
Started studying with music in high school	1	10%
Actual songs	1	10%
Songs from TV	1	10%
Rhyming words	1	10%

Theme 2: Students Use Upbeat Music When Studying

In the thematic category, type of music listened to when studying, most of the participants responded upbeat music (4 of the 10 participants, 40%). Other responses included classical music (2 out of 10 participants, 20%) and slow music (2 out of 10 participants, 20%). Table 2 and Figure 2 contained the summary of responses based on this thematic category.

Forty percent of participants reported to listening to upbeat music while studying. Participant #4 said: “I listen to all types of music but when I am studying, I usually listen to music that is most popular out right now.” Participant #5 said: “Most of the time rap and hip hop stuff is upbeat, keeps my mind going and focused.”

Table 3

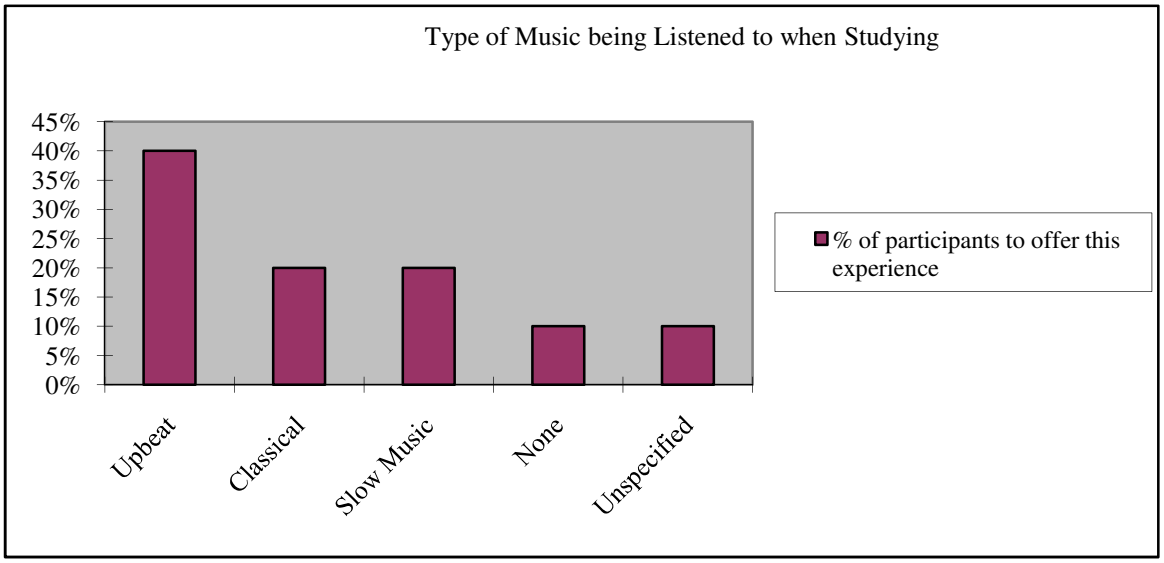
Types of Music Being Listened to when Studying

Thematic Codes	# of participants to offer this experience	% of partic this ex
Upbeat	4	40%
Classical	2	20%
Slow music	2	20%
None	1	10%
Unspecified	1	10%

Some participants reported to listening to classical music (20%). Participant #1 said: "I mainly listen to Classical music when I study. I have it on my iPod, put my ear plugs in and have it on low and study." Some participants also listened to slow music

Figure 4 Distribution Chart for Type of Music

Type of Music Being Listened to when Studying



jazz, instrumental jazz, and gospel. I don't play rap when I am studying".

Theme 3: Calming/stress relief, focus/concentration, and background are some of the uses and benefits of listening to music while studying.

In the thematic category, benefits and uses of listening to music while studying, seven thematic codes emerged. The most popular responses included: calming/relieves stress/therapeutic (8 out of 10 participants, 80%), focus/concentration (5 out of 10 participants, 50%), and background (4 out of 10 participants, 40%). Other responses included: Makes studying fun (3 out of 10 participants, 30%), motivation (3 out of 10 participants, 30%), drowns out noise (2 out of 10 participants, 20%), and better recall (2 out of 10 participants, 20%). Table 3 and Figure 3 contained the summary of responses based on this thematic category.

Most participants reported that music has a calming effect that relieves stress. Participant #1 described how music benefited her. Participant #1 said: "It's I find that the Classical music is calming, soothing and I feel like if I am relaxed, I can probably learn a little more, retain a little better." Participant #9 found listening to music while studying therapeutic. Participant #9 said: "I find it therapeutic. It helps me study better."

There are also participants who reported gaining focus and concentration as a result of listening to music while studying. Participant #7 said: "It helps me focus on what I'm doing, instead of listening to everything else when I'm trying to study." Participant #9 also shared how music gave her focus, "It kind of helps me to concentrate a little more."

Participants reported that music was primarily used as a background while studying (40%). Participant #5 explained how she used music as a background while studying. Participant #5 shared: "I just listen to it and I just like having something in the

background to listen to when I am doing things whether it is background music on the TV or I usually listen to it on my computer or on my phone, it just helps me to relax and to have something to listen to in the background while I am studying."

Some students also acknowledged that music can also be a distraction in studying. Participant #8 shared: "The problems are when I play music I often get distracted." Participant #6 shared turning off the music when it is distracting, "If it's a distraction, I'll turn it off." Participant #2 also reported that sometimes music can induce sleep.

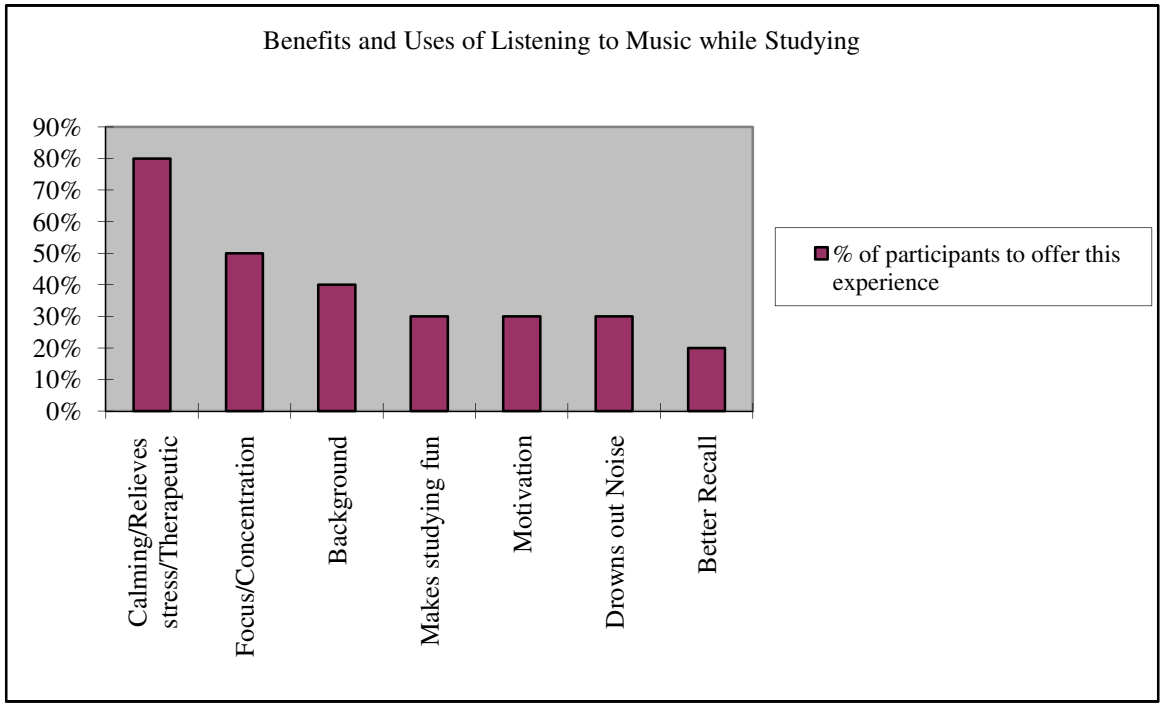


Figure 5 Benefits and Uses of Listening to Music while Studying

Table 4

Benefits and Uses of Listening to Music While Studying

Thematic Codes	# of participants to offer this experience	% of participants to offer this experience
Calming/Relieves stress/Therapeutic	8	80%
Focus/Concentration	5	50%
Background	4	40%
Makes studying fun	3	30%
Motivation	3	30%
Drowns out Noise	3	30%
Better Recall	2	20%

Theme 4: Association between music and knowledge is the reason for better recall when studying with music

For the thematic category, influence of studying with music on recall, the most popular response was the association of music to the information being studied influenced better recall (8 out of 10 participants, 80%). Some of the other responses included: can replay in mind (2 out of 10 participants, 20%), sticks to memory (1 out of 10 participants, 10%), breaks complex ideas into basic forms (1 out of 10 participants, 10%), and personalizes portions of the song (1 out of 10 participants, 10%). Table 4 and Figure 4 contained the summary of participant responses based on this thematic category.

Most of the participants believed that the association of music to the content to be delivered influenced better recall. Participant #9 described the experience:

> Sometimes when I am studying Pediatrics, and I was listening to a particular song like if I heard that song, it might trigger what I was reading at the time when I

heard the song….where if I am in the test, I am not humming the song while studying, but it kind of works that way.

Participant #4 also shared how music enhances recall:

It would help then because I would definitely associate the song that I am listening to if it is a song that I already know, I would definitely associate it with what I just learned or what was on the lecture notes because that is the last thing I learned to that song so regardless of whether there are lyrics to the song, I would probably sing the lyrics that I most recently learned.

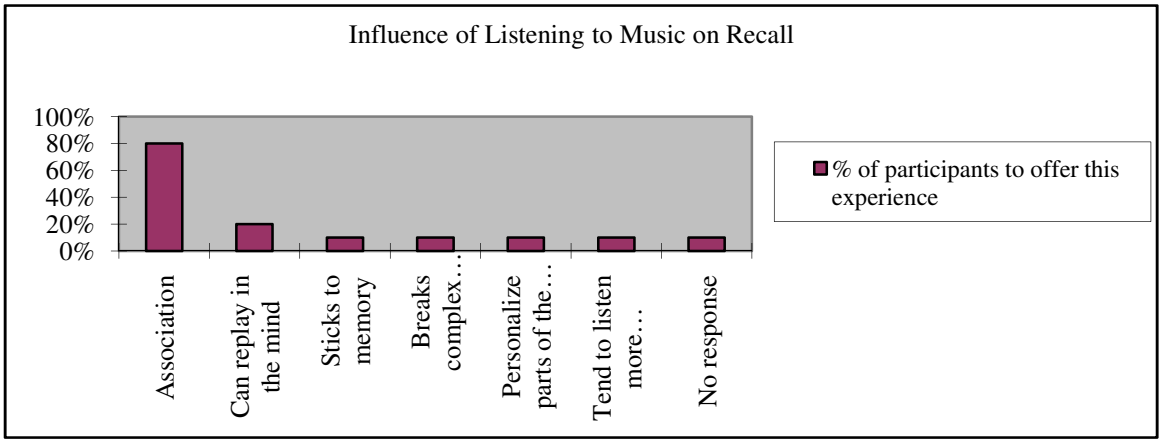


Figure 6 Distribution Chart of Influence of Studying with Music on Recall

Table 5

Influence of Studying with Music on Recall

Thematic Codes	# of participants to offer this experience	% of participants to offer this experience
Association	8	80%
Can replay in the mind	2	20%
Sticks to memory	1	10%
Breaks complex ideas into their basic forms	1	10%
Personalize parts of the song	1	10%
Tend to listen more carefully	1	10%
No response	1	10%

Theme 5: Convenience, repetition of information, difficulty in technical subjects, and a tool for retaining information are some of the opinions of students regarding making lecture notes into music.

Based on the thematic category, opinions on turning lecture notes into music, the most popular responses included: convenience (3 out of 10 participants, 30%), repetition of information (3 out of 10 participants, 30%), hard for more technical subjects (2 out of 10 participants, 20%), and helps retain information (2 out of 10 participants, 20%). Other responses included: more options for learning (1 out of 10 participants, 10%), makes tests less intimidating (1 out of 10 participants, 10%), and makes learning fun (1 out of 10 participants, 10%). Figure 5 and Table 5 contained the summary of responses based on this thematic category.

Most of the participants saw turning lecture notes into a musical number as beneficial. There were participants who thought that turning lecture notes into music

would be convenient for students. Participant #1 shared: “Actually that would be nice to be able to have that put to music so you could sit and listen to that while studying.” Participant #9 shared the same sentiment, “It would be more accessible as opposed to carrying a load of books around.”

Some students pointed out that turning lecture notes into music would give students the opportunity to replay information just like regular music. Participant #9 stated: “Because I listen to music so much, I could play it in my car, you know, I could play it in my room.” Participant #8 also pointed out that turning lecture notes into music would improve students’ retention of information. Participant #8 said, “It’s easier for me to remember certain types of rhythms and how the words are said, so I think it would benefit me in a good way”.

There were participants who believed that turning lectures notes into music for more technical subjects might be inappropriate. Participant #9 compared the use of music in churches and classrooms, “I think that with the church you are in that environment and you are expecting songs and dance and things of that nature. In a classroom that would kind of be a little unexpected. So you know people’s perceptions may be different.” Participant #5 explained why it might be difficult to turn lecture notes into music for some subjects. Participant #5 shared:

> Chemistry, I’m learning about endocytic things and exocytic things, and about ph scales and balances and acids and bases. I haven’t thought to myself something that could help me remember that. But based off the information that we’ve been given… a wide range of stuff, we don’t do the whole chapter base to base to base, we kind of skip around. And so it will throw you off because if you try to

set your notes to a jingle then at certain parts in the notes you'll be like, wait a minute, that doesn't go with that.

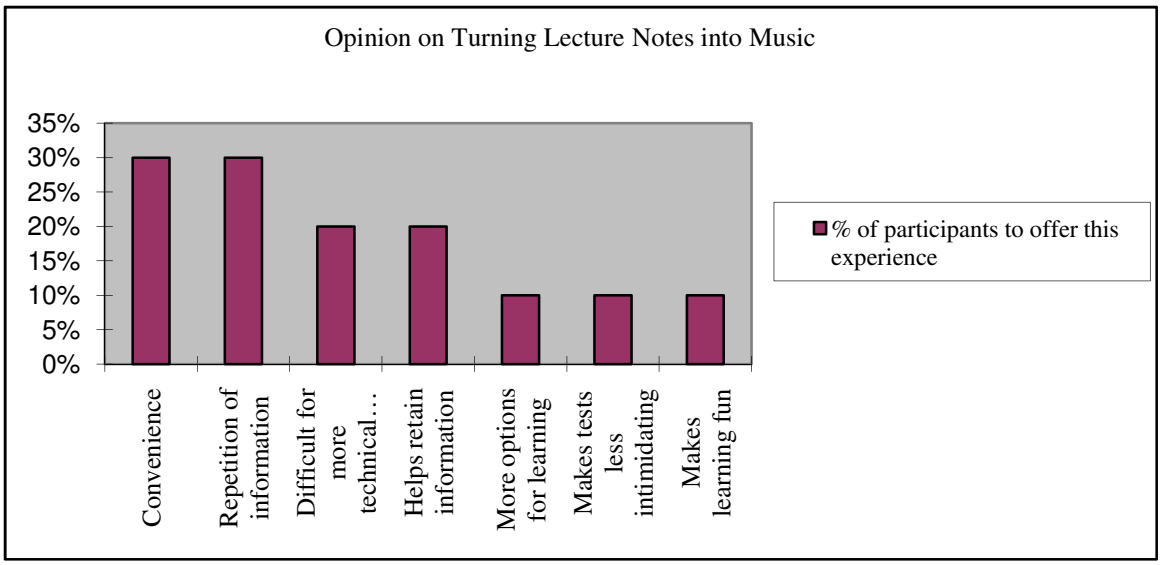


Figure 7 Distribution Chart of Opinion on Turning Lecture Notes into Music

Table 6

Opinion on Turning Lecture Notes into Music

Thematic Codes	# of participants to offer this experience	% of participants to offer this experience
Convenience	3	30%
Repetition of information	3	30%
Difficult for more technical subjects	2	20%
Helps retain information	2	20%
More options for learning	1	10%
Makes tests less intimidating	1	10%
Makes learning fun	1	10%

SUMMARY

This chapter offered a summary of the data for both quantitative and qualitative data. This summary of the data serves to introduce the reader to the discussion of findings in Chapter V. Theme emergence was shared in this chapter to give the reader a feel for the experience of the various students in their methods of studying and learning.

Chapter V will discuss the findings beginning with excerpts from the various interviews where they are analyzed for relationship of themes pertinent to the interviewees. Significant statements, categories, patterns, themes and associated meanings along with exhaustive description will be reviewed and discussed.

CHAPTER V

DISCUSSION OF FINDINGS

Introduction

In the previous chapter a quantitative study including a true experiment along with a qualitative phenomenological review was presented assessing pre nursing and beginning level nursing students degree of recall when content to be learned was delivered through music and describing the emotions/attitudes and perceptions of the pre-nursing and beginning level nursing students when lecture notes are delivered through music. This chapter provides a discussion of the results of the experiment. It further compares extant research with the affects of music on people and patients as it correlates with the results of the participants' interviews here.

The first section provides discussion of the use of music to study lecture notes (lyrics of the song) vs. the use of just lecture notes. The Alpha value was set at $p<0.1$ and the p value is p 0.096. There was no statistical significance between the two groups; thus, there was no statistical significance to this test. The results suggest some superiority in using music to study with as opposed to studying merely with the notes. This is indicated by the small margin of difference in the post test.

With a degree of freedom at 60 this suggests the sample was representative of the general population. Even though the sample size was representative of the population other variables could be, a) lack of understanding for procedure, b) not enough time to read the questions thoroughly for understanding and c) terminology for building a robot could have been too technical and poorly understood. More concretely, the number of degrees of freedom is the number of independent observations in a sample of data that are available to estimate a parameter of the population from which that sample is drawn. The qualitative themes and ideas supported and provided perceptions as to why the

quantitative data suggested using music in study showed some superiority over using just the notes.

The interviewees were pre nursing and first level nursing students in an Associate of Science Nursing Programs from the far west, mid west and far east. Their ages ranged from seventeen to fifty two. Following are discussions of the interview results and identification of similarities and themes among those interviewees.

Of the ten interviewees, only one was a male. The fifty two year old (Interviewee #1) was very clear that he used "Classical Music when he studies because he finds it soothing and calming." He further stated:

> If I have to jump back and forth taking notes etc. I don't do it (listen to music while studying". "If I am reviewing (lecture content), I will have the TV on or something but if I am heavily focused, I don't like anything else, I want to be one hundred percent focused on what I am doing because that is how I absorb the most on a kind of initial reading or going through something the first time. Now when I am going back and reviewing, again, theoretically it is already there, I am just retrieving it and making ahh..long term memory from short term memory.

When asked about recall, he commented, "Yeah, if I do hear a song or read something it might trigger a song I have heard before when I was reading something". In relation to this comment, he shared, We just saw a video in Microbiology about the Large Hadron (Hadron Rap You Tube, 2009), it is built between France and Switzerland, underground about twenty seven kilometers, to deal with colliding matter with antimatter and it was very helpful. There was music (a song being sung to a rap tune about the Hadron) going on the video. It was very helpful".

Interviewee #2, female is a mom in her forties. She participated in the study and used the notes/lyrics to study. She stated that she did not listen to music when she studied, except for maybe "Classical music because it is calming, but it might put you to sleep". She further stated that she used music with her children to "teach them their phone numbers and address, date of birth, things they have to know". She stated, "Yes, I can still remember songs from when I was a kid". When asked why she felt she still remembered the songs from since childhood she replied, "I dunno." I remember…like, even when people talk if they talk using fluctuation in their voice, or if they have an accent, you tend to pay closer attention to what they say". When asked if she thought she could remember content delivered in a song she replied, "Yes". When asked why she thought content to tunes for children helped memorization of that content, she replied, "Well, you're kind of associating a sound with knowledge, so you know that it goes to a certain sound". She stated that she listened to music while driving. When asked if she thought she would listen to a CD with lecture notes set to music while driving, she responded, "Yes". When asked if she thought she would remember the content on the CD, she replied, "Yes, once I learned that song, yes……..cause I would learn it". She further stated that she does not do that kind of thing now.

> Because it is not available, there is like no teachers teach you with music except music teachers. But, if it were available, like they have books on tape that you could listen to, mmhmm, I would use it. I would hope it would happen (teachers putting lectures in music on a CD), it could be beneficial". She said, "Definitely, Or even say I'm in taking a test and I can't remember, if I can sing a little song to myself, and I can remember…..yeah.

When asked, “Okay, so in that respect you’re saying that could be beneficial, because when you heard that tune again, some of those words would come back?” She replied, “Yes, I think it provides students wit more options to learn. If you’re not getting it when you’re reading, then you can get it (through the music on the CD). This student furthered that students listen to music a lot because if they didn’t, she said “MTV wouldn’t be so huge; neither would country music, television, none of that would be huge.” She sated, “If they (media) catch their (students) attention, if they can link it with some kind of emotion, some kind of experience in life, they can bring it, make, personalize it, I guess.” She added, “For me, I can tell you, if I hear a song that I really like and I don’t know the words I will Google the words, so I can learn the song”. This interviewee stated, “I have a lot of training in music.” “All of us (in our family) played some kind of instrument”. She shared that her four year old was ‘special needs’. She stated, “We put things to music, his spelling works are to music, um, we also incorporate other things like bouncing a ball or things that can catch on to, to know.” When asked why she did this for the ’special needs child’ she stated, “That is the only way his brain will work, like he has severe processing delay so he can’t hook things together unless you “put it to something”.

She shared that she is from a Polynesian background and much of their history is recorded in ‘chants’. She shared that this is why she “…understands what music does to the body. Music with words and a rhythm will override everything, my brain; it talks to it (the music) too. If it was music that I needed to know the content of what it is saying for like school, sure (I would listen to it).”

Then she said regarding lecture notes being set to music, “And you know, things like that to put lecture notes to would be doable because there are not a lot of distractions but there’s a rhythm there. The rhythm is often what catches them, and then the words kick in, it’s like knowing you move your right foot on the eight beat, every beat says something to them. And that’s how they remember what’s being sung or chanted or said”.

Interviewee #3 is a college student, female, just out of high school. She participated in the treatment portion of the study; she used music to study the lyrics. When asked her impression of studying with the content to be learned in a song which she listened to, she replied, “At first I wasn’t getting it, I couldn’t exactly understand all of the words. Then you let me see the words and it made all of the difference. I could understand what was being sung”. She further stated, “Well I use music a lot when I study, just music I like and it is like with exercise, I study along with the pace of the music. The music paces me”. She was asked if she liked exercising with music and she replied, “Yes, as a matter of fact, I do.” When asked if she used the music like a regulator, she replied, “You could say that”. She stated, “I started studying with music when I got into high school and college. It was what I saw others doing and I wanted to do it too. I thought if they could study with music, then I wanted to try it to. It seemed to be helping them”. When asked if it helped her, she replied, “At first, no. I just listened to it and tried to study. Then I tried humming the words in my head with the tunes and that helped.” When asked how this helped, she answered, “Well, I could associate the tunes with the words. So it was like a nursery rhyme. I learned nursery rhymes in tunes. So I started learning some of my schoolwork in tunes”. She was asked if this always worked for her and she commented, “No, it doesn’t. Some things you just can’t put to a tune, it’s

harder." Her response to learning with nursery rhymes as a child was, "Yes I guess, we learned the nursery rhymes." She further stated that she remembered the rhymes. When asked if she remembers what she read when listening to music, her comment was, "Some of it, especially when I put it to a tune and hummed it in my head". She gave an example, "Well, when I wanted to remember sterile technique, I just hummed the steps in my head to whatever music I was listening to. Sometimes I just listened to the same songs over and over because they are on my iPod and so when I heard this song, I hummed some steps of the procedure and when I heard the next song I hummed other steps of the procedure." She was asked if this worked to which she answered, "Yes, I guess. I didn't sing them all of the time but they sure came in handy when I was doing "pass-offs." When asked how she felt about having her lecture notes set to music, she commented, "I think I would like that. It would save me the trouble of making my own jingles!" In other ways she has experienced music being used she stated, "I have had some teachers to use music as background in the class room. I liked it. She was asked if this was done during lecture or lab, to which she replied, "Both, the teacher just played the music in the background during breaks in class. It was soothing."

Having established the themes and common perceptions among the interviewees, excerpts from remaining six interviews, all female, are presented in the table below showing the themes and perceptions appearing to exhaustion throughout all of the interviews.

Additionally, some common questions relative to the purpose of the study are excepted and categorized below with themes and concepts analyzed.

Table 7 *Excerpts from Interviews #4 - #10*

Excerpts of Analyzed Interview

This category revealed music was perceived as having the effect of a) therapy, b) relaxing, c) beneficial to learning, d) soothing, e) calming, f) helps to retain content, g) used to learn concepts as a child, h) used in jingles to remember content, i) beneficial to learning, j) motivational, k) helps me focus, l) helps me study and lecture notes set to music would be beneficial to learning. One of the participants did not use music to study. The remaining six participants stated they did use music to aid in studying.

Participant #4: stated, "I liked in the study how what I was learning was put to music, put to a rhythm. I don't think I could study or listen to music and study with it being about something totally different".

In response to how music was used in studying, participant #5 stated, "I just listen to it and ahm I just like having something in the background to listen to when I am doing things. Sometimes I dance to the music when I study. Studying is fun when I have music. If it is hard material I will make up jingles. It definitely helps. I have been making jingles to learn concepts since elementary school. It's motivational". Participant #6 shared, "To help me with studying and to help me get through the stress. I can't study in the quiet. I do my best when there is noise in the background. I have used songs in jingles to remember things since elementary school. It's motivational. Participant#7 stated, "I have it in the background playing. It helps me focus. The beats of rap music soothe me" and

participant #8 said, “Usually I just have it mild, while I read. It is often distracting so I read aloud and hear myself, not the music, and I can remember better. In nursing they tell us to create phrases and within the phrases there is a certain rhythm…when you create the rhythm, it is a lot easier to remember. I use it for therapy. It is therapy. It enhances my creativity”. Participant #9 said, “I find music therapeutic, it helps me study better, it helps me to concentrate a little more. Relaxation, I could clear my head, it removes anxiety, de-stresses so I can focus”. Finally, participant #10 said, “I use jingles to help me remember, I use it to help me focus; to help me concentrate”.

In response to “What benefits do you think would be gained if the lecture notes were set to music?” the responses varied. Participant #4 revealed, “When I took the post test, the words had stuck in my head. I could almost hear her singing. I could recall the information better….the rhythm and tempo helped. I think it would be really beneficial”. Participant #5 noted, “I would definitely associate the song that I am listening to and associate it with what I just learned or what was on the lecture notes…..I would probably sing the lyrics that I most recently learned. It would help them focus and stay awake. It helps me to learn.” Then participant #6 said, “It would help me learn difficult concepts if I could have nursing content in a jingle. It would help me learn. I would remember the voice, the high points and the low points”. Participant #7 shared, “It would help me, benefit me. It will help me retain information…help me to remember easier. Participant #8 said, “When you create a rhythm it is a lot easier to remember. Music would help me relieve stress”. Participant #9 said, “It might help me. I listen to music so much in my car, you know, I could play it in my room. It would be more accessible as opposed to carrying a load of books around”. Then, participant #10 stated, “I would listen to them.

My twin sister and I make up songs to remember things a lot. That's how we remember and learn".

When asked, "How do you think music should be used as a learning enhancement?" Participant #4 share, "Maybe a link on a website where students could download music with content as a secondary thing if they wanted to. Well, I was surprised it worked for me". Participant #5 shared "I think, yeah, I would be listening to the songs a lot, it would help me to remember the content." Participant #6 said, "For a variety of things; I listen to music to 'pick me up', to motivate me to smile, for concentration". Other responses were, "to retain information", "to change my mood", "to remove distractions" and "to remove distractions and help me focus and keep my interest."

When asked "Did you learn concepts as a child through using music, singing words of the content you were to learn, e. g. Nursery rhymes, biblical verses?" Each of the ten interviewees/participants responded "Yes".

In the beginning of this chapter, it was summarized in the quantitative results of the study where the results were suggestive that using music during study was superior to using just notes during study; that there were qualitative themes and ideas which supported perceptions of the participants as to why they used music as a learning enhancement. All of the students shared some common affects imposed on them as a result of using music to study. These affects encompassed feelings derived by the student from the use of music, the affect music has on the student in the environment and the cognitive benefits gained by the student as a result of using music. For this reason, the

next three categories of discussion of findings are subdivided into three domains: a) emotional, b) cognitive and c) environmental.

Perceptual Domains Discovered and Correlation with Theoretical Framework of Experiential Learning and Social Cognition

Cognitive:

Much of the focus in this study was aimed at how students perceive they learn material. As certain as there are many methods of teaching, so there are many methods of learning as Kolb (2006) reminds us how no two people will learn alike. This section will focus on some of those learning strategies reported by students. The recurring themes on using music to study are, a) music helps to remember, b) musical jingles help recall, c) catchy tunes are easier to remember and e) music helps the content to "stick".

Interviewee #3, a male nursing student in his early fifties stated he found very helpful a video used by his Chemistry professor during a lecture. In this video the action was enhanced by a rap tune about the Hadron (You Tube the Large Hadron Rap, 2008). This video is designed to teach students about atoms through a rap video and it found appeal in a male student over the age of fifty. As another female student, Interviewee #4, (female in late thirties) commented on how music videos, (MTV) wouldn't be so popular if people did not watch them. She furthered that media catches the students attention and then the student (or person listening) enjoys the music and the actions in the video for different reasons; often some of these reasons, she states, are emotional in that the viewer personalizes the information on the video (Kolb, 1986). This fact (that media catches viewer's attention) contributes to some of the reasoning of why so many viewers may love music videos (Vygotsky, 1978).

Another participant, Interviewee #7, a pre nursing student in her early twenties, said studying the words to the song and listening to the song helped her to associate the music to the words. She stated that she started doing this in high school. She explained how she did this by "humming the words of content to be learned" to the tunes in her head and there-by using this technique to study. She explained that this helped her to associate the tunes with the words. She says she was able to learn this way because this is how she learned nursery rhymes; in tunes.

Interviewee #2 who is female and a pre nursing student in her early twenties stated she did better with content to songs which she knew, implying that she could learn best when the content is set to a tune with which she is familiar. All of the participants agreed that they have been taught concepts, either in school or religious organizations through the use of music.

Interviewee #1, a female pre-nursing student in her late twenties stated that she doesn't think people really listen to the words of the songs because if they did they wouldn't hum the tunes to half of the songs. She notes how some songs really do not have very pleasant wording or meaning. Some of the words to some of these songs she noted are not very complimentary. In response to her feelings about content to be learned/lecture notes being set to music she offers, "Because I listen to music so much, I could play it in my car, you know, I could play it in my room. It would be more accessible as opposed to carrying a load of books around."

Interviewee #4, a nursing student in late thirties who is a mother of 4 children shared how she has used music to teach her children their home phone number and address. She shared how this method was the only method of teaching and learning

which her autistic child understood and responded to in the learning process. Because of how she has seen music work with her autistic son, she was of the opinion that content to be learned set to music would be beneficial to the learning process. She felt that it would be something that she would use. She stated that the only reason she did not use it now was because none of her professors really used music in that manner. She added that if any of her professors would put the content to be learned to music, that she would use it as a learning enhancement. She states she always listens to music and that she learns the words to the songs (by googling the words on the internet) and then she sings the songs. She contends she would do the same if the content to be learned in her classes was set to music and given her as a study guide.

Interviewee #5, a pre-nursing student in her mid twenties stated that listening music with content to be learned was a new experience for her. During this experiment was the first time she had listened to a song and wrote a test to expose how much she remembered from the song. From having this experience she stated she could recall the information better and that she could almost hear the song (even though the song was not playing) during her test taking e g "Like I could hear her saying it, it really stuck in my head." She said that she had learned concepts in elementary school with music such as nursery rhymes and music videos about safety (Kolb, 1986, Vygotsky, 1978). "Having the lyrics....that really helped me to listen and then hear the song with the lyrics there in front of me….just the music alone, I don't think it would have helped as much but reading along with the lyrics while she sang, that stuck with me". Speaking of the study and her participation in the music portion, "Well, I was surprised it worked for me…it worked better than I thought".

Interviewee #6 a pre-nursing student in her late teens shared she "had never had lecture notes set to music" but that she had "used jingles" which she created to help her remember content. Based on her assessment of results she obtained in retaining content, she felt that "having lecture notes set to music would be beneficial". It would help her because, "……I would definitely associate the song that I am listening to if it is a song that I already know, I would definitely associate it with what I just learned or what was on the lecture notes because that is the last thing I learned to that song (Kolb, 1986)…..She thinks that "….listening to music promotes learning through allowing the listener to focus;" that she "cannot study without music" because it helps her to retain the information which she is studying. "I have a hard time studying without music, like if I go somewhere and I realize I don't have my headphones to study, I usually go home and get them and come back. It is important!" She further stated regarding using musical jingles, "That is something I learned from them (elementary school teachers) when the teachers would do that with me in elementary or middle school" (Vygotsky, 1978). She states she does not use it as much in college, but "….there have definitely been times (in college) when I have had to use it!"

Interviewee #7 a nursing student in late twenties, shared this from her experience in the study, "I learned nursery rhymes in tunes, so I started learning some of my schoolwork in tunes". She explained this statement by sharing that she used jingles to associate and commit concepts to memory (Vygotsky, 1978). She also explained that this method does not always work for her because……"Some things you just can't put to a tune, it's harder." In relationship to her nursing studies, she shared, "Well when I wanted to remember sterile technique, I just hummed the steps in my head to whatever

music I was listening to. Sometimes I just listened to the same songs over and over because they are on my iPod and so when I heard this song, I hummed some steps of the procedure and when I heard the next song I hummed other steps of the procedure." "I just hummed in my head the steps in the procedure and then I 'passed off' that procedure."

Interviewee #8, a nursing student in her late teens shared how she has always studied with music. "In math we used PEMDAS, *Please excuse my dear Aunt Sally.* And for, umm, domain and range in my Algebra 2 class when I was in 10th grade, it was like, *X is domain and Y is the range."* She further stated that this tune helped because even in college when taking a test she would hum the song in her head stating it helped her remember because of "….the little song that we had." She furthered that she does not use jingle now as the kinds of content which she is studying, she can't make a jingles because "….you just got to know it". In her conversation about high school and using music to learn concepts, she was asked her opinion on using music to learn content in nursing and she shared, …"it would help to have jingles because when I was in 11th grade and based off of that, it's a lot of stuff that you need to know as far as the body and the different functions and different systems and stuff. If we could get jingles that will help us remember the different functions for the different systems and stuff, it will be a whole lot easier." This student believes that children listen and learn from Blues Clues and Sesame Street "Because it's easy to remember, that's the way I learned growing up. I used to always watch Barney and Sesame Street, and……that's how I learned to write cursive."(Kolb, 1986, Vygotsky, 1978)

Interviewee #9, a nursing student in her early twenties reported she uses music when studying and when doing "…..most anything." She also stated, "I remember a song I was playing while I was reading (certain content)". The songs help"….me to remember information [that was read]" She shared that in high school and elementary school how she used jingles. One of those jingles was the quadratic equation and she sang it, " *Um, negative B plus minus the square root of B-squared minus 4 a c, all over 2a, All over 2a.* She stated that she felt this type of learning e g setting content to be learned to music would "…benefit me." "It would probably allow me to remember easier. If I remember the tune, the tune will help me remember the words."

Interviewee #10, a nursing student in her late teens, states she uses jingles to remember a lot of things. She states she "…I come up with something catchy." In talking about her experience with being taught with lecture notes to music or learning to "set the content to be learned" with music, she discussed her English teacher who always used music because the class was "…..not always the funniest." Then she gave an example of how her math teacher taught them a jingle (Kolb, 1986). "And in math class, too, like, sohcahtoa, S-O-H-C-A-H-T-O-A, it's like, *s-o-h is opposite over adjacent, c is cosign adjacent over hypotenuse, and then tangent is opposite over adjacent, t-o-a*." She also discussed her sophomore year in high school how all faculty taught the quadratic equation with a musical jingle (Kolb, 1986, Vygotsky, 1978). According to this student, the teachers had gone to a conference and learned the jingle. She says that this is how she continues to remember the equation and then she sang the musical jingle explaining the formula for the quadratic equation. In answer to the question if nursing content to be learned was set to music, would it help her to learn, she answered, "Yes!, because then it

would help me to enjoy it…….it's like with commercial jingles, you like them because they are catchy". This student is also a twin. She commented that many of her classmates wondered in high school how she and her twin remembered so much content and her reply was, "Well, we do this [musical jingles]"(Vygotsky, 1978, Kolb, 1986).

Emotional (Affective):

There is much anxiety in school in general, in nursing school particularly due to the many tests given in the assessment process. Many of the interviewees shared comments about the emotional context of music and how they are affected by this emotional context and the resulting emotional effects of the music experienced by them. The recurring themes in this section are the effects of music such as, a) music is therapeutic b) music is relaxing c) music de-stresses d) music reduces anxiety and e) music is soothing.

Lashua and Fox (2006) studied children in a school of reform noting that these students were drawn to singing or rapping stories of their lives and injustices in society; they could release stress in this manner of rapping. A fair amount of depression and additional stress can be experienced by student nurses relative to the overwhelming amount of studying required and the cumulative stress of tests sufficient to initiate depression. Nursing students may employ music as a vehicle by which depression and anxiety are lessened, thus enabling student nurses to study more.

Of the ten students interviewed, the common themes on music's affect on emotion were the relief of anxiety, how it destresses, and how it gives an upbeat mood. Interviewee #1 gave an example, "…if you have something soft, instrumental, jazz, classical of that nature that would work……" Interviewee #2 continues with "To me it

is very relaxing, it is soothing to know that ahhh, that there is rhythm……it just, it relaxes me to hear it, just to tap my foot, it is a reminder or ahhm or when there is a word or a rhythm in the music sometimes what I do is I sing my reading so when I remember it….it is helpful to me. She comments that she thinks music should be used therapeutically, to relax the student. She adds that after a long day at school, "…when I go back to my room I put the music on and typically when I am stressed out I put a type of music I can sing to…..that is very loud I can just almost scream and that kind of helps me release my stress…..then I say, this is what I remember and this is what I don't remember…….it is therapy for me." She added that music "enhances my creativity". She finds it helpful to relate to a song. Sad songs remind her that "…its okay you know and reflect on the song and keep going".

Interviewee #3 found music "…is calming, soothing and I feel like if I am relaxed, I can probably learn a little more, retain a little better". Interviewee #4 thinks that music is "…..calming, but it can put you to sleep". Interviewee #5 thinks that using music "…it is funnier, you know, it isn't so intense…..…not so intimidating." Interviewee #6 feels listening to music while she studies is "……fun! It is mostly just helping me get motivated". She furthers by adding "It helps me to learn, like, it just; I think there is something mathematical about it. When you especially…….with jingles to music like the actual thought you are putting into it……I feel it translates into what you get back. I am incorporating the music into what I am studying."

Neither interviewees #9 or 10 (one in her late twenties and the other in her late teens)r had any emotional association with using music while studying. Interviewee #8 however, stated she listened to songs "that are going to pick you up, you listen to songs

that have meaning to them, that you know are going to motivate you to smile…….and when I am studying sometimes I listen to slower songs,……but I think that my concentration hits when I find a song that keeps me going." She sated that she puts on music in the morning when walking to class which is "upbeat". She enjoys music on campus in that it is "easier to interact with people" when speaking of music as a social medium. Interviewee # 9 found that "Uh, it just calms me down". She further stated regarding pop music that "it soothes me……..the music stills me and allows me to function."

Environment/Background (Psychological):

Vance (2006) used science-based lecture notes in songs to convey ideas and concepts to pharmacy students. The aim of this study was to enhance the motivation of students: (a) to affect the student's learning environment and (b) to create curiosity by using novel approaches and injecting personal and emotional material into the lecture for the purpose of involving the student (Vance). These overt behaviors/outcomes are influenced by personal factors, positive or negative, that are influenced by the environment represented by listening to music.

In this article, Vance (2006) discussed how music had been employed in health-care education before and explained how he incorporated music into "existing science-based courses in an attempt to reinforce course content" (p. 254). This process demonstrated the teacher's ability to match the motivational profile of the student with a stimulating teaching strategy. As a result of using music in the environment, he concluded that the incorporation of music and songs in pharmacy courses was a satisfying experience and could offer a stimulus for other health-care educators to try music as an approach in content delivery (Vance). Reading this, it may be easier to understand social assimilation and learning experiences (Vygotsky, 1978, Kolb, 1986).

Finding a stimulating teaching strategy would have to be commensurate with finding a stimulating learning strategy. Using music in the background has several implications for the interviewees. The recurring themes produced such effects as a) relaxes me so I can focus, b) helps me to concentrate, c) tunes out distractions, and it d) keeps me on track.

Interviewee # 1 shared that she listens to music on her computer while studying and "I have downloaded…..I have speakers hooked to my computer." She stated that this worked for her. She stated that certain types of music aid her concentration because the music is "….soft, it relaxes and aides concentration". She stated that she could not concentrate with Rap music. She further stated that many "….many people don't listen to the words; they get tied up in the beat". She shared that music could set the tone for the class, "….actually a lot of teachers do that…when I have music on to study I hear the music. But as I continue t study, the music kind of tunes out." She perceives that she has the music on in the background enhancing her learning by drowning out distractions. Interviewee #2 stated that when she listened to music "I often get distracted, but the benefit is that uh….I am a loud reader and if I read loud enough I will hear it and understand it better …..I hear the music in the background which gives me a little bit of umm a different distraction…….listening to the music makes me want to listen to myself so then I understand what I am reading instead of just reading." She further stated that upbeat music in the background makes her want to dance. She feels that musical jingles are good for study but often she gets anxious if she cannot understand the words so her feeling is there should be more ways offered the student to learn than just musical jingles (Kolb, 1986).

Interviewee #3 states that he prefers classical music on his iPod to study by. He only will listen to classical music when he is studying. Interviewee #4 shared she listens to classical in the background because it calms her and allows her to focus on her study. Interviewee #5 stated that she "just likes to listen to something when I study".

Interviewee # 6 shared that she likes music in the background because she may want to "move around a bit, it keeps me awake and it is just to have fun while studying!" She further shared her observations of other students. "I see people when I am in the library….with iPods in their ears and sometimes I will see a group doing a group project and they will have music playing in the background." She thinks the students are using music to study by because it helps them to focus. She stated, "I think for some people music helps them to relax and for others it helps them to have fun. I think for me it is both…..although I have heard research that says classical music improves the IQ, some people must just listen to have fun". She believes music "…..keeps them moving and for some people, yeah, it does help them to stay awake". Adding to this last comment, she stated, "I have a hard time studying without music……I think I get distracted a lot easier without music." Interviewee #8 stated that she used music to focus and to associate material learned. She furthered, "I like it in the class room as background. I like using it to tune out distractions and to help me associate the stuff I am studying……music alone in the background to keep me on track and focused." Interviewee #8 stated in response to the types of music which helped her during study:

> Umm, a lot of different things……most of the time rap and hip hop stuff is upbeat, keeps my mind going and focused. I can't say that the faster music makes me move faster and the slower music makes me move slower. The music that I pick is based on my mood at the time, so if I'm feeling calm, I'd probably play some R&B. It's not going to slow me down; it's just going to keep me level. And if I'm feeling upbeat, the upbeat music will keep me going and it will be that focus in the background that I need to focus.

Interviewee #3 stated "I just have it in the background playing; it helps me focus on what I am doing instead of listening to everything else when I'm trying to study." Interviewee #10 stated, "If I can't focus, and it's usually, like, slow music, like, it's not

like, upbeat music or nay stuff like that." She shared how she felt that having lecture notes set to music would "…. keep me on track".

Implications in Education and Correlations to Theoretical Framework

In conclusion, each nurse shared how music affects him/her. Setting content to be learned to music has been used by these students according to their testimonies since elementary school and many of them continue to use musical jingles in college (Table 2). They also enjoy the affect of having music in the background to study by and perceive using music to introduce concepts in class as a beneficial tool since some of the students had experienced this teaching strategy in other classes (Table 6).

In order to pull these perceptional domains together, the data was entered in NVivo software (NVivo, 2008). Vygotsky (1978) theorized that human development and learning occur in socially and culturally shaped contexts. The experience of the human being shapes who that human being becomes. So in a narrative piece of research, the reader should leave the document understanding more about how those people (the participants in the research) became who they are (Creswell, 1998). NVivo removes many of the manual tasks associated with analysis, like classifying, sorting and arranging information, giving the researcher more time to explore trends, test theories and arrive at answers to questions (NVivo, 2008). The data were classified and categorized through bar graphs and then subsequently models.

Similar themes and recurring attitudes and feelings were recorded and entered. On the cognitive graph below participants repeatedly reported perceptions that music helps to remember and that music helps content to stick. The theme repeated since childhood was evident in the perception that music jingles help recall. Concepts and ideas along with content to be learned continue to be delivered through music to the toddler, kindergarten, and elementary years (Figure 3). As noted earlier, this concept of learning and subsequent socialization (Vygotsky, 1978) with content delivered through music continues throughout high school (Figure 3). Bosaki et al (2006) addressed the problem

society laments with the aging elementary school children who listen to unsavory music while very quickly learning the lyrics. It is perceived from that article that the children listening to negative music acquired negative behavior and vice versus. For this reason, the article strongly suggested that music chosen for listening among students be that with positive values and convictions (Bosaki et al, 2006). This concept feeds into Kolb's theory of how humans learn from experience, even if it is a perceived experience; in this concept the perception is the children are taking on the character of the music. It is not difficult to understand then why pre-nursing and beginning level nursing students perceive they are retaining content when it is delivered through music (Model 1, Figures 5, 8). On these same lines, the participants perceived listening to music while studying as relaxing, soothing, relieves anxiety and is therapeutic (Figures 5, 9 and 10). These effects are benefits gained which according to the participants helped them to focus and study more effectively (Model 1). Perhaps some of these perceived effects gained from listening to music are influencing the perceived cognitive effects by increasing study time (Figure 5, Kolb, 1986).

Then, the interviews continue with recurring themes on how music is used to influence the environment (Table 9). Themes which saturated the data included how music helps the participant to focus because it tuned out distractions. Then, the participants reported that music in the environment kept them focused and allowed more concentration. Perhaps this is a portal of entry for the educator when matching student learning styles with those teaching styles of the educator.

Figure 8 Cognitive Benefits (effects) of Music

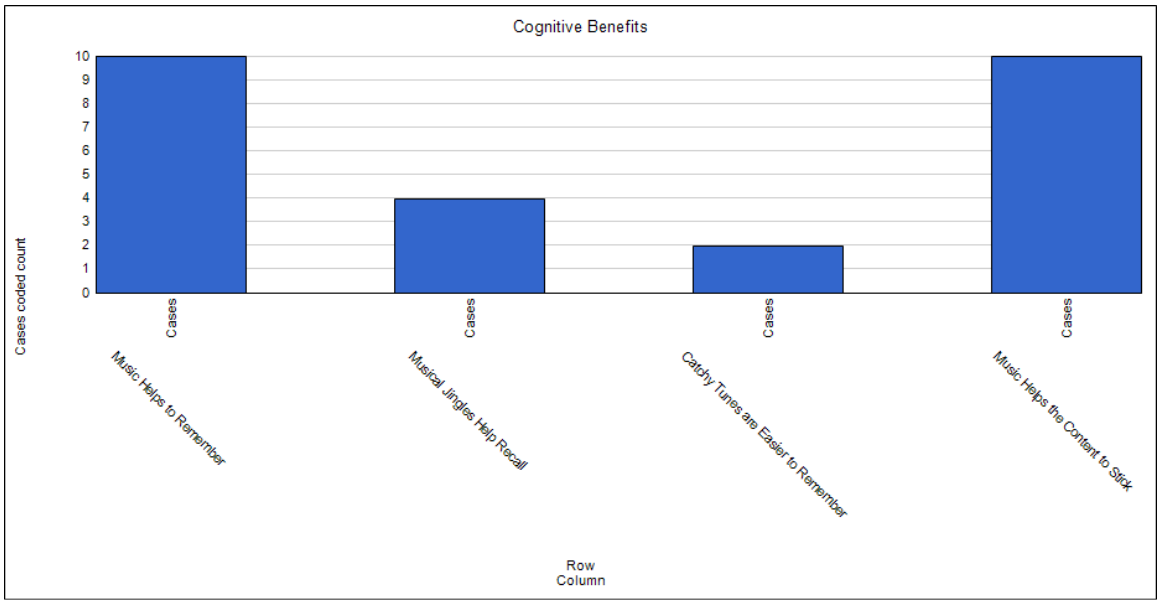


Figure 9 Environmental Effects of Music

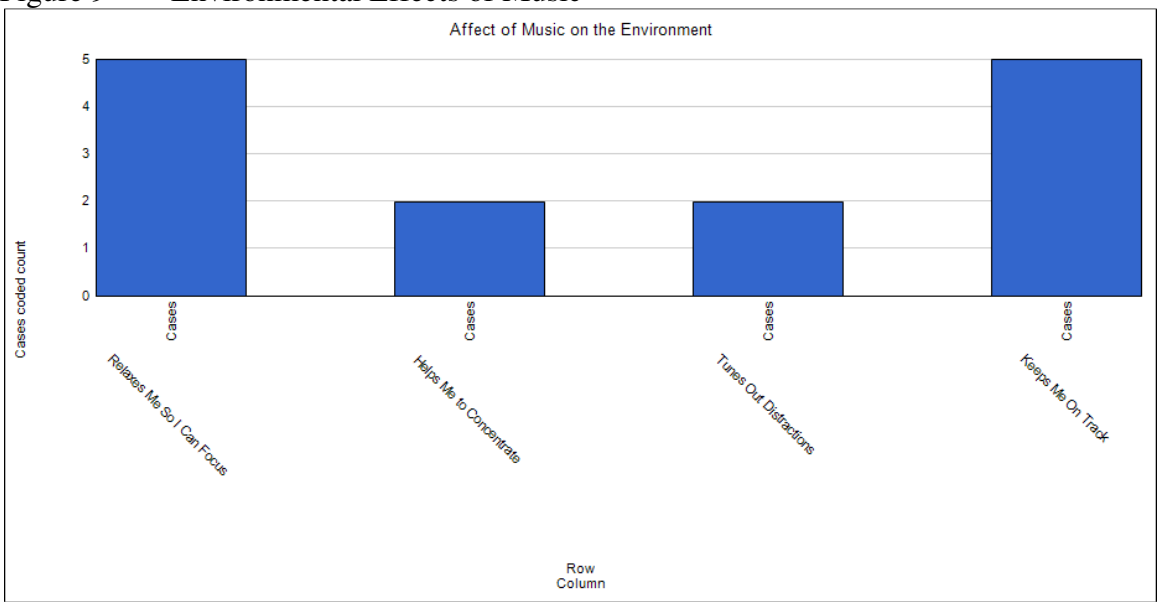
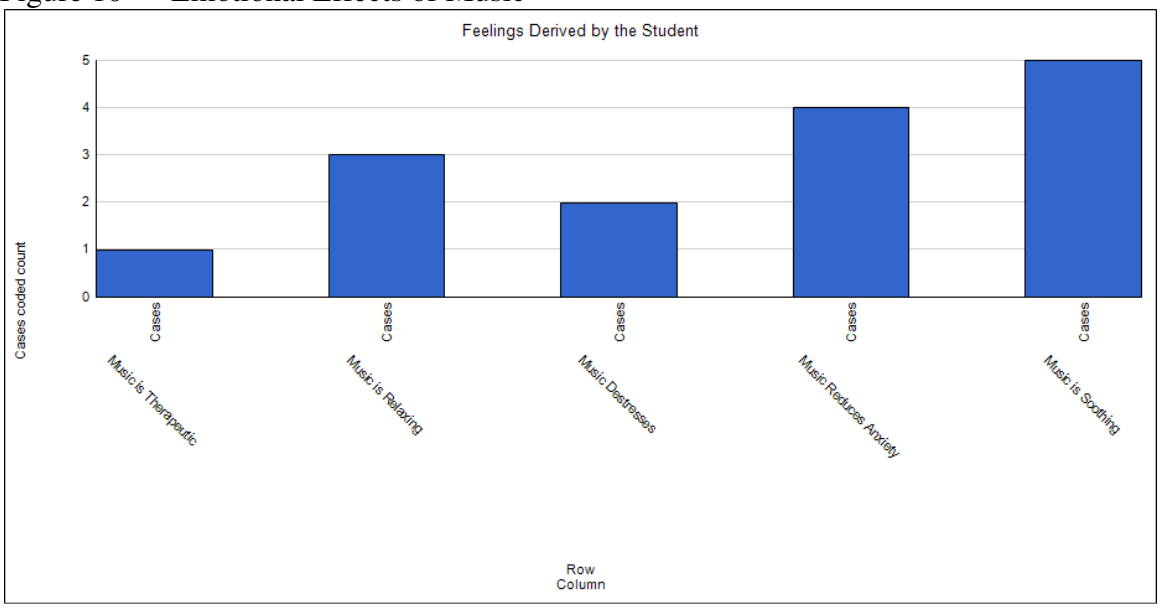
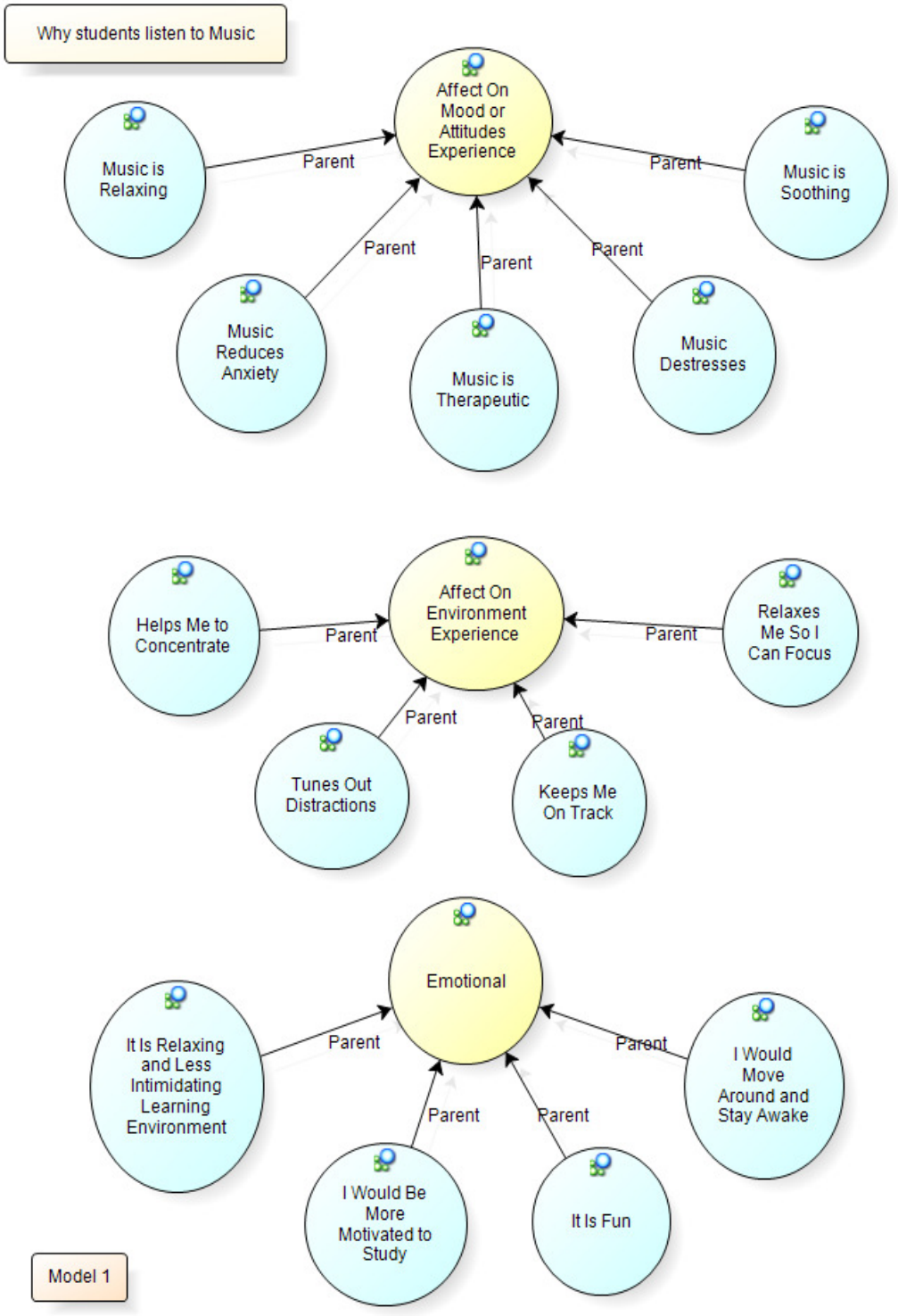
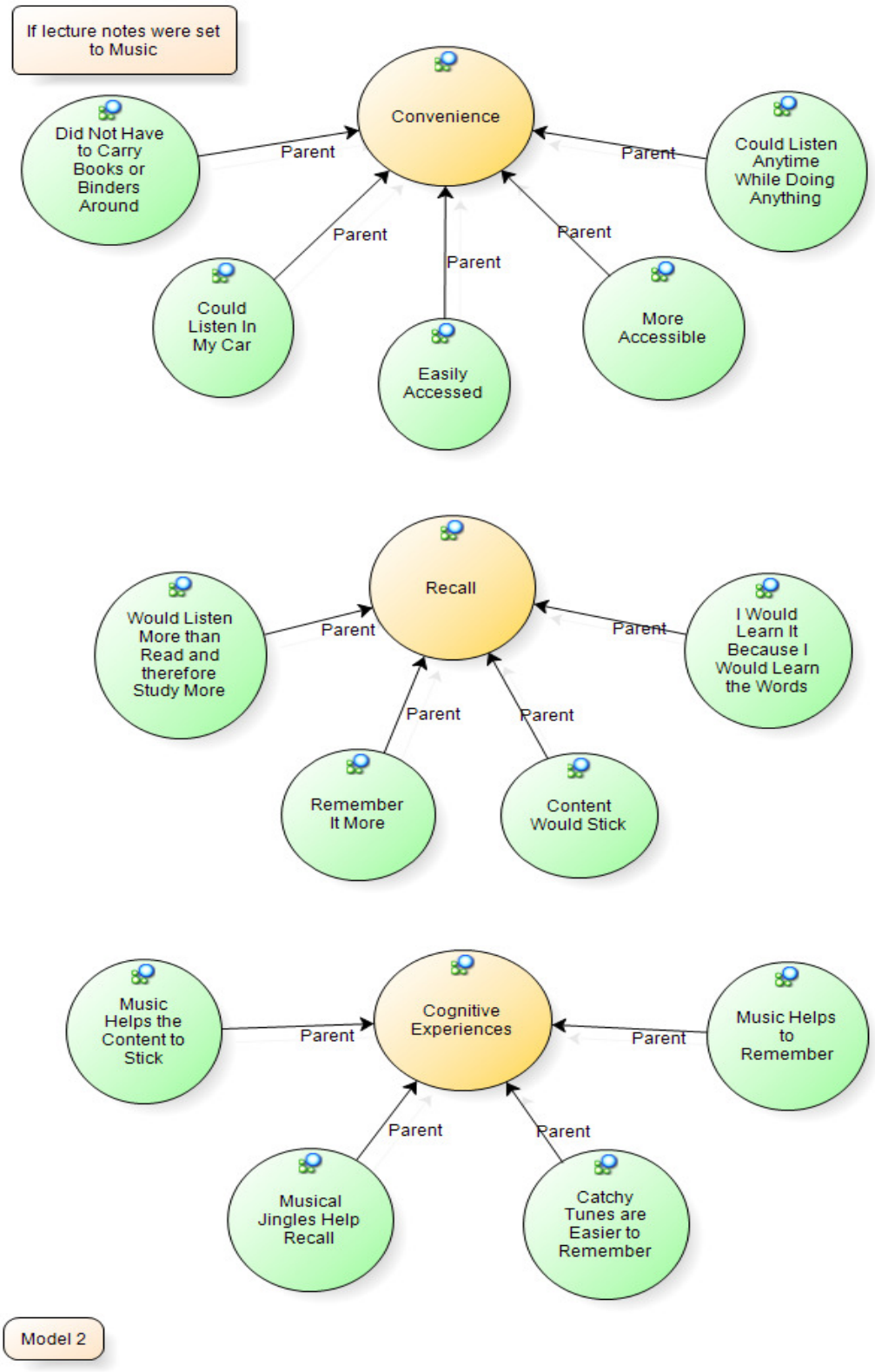


Figure 10 Emotional Effects of Music



Pulling from the above categories, the following 2 models were derived.


Why students listen to Music
Affect On Mood or Attitudes Experience
Music is Relaxing
Music is Soothing
Music Reduces Anxiety
Music is Therapeutic
Music Destresses
Parent
Affect On Environment Experience
Helps Me to Concentrate
Relaxes Me So I Can Focus
Tunes Out Distractions
Keeps Me On Track
Emotional
It Is Relaxing and Less Intimidating Learning Environment
I Would Move Around and Stay Awake
I Would Be More Motivated to Study
It Is Fun
Model 1


If lecture notes were set to Music
Convenience
Did Not Have to Carry Books or Binders Around
Could Listen Anytime While Doing Anything
Could Listen In My Car
Easily Accessed
More Accessible
Parent
Recall
Would Listen More than Read and therefore Study More
I Would Learn It Because I Would Learn the Words
Remember It More
Content Would Stick
Cognitive Experiences
Music Helps the Content to Stick
Music Helps to Remember
Musical Jingles Help Recall
Catchy Tunes are Easier to Remember
Model 2

Discussion

The primary purpose of this study was to describe pre-nursing and beginning level nursing students' perception of degree of recall when content to be learned is delivered through music, to describe the emotions and perceptions of the pre nursing and beginning level nursing students when lecture notes are delivered through music and if there was any perceived benefit gained when studying with music. The three domains of cognitive, emotional, and environment/background addressed ways nursing students perceive they use music to study. According to Kolb (1984) no two people will learn alike nor will they process information the same. In this vein, it was learned that each of these students had some experience with content to be learned delivered through music and that each student used music in a different way to gain benefit (Model 1). The students give examples of nursery rhymes in Kindergarten and Sunday school and in secondary schools they give examples of teachers delivering simple to complex concepts through music. The quadratic equation and PERT which are two mathematical equations/formulas which teachers taught using a musical jingle delivered to the students (Figure 3). They reported these experiences in childhood following them as positive experiences because they still remember the musical jingles, thus keeping the concepts fresh and easy to call upon (Figure 3). Having retained this information over the years, provided a 'tried and true' experience for the students. Experiential learning theory posits that learning is the major determinant of human development and how individuals learn shapes the course of their personal development (Kolb & Kolb, 2006 p. 4). People generally do not repeat bad behaviors or those which do not produce the results expected.

The students are attesting to this experience in Kindergarten and Secondary schools as the reason for continued use of musical jingles in college (Model 2 and Figures 3, 5, and 8). It is easy for them and it works to help them remember a formula or a concept. Through socialization of experiences from childhood through adulthood, a student learns what works best for him/her in their educational processes (Vygotsky, 1978). It would be the impression from this research that many students may hang on to old tried and true learning practices supporting Kolb's theory that learning is experiential (1984).

Cognitive

The student began as a learner in Kindergarten. Here nursery rhymes were shared and the student may have begun to notice styles of learning which were more effective than others. As the child left Kindergarten and moved into secondary schools they may have found some similarities in content delivery between school and other organizations (the church, perhaps); that similarity may have been content delivered through music (Figure 3). Learning continues to take place from elementary through high school. These students may have found further evidence of the association process in learning where they associated concepts learned through music in their activities of daily living; first perhaps realizing that they are actually remembering what is heard through music (Figure 8).

Hearing content to be learned delivered through music if not a realization to the student after secondary school, then certainly during these last thirty years (representing learning years for all of the interviewees) the idea of learning content through music may have come to a realization. This is attributable to the fast growing musical technology, the iPod, the MP#3 player, cell phones and various other paraphernalia available to students of that era and the continuing growth of musical technology today (Figures 5 and 8). Even if a student is not musically inclined, it is possible that association might bring

about assimilation; the student as a product of his environment uses these devices in order to stay current with his peer, playmate or classmate (iTunes, 2007).

Recurring themes in this category of perceived learning during study were a) music helps to remember, b) musical jingles help recall, c) catchy tunes are easier to remember and e) music helps the content to "stick" (Figures 5 and 8). Students frequently stated the repetition of the same music on a play list afforded memorization of what was being read when a particular song was sung, how they used musical jingles throughout school to learn a particular concept or to commit certain material to memory and how they perceived using music with content being sung to the music as beneficial to their learning experiences. (Figures 3 and 8).

Emotional (Affective)

Further insight into the student's use of music during study was gained by examining students' perception of how the music affects their emotional cues. The affect here ranged from soothing, to relaxing, to calming where the music "stilled me" to having the ability to de-stress. Additionally students' perceived use of music during study was fun and uplifting (Figures 9 and 10, Model 2 and Table 3). It seemed to help the student set the stage for study; or to set the mood for their study. Students placed much emphasis on de-stressing, and relieving anxiety as making this change in their life allowed them to study (Table 4).

From a broader perspective, studying to learn was the life-long task. Every behavior of the student centered on 'how to study better' which provided a wealth of knowledge about 'things not to do when the student wants the maximum benefit gained from study'. There is every reason to suppose that students applying knowledge and skills would retain some of the content delivered. According to this study, these students were looking for avenues to enhance their learning; hence they found that music

enhanced their moods which enhanced their study time (Model 2). Study disciplines from a perspective of learning must offer some promise to overcome difficulties acquired during study such as boredom to no desire to study. When music can soothe, de-stress, relax, calm and "still me", then it is easy to see how these behaviors can enhance a mood and in this case, the mood to study (Model 1). The students perceived their enhanced moods as a plus for studying and in some cases they repeated the behavior as they grew into high school and now college (Models 1 and 2).

Experiential learning theory posits that learning is the major determinant of human development and how individuals learn shapes the course of their personal development (Kolb & Kolb, 2006 p. 4). People generally do not repeat bad behaviors or those which do not produce the results expected. Since using music to create a certain mood brought about desired results, it is easy to see why this behavior was repeated by the student in college (Vygotsky, 1978). As the students grew into high school, learning continued to be the major determinant of the students' human development and shaped the course of the students' personal development relative to how the students learned.

Environment/Background

Some of the research which has been done exposing affects of music in the background on subjects includes the environmental feature to control and sustain behavior (Love & Burns, 2007) and Binkiewicz (2006) a history teacher who noted her students were wearing iPods frequently and even wearing them to class. She admitted that music in the environment, listening to music, not only gets the student's attention as a positive personal factor but it also involves the student; in turn, the student retains the concept as an overt behavior/behavioral outcome more easily when taught with music. In addition, playing the musical tunes in the environment that incorporate her lecture notes serves the purpose of introducing the topics and concepts of the day. The recurring themes under the environmental domain were a) relaxes me so I can focus, b) helps me to concentrate, c) tunes out distractions, and it d) keeps me on track (Table 4). Since

relaxation allows the student to focus, and music in the background relaxes then the purpose of music here is twofold; it provides relaxation so the student can focus (Figures 5, 9 and 10). The affective domain (mood) can affect the environment. The student enhances the mood and then is able to focus and have a more pleasant and meaningfully engaged study session. A focused student is likely a student who is able to concentrate. Using music to study was perceived as tuning out distractions (Figure 2).

Even though music itself could be a distraction, as a constant and steady beat and during study the student eventually tuned the music out. It was perceived as a *constant* in the background that served to tune out all other distractions. One student perceived her study habits as those that would be very distracted without the use of music in the background. Again, many of these ten students had used background music since children in kindergarten and elementary school in a variety of ways (Figure 3). These studying styles of the interviewees were perceived by the students as studying styles which had matriculated with the student through time since their beginning learning stages (Kolb, 1984). This fact alone emphasizes the important role that experience plays in the learning process.

One student perceived rap music and music with words as not a study venture that would enhance her studying and learning. For this reason she suggested soft jazz, instrumental or classical. Other interviewees perceived their study sessions to be more enhanced with R&B or even rap. As the one interviewee stated how rap music was more motivating and that she would use the rap or R&B to stimulate her mood after which time she would turn the music down and read her notes out loud to drown out the music. She stated she could hear herself read and learned better that way (Model 1).

As a result of hereditary hardware, our experiences in life and the demands of the environment in which we live, most of the students in today's society will develop different learning styles some of which will be superior to others (Vygotsky, 1978). It is a mission of the student to discover where these studying styles meet their learning styles

so there is a winning match. A winning match will produce enjoyment and purpose during study time. This fact alone could combat boredom and lack of interest. It is at this point where the student stops studying and thus stops learning. For this research period there were few articles discussing how students used music during studying so the findings here are original.

Limitations of the Study

Since there were no previous sample sizes with which to compare the sample size, the rule of thirty was used which simply states there should be thirty subjects for each group (Boswell & Cannon, 2007). This study satisfied the aforementioned rule which was fulfilled; thus, study size was not a limitation to the quantitative portion. Because this study only tested nursing students, the results could be interpreted as holding true only for nursing students. However, according to Mapes, 2009, there are more students than nursing students listening to music while studying (Mapes, 2009). Grace Fleming who blogs regularly on the internet about subjects of interest on education recently conducted a study through the New York Times and the data showed that over half of the forty-six participants posted to the site use music during study. These students are your average student and adult (Flemming, 2009). Based on similar research and the current research, type of student used in the subject would not limit the study. While the scope of this current research was somewhat broad using both qualitative and quantitative (mixed methods) this research is representative of larger populations proven by the degree of freedom shown in the quantitative portion of the study, 60%.

Another possible limitation to the study is the fact that two of the students knew the researcher. Knowing the researcher could have made the students more inclined to answer in a manner favorable to the instructor. For this study, the students were not aware of what was needed for the pre test.

The students had little time to offer but conceded to participate in the study during lunch time. They offered forty minutes of their lunch time at two of the universities which may have caused them to feel a time crunch during the quantitative portion of the study paying less attention to the questions being asked on the test. The process of building a robot included terminology relationships which may have been somewhat complicated to remember thus had the participants been given more time to study the results may have been different.

To provide rigor and thereby protect validity of the study, a subject which was unknown to the students was chosen, *Building a Robot.* Even though the *wording* used in the subject was familiar, the concepts taught in the subject of *building a robot* could have been found difficult by the student as there was no basis or prior knowledge upon which to attach this information and thus there were no concepts to connect the new learned content. This was another limitation to the study.

This research involved the East, West and Mid West states. The north eastern Universities were not involved. The European countries were not included in this study; subsequently, none of that culture or population of people could be implicated in this study. This was a homogenous study which targeted student nurses, only. This could have been a limitation.

Implications for Nursing Education and Research

This research described pre-nursing and beginning level nursing students' perceptions of the degree of recall when content to be learned is delivered through music, the emotions and perceptions of these nursing students when lecture notes are delivered through music and their perceptions of using music as a learning enhancement. Since educators are involved intimately in the teaching of nursing students, it is equally important for them to understand how the student perceives their learning and what they perceive as their preferred learning styles. This understanding prevents bias in teaching

with a subsequent mismatch in teaching strategies where these fail to meet the students' preferred learning style. This concept can be applied to nursing education and research.

Nursing Education

Faculty in the position of teaching would want to avail themselves of all knowledge in the literature which addresses teaching and learning styles and particularly literature where the learning style of the students are discussed. Incorporating these findings in both the didactic setting accompanied by various teaching strategies is imperative for advancing effective learning processes in the class and in the study arena. Nursing faculty with responsibilities in the areas of design and implementation of curricula would have to be in-serviced in this area. Exposing the educators to the cognitive, affective and environmental worlds of the student is conducive to the faculty meeting the students on a common learning turf. Workshops that visit these areas of *teaching and learning* would be especially beneficial to the educators.

Attending workshops of an informative nature as aforementioned polishes the planning of an effective curricula process. All faculty must be on board as planning for effective learning experiences and understanding how a student learns requires effort on the educator's part. This multidisciplinary approach could be easily designed and coordinated at universities where the beginning levels of nursing are taught. Starting at the beginning level of instruction enables the faculty to assist the student in his/her learning environment throughout that student's educational journey. This could prove beneficial for the students and the faculty.

Nursing Research

Nursing research in this area continues to be minimal. The illumination of possible student and educator mismatch in teaching and learning styles leaves much room for continued research in this area. Faculty perceptions of how they meet the students preferred learning styles are little studied if at all. More research is required in this area in order to address and meet the perceived learning styles of the students.

A strength of this research is the original work here exploring the students' perception of how they study; their perceptions of the benefits of studying with music and their perceptions of the benefits of having content to be learned delivered through music. Further studies should be conducted to validate these perceptions through the study of more student populations on larger scale. A national internet study could be performed using survey monkey where students could go on line and complete a survey of the students' perceptions. This simplicity and quickness of a study like the one aforementioned might fit well with this techno savvy generation.

Further, songs with study content could be developed and given students to use. Since this is a techno savvy generation, this medium of learning could be set up from a website where the songs are located and could be downloaded with an MP3 player. This might encourage more participation and its frequency of use could be monitored and recorded as data; this would show the percentage of those students who potentially like to study content to be learned delivered through music. This could prove especially valuable where nursing students have been identified as those enjoying the use of music in their study. It could save the educator lecture and review time.

Final Summary

Current research in the area of nursing students using music during study is non-existent according to this author's search which returned no subject matter relative to nurses studying with music or relative to nursing students studying with music and the benefit to recall when content to be delivered is set to music. Instead, the literature focused more on how music relaxes patients. The former is even less available. Little is written in these areas and as such more research is required. The purpose of the study was to survey the pre-nursing and beginning level nursing students' degree of recall when content to be learned is delivered through music, to describe the emotions and perceptions of the pre-nursing and beginning level nursing students when lecture notes

are delivered through music and to explore these students' perception of music as a study enhancement.

Since educators are intimately involved in teaching, it behooves the organization to be interested in how students use music or any material for the purpose of studying. A mixed method, experimental qualitative phenomenological inquiry research design study was conducted. Participants were recruited through the local participating universities by way of a flyer (Appendix F). This study involved 62 pre-nursing and first level nursing students where a true experiment was conducted under the quantitative portion of the study. The study was conducted at three universities on the East, West and Mid West of the continent. The results were tabulated using a two sample *t*-test. The alpha p value was set at 1.0 with an actual p value of 0.096. There was no statistical difference between these two groups; however there was some superiority demonstrated (Figure 1) in using music with notes over just using notes to study. The interview process commenced immediately after the quantitative portion of the study was completed, utilizing open ended to generate data. This phenomenological approach was used to solicit all content related data with questions designed to seek answers to what experiences the nurses had with cognitive, affective and background domains of study environments. Using NVivo (2008) software, the common threads, concepts, ideas, attitudes and perceptions were analyzed and these threads were pulled through and reviewed to exhaustion. These common threads, concepts, ideas and attitudes were analyzed separately, and within the domains of cognitive, emotional, and background, these concepts were compared across interviews to identify categories, patterns and themes.

In the synchronization of the qualitative research, data analysis revealed patterns that emerged across interviews when as structural elements were re-looked, the common threads such as *relaxation*, *helps me focus* and *I can remember things associated with the music* continued to surface (Model 1). Cognitive responses highlighted *recall a*nd the

ability to remember content because it could be associated with words and music in the song (Model 2). According to this research population there is benefit to recall when music with content is listened to while studying (Figures 5 and 8, Model 1). It would seem the students have found a learning enhancement and they are using it.

More student and teacher satisfaction would have to be gained when students are studying effectively and can raise their scores because they have increased retention. This fact alone must serve to increase the students' self esteem and raise the bar on student outcomes. Faculty might be ready to implement some sort of music in class for the purpose of introducing new concepts. It is easier on the students end to study with the aid of music but much more difficult on the facultys' end to create a teaching environment where music is used in the classroom. This piece of the puzzle would require the faculty member to be very prepared with maybe a song which introduces the lecture for that day. Setting the lecture notes to music will require forethought. The local university choir might agree to composing and singing the lecture notes to music which would relieve the faculty of the chore to hire a soloist or to compose the music. Of course faculty would need to supply the words to the songs.

With thought and planning and the input of the students, this could be done, but not without much effort. Faculty would have to be willing to participate. All students may not benefit from this method (music) and may not view it as an enhancement; thus, multiple approaches to teaching should always be entertained. Music is just one option. Students have far less planning; they literally put ear phones on and they are ready to go with their special play lists.

Drawing on Kolb's theory of experiential learning (1984) and Vygotsky's theory of social cognition (1978) this study attaches its significance on the underpinnings of experience in the learning process throughout physical development and the assimilation of these experiences in the social culture of the beginning level and pre-nursing student throughout their social development (Vygotsky, 1978).

Experiential learning theory posits that learning is the major determinant of human development and how individuals learn shapes the course of their personal development (Kolb & Kolb, 2006 p. 4). People generally do not repeat bad behaviors or those which do not produce the results expected. Experience-based learning is a very familiar model of learning behavior. This theory as explained is the process whereby knowledge is created through the transformation of experience (Kolb, 1984). The cycle begins in childhood where the child has an experience with music; this is the concrete experience. Music may be introduced in the nursery as well as preschool where nursery rhymes are taught through music and song (Vygotsky, 1978 and Figure 3). This would be when what is observed becomes conceptualized and later, experienced. This study defines the development of the beginning level and pre-nursing student in a culturally socialized environment (Vygotsky, 1978) where learning took place in a culture of music (Vygotsky, 1978) and this culture continued based on that past experience (Kolb, 1984).

Conclusion

This study provides crucial information for the faculty who interacts with and seeks to gain engaged learning curricula. Data analysis identified behaviors of students engaged in studying with music and their perceptions of having content to be delivered set to music. This study was intended to speak to the educator and offset the fear of trying something new with a degree of assurance that students will reap some benefits. This study aimed to gain an understanding of students' perception of music as pedagogy. An innovative teaching strategy that gives faculty another option to meet the student on common learning turf could be using music as pedagogy.

Experience-based learning is a very familiar model of learning behavior. This theory as explained is the process whereby knowledge is created through the transformation of experience (Kolb, 1984). The cycle begins in childhood where the child has an experience with music; this is the concrete experience. Music may be introduced in the nursery as well as preschool where nursery rhymes are taught through music and song (Vygotsky, 1978 and Figure 3). Kolb makes a point of stating that students preferentially process what is taken in by using various methods. Experience is one of these methods. It is with this theory of learning developed by Kolb (1984) and Vygotsky's theory of social development (1978) upon which this research is predicated.

Vygotsky (1978) theorized that human development and learning occur in socially and culturally shaped contexts. The social cognition learning model asserts that culture is the prime determinant of individual development. Humans are the only species to have created culture, and every human child develops in the context of a culture. Therefore, a child's learning development is affected in ways large and small by the culture–including the culture of family environment-in which he or she is enmeshed. The experience of the human being shapes who that human being becomes (Vygotsky, 1978, Figures 3, 5 and Model 1). So in a narrative piece of research, the reader should leave the document understanding more about how those people (the participants in the research) became who they are (Creswell, 1998)

Application of insights gleaned from the study serve to increase the awareness of the faculty and how they meet the individuals need on common grounds of teaching and learning. Further application of knowledge gained from this study will increase faculty understanding of how student nurses learn, will add to the lack of research on this subject

in the extant body of knowledge and will contribute to the educational process in the science of nursing education.

References

Aim Info. (2007). Breaking news: Share your music with your buddies via AIM Buddy Tunes. In Gregsblog (Ed.), *Snow patrol signal fire* (pp. 1-2). Retrieved September 29, 2007, from Aim Info Web site: http://www.aol.com.

Binkiewicz, D. (2006). Tunes of the times: Historical songs as pedagogy for recent U.S. history. *The History Teacher, 39*(4), 515-520.

Bittman, B. (2004). Recreational music-making: An integrative group intervention for reducing burnout and improving mood states in first year associate degree nursing students: Insights and economic impact. *International Journal of Nursing Education Scholarship, 1*(1), 29-72.

Bosaki, S. Francis-Murray, Pollon, & Elliot 2006 Sounds good to me. *Music Education Research, 8*(3), 369-385.

Boswell, C., & Cannon, S. (2007). *Introduction to nursing research incorporating evidence-based practice.* Sudbury, MA: Jones and Bartlett.

Campus Health Services. (2010). Retrieved January 23, 2010, from University of North Carolina at Chapel Hill Web site: Campushealth.unc.edu/ index.php?option=com_content&task=view&id=502

Cantor, James S. (2006). Fearless Innovation--: songwriting for our lives: Inspiring Learners with Arts-Based Practices That Support Creativity. *Multicultural Education, 2*(14), 57-64.

Creswell, J. (2009). *Research design: qualitative, quantitative, and mixed methods approaches* (3rd ed.). Los Angeles, California: Sage.

Creswell, J. (1998). *Qualitative inquiry and research design: choosing among five traditions.* Thousand Oaks, California: Sage.

Cockerton, T., Moore, S., & Norman, D. (1997). Cognitive test performance and background music. *Perceptual and Motor Skills, 85,* 1435-1438.

[The] Committee on Academic Programs & Teaching, (2005).*Learner-centered teaching and education at USC: A resource for faculty.* Retrieved September 28, 2007, from USC Center for Excellence in Teaching. http/www.usc.edu/academic/acsen/documents.

Cooke, M. (2005a). The effect of music on preoperative anxiety in day surgery. *Journal of Advanced Nursing, 52*(1), 47-55.

Cooke, M. (2005b). Music and its effect on anxiety in short waiting periods: A critical appraisal. *Issues in Clinical Nursing, 14*(2), 145-155.

Fletcher, G. (2007). It's time we got "crazy." *The Journal, 34*(8), 10.

Flemming, G. (2009). Do you listen to music when studying? About .com. *Retrieved from* http://homeworktips.about.com/b/2009/09/14/do-you-listen-to-music-when-you-study.htm.

Flom, R. (2009). Babies and Beethoven: Infants can tell happy songs from sad. *Brigham Young University News Release.* Retrieved August 2009 from http:://news.byu.edu/archive08-Oct-babymusic.aspx.

Gardner, K. (1991). Music as medicine. *Inner Space, 74*(2), 136-137

Gee, P. (2003). *Video games, mind, and learning*. Tashia Morgridge University of Wisconsin-Madison presented at the Contributions of Game Studies, Madison, Wisconsin.

Gehr, R. (2008, January-February). Tunes in our head: Oliver Sacks on the power of music to heal us and transform our lives. *AARP*, pp. 24-26.

Good, M. (2001). Relaxation and music to reduce post-surgical pain. *Journal of Advanced Nursing, 33*(2), 208-21.

Hejazi, S., Ashayeri, H., Mahmoodi, M., & Omidi, S. (2005). Effects of music on depression in students of Iran University of Medical Sciences. *Faculty of Nursing & Midwifery Quarterly, 14*(47), 56.

iTunes popularity to surpass real player in 2007. Website optimization.com. Retrieved from http://www.websiteoptimization.com/bw/0702/.

Iwamoto, D. (2007). Feeling the beat: The meaning of rap music for ethnically diverse Mid western college students—a phenomenological study. *Adolescence, 42*(166), 337-351.

Jefferson, G. (2007, October 1). Music industry finds new beat in online recommendations. *The Salt Lake Tribune,* p. E1.

Kolb, A., & Kolb, D. (2006). *Learning styles and learning spaces: Enhancing experiential learning in higher education.* Cleveland, OH: Case Western Reserve University.

Kolb, D. A. (1984). *Experiential Learning: Experience as the source of learning and development.* New Jersey: Prentice-Hall.

Lashua, B., & Fox, K. (2006). Rec needs a new rhythm cuz rap is where we're livin'. *Leisure Science, 28*(1), 267-283.

Lee, O. (2005). Music and its effect on the physiological response and anxiety levels of patients receiving mechanical ventilation: A pilot study. *Journal of Clinical Nursing, 14*(4), 609-620.

Love, A., & Burns, M. (2007). "It's a hurricane! It's a hurricane!" Can music facilitate social constructive and sociodramatic play in a preschool classroom. *The Journal of Genetic Psychology, 167*(4), 383-391.

Mapes, Chloe. (2009). Should iPods be banned from study hall? *The Daily Herald. Retrieved from* http://www.dailyamerican.com/articles/2010/02/19/teens_talk/qow/question983.txt.

Minitab, (2010). Minitab incorporated, United States of America. Retrieved from www.minitab.com.

Minkel, W. (2002). *Research shows that technology coupled with a qualified librarian makes for better students.* Retrieved November 10, 2009 from http://www.schoollibraryjournal.com/article/CA260694.html.

Mormonchic. (2010, Jan 23). Teaching kids gospel principles [Msg Tips for teaching kids]. Message posted to Http://www.mormonchic.com/gospel/teaching_kids.asp.

[The] Mother Goose Page. (2001, March 21). On reading nursery rhymes with children [Msg Reading nursery rhymes with children]. Message posted to http://www-personal.umich.edu/~pfa/dreamhouse/nursery/reading.html#s.

Mulder, J. (2007). Music taste groups and problem behavior. *Youth Adolescence, 36*(1), 311-324.

National League for Nursing (2008). *NLN Core Competences* [Data file]. Available from http://www.nln.org.

New York Times Company. (2010). *Grace's Homework/Study Tips Blog* [Blog]. New York: New York Times Company.

NVivo, (2008). QSR International. Qualitative Research Tools. Retrieved from www.qrsinternational.com.

Sacks, O. (2007). A neurologist's notebook. The abyss: Music and amnesia. *The New Yorker, 1*(2), 1-9.

Soric, I. (2009). *Regulatory styles, causal attributions and academic achievement*. 30,4, 403-420. DOI: 10.117/0143034309106946.

Starkman, N. (2007). What students want: Leave me alone. . . . I'm socializing. *T.H.E. Journal, 34*(3), 32-38.

Stiler, G. (2007). MP3 players: applications and implications for the use of popular technology in secondary schools. Retrieved October 2, 2007, from http://www.questia.com/reader.

You Tube (2009 August). The Large Hadron Rap. Retrieved from http://www.youtube.com/watch?v=j50ZssEojtM.

Vance, M. (2006). Incorporating music into health care education: Experience at a college of pharmacy. *Education for Health, 19*(2), 251-255.

Vygotsky, L. (1978). *Mind in society: The development of higher psychological processes.* Cambridge, MA: Harvard University Press.

Webster, N. M. (2003). *Webster's new universal unabridged dictionary* (2nd ed) Cleveland, OH: New World Dictionaries.

Yamazaki, Y. (2002-2003). Learning styles and typologies of cultural differences: A theoretical and empirical comparison. *Elsevier, 29*, 521-548.

Yung, P., Szeto, C., French, P., & Chan, T. (2002). A controlled trial of music and preoperative anxiety in Chinese men undergoing transurethral resection of the prostate. *Issues and Innovations in Nursing Practice, 39,* 352-359.

Appendix A

Students' Perceptions of Music as Pedagogy in the Learning Process

Time:

_____

Place:

_____

Interviewer:

_____

Interviewee: _____

Position of Interviewee: _____

This research is concerned with students and how they learn. This research is interested in knowing if students like to listen to music when they study; if listening to music where the lecture notes are sang is helpful with studying; would having their lecture notes set to music cause them to want to study more; and would having their

lecture notes set to music be a fun way to learn. You will be asked to either read and study lecture notes or to listen to the lecture notes being sang to music. If you listened to the song, you will be asked a few questions about what you heard on the song.

Thank you for agreeing to participate in this survey. You need not put your name on the survey. This survey should take 15 minutes to complete. In this study, researchers are interested in determining if music can assist the student nurse in learning. Dianne McAdams-Jones is supervising this study, and you may call her at 801-863-8197 if you have any further questions. Also, if you have any questions regarding your rights as a research participant, or if problems arise that you do not feel you can discuss with the investigator, please contact the Institutional Review Board Office at 801-863-8000. In addition, your answers will be confidential. That is, your individual information will not be shared with anyone outside of the research group and the supervising professor. Only aggregated information will be made available to others. Your participation in this study is completely voluntary. You may choose not to respond to particular questions, or you may also discontinue participating at any time without penalty. By returning this questionnaire to the researchers, you consent to participate

Thank you for agreeing to be interviewed for this research project on the perceptions of students regarding learning with lecture notes being set to music. I want to remind you that your comments will remain confidential and anonymous. During this interview, you may stop, take a break and ask me any questions you want, ant any time.

1. Tell me about how you listen to music when you study?

2. Describe the benefits and problems of listening to music while studying for you?

3. If your lecture notes were set to music, how do you think this might affect you?

Now, depending on the group you are in I would ask that

Group A: study these notes for 5 minutes and afterwards complete the test you will be given

Group B: listen to this song for 5 minutes and afterwards complete the test you will be given.

4. What do you recall about the song?

5. How did that experience (listening to the song with the lecture notes) make you feel?

6. What was the song about?

7. What is your opinion about using music to study?

8. What is your opinion about using music to learn?

9. Can you expound on that answer, please?

10. How do you think music should be used in the learning process?

11. I would love to hear more about your thoughts regarding this?

12. How would you like your lecture notes to be given to you?

13. Tell me why you would like the notes given this way?

14. Take me through your thinking on why you want your notes that way?

15. If your professor were to use music to enhance your learning, how would you suggest it be used?

16. Why did you suggest this?

17. Can you expound on that?

18. Is there anything about listening to music while studying you would like to talk about more?

19. Is there anything I did not ask that you would like to tell me more about?

20. Can you expound on that?

Appendix B

Lyrics to song:

We are going to build a robot grid

First create an X-Y grid matrix to mark empty space

As well as robot goal locations and obstacles

Now declare the borders, block them by red

You may either hardcore the borders

and objects into your code

or your robot can add the objects and borders

as it detects them with a sensor

Go to the fourth column and start checking each node

Here your target node borders the goal

Mark it with a 3; keep scanning down

Ignore the goal, and ignore the walls

On the 9th row, you notice the target node

It borders the number 7 on the left

It is the lowest value bordering node

Mark this target node as 8

Now you have the beginnings

Of a robot grid

Next we want to learn principles

Of clean techniques

You do this first by

Washing your hands properly

Lather your hands with soap and water

Wash them for 15-30 seconds

Rinse well keeping the fingertips below the elbow

Dry them thoroughly

Use a dry towel to turn off the faucet

Always wash hands before using the bathroom

Always wash hands after using the bathroom

Always wash hands before and after eating

Now you have learned some principles of

Hand washing and clean technique

Appendix C

Pre-Post Test

1. Building a robot requires the builder to first
    a. Build a motor of some sort
    b. Build a generator to power the robot
    c. Build a robot grid
    d. Build a robot framework

2. The second step in building a robot involves
    a. Creating a box for filing symbols
    b. Creating a file which boxes off symbols
    c. Creating an x-y grid matrix to mark empty space
    d. Creating an x-y grid matrix to mark filled space

3. Robot goal locations and obstacles must be
    a. Deleted
    b. Created
    c. Marked
    d. Graphed

4. When declaring the borders, they must be marked by

    a. Blue

    b. Green

    c. Red

    d. Black

5. When the above act is completed

    a. The borders are configured

    b. The matrix is completed

    c. The grid is realigned

    d. The borders are declared

6. In coding the robot, you may

    a. Hardcore the borders

    b. Decode the borders

    c. Encrypt the borders

    d. Erase the borders

7. The alternative option to the above is to

    a. Allow the borders to remain unclaimed

    b. Allow the borders to remain opened

    c. Allow the borders to be added by the robot

    d. Allow the borders to be removed by the robot

8. The next step is to go to the _____column and start checking each node.
    a. 5^{th}
    b. 4^{th}
    c. 8^{th}
    d. 2^{nd}
9. Once at the above column, you begin to check
    a. Each node
    b. Each border
10. You continue with the process above, in this same column
    a. Scanning down and marking the target nodes
    b. Until completion of the marking of the nodes
    c. Both A and B
11. The first principle of clean technique is
    a. Removing your protective gloves
    b. Removing your goggles
    c. Washing your hands
    d. Removing jewelry
12. First the hands are
    a. inspected for cracks
    b. Lathered with soap and water
    c. Conditioned with lotion
    d. All of the above

13. Hands are washed for

    a. 35 seconds

    b. 15 seconds

    c. 1 full minute

    d. 45 seconds

14. When rinsing the hands

    a. The fingertips are kept below the wrists

    b. In the water

    c. The fingertips are kept under the stream of water

    d. Be sure to rinse the soap

15. When leaving the lavatory, use

    a. Your sleeve to sneeze in

    b. A dry paper towel to turn the faucet off

    c. A dry paper towel to clean spills from the mirror

    d. A dry paper towel to clean the sink

16. Always wash hands

    a. Before using the bathroom

    b. After using the bathroom

    c. Before eating

    d. After eating

    e. All of the above

17. What do you mark with a 3?

    a. Node borders the goal

    b. Target node

    c. First node

    d. The third row

18. The target node is bordered by

    a. 9th row

    b. 8th node

    c. The end of the grid

    d. Number 7

19. The last step in the beginning of a robot grid is:

    A. bordering the grid

    B. Finding the highest value

    C. Marking node 8

    D. Finding row 9

20. Where is the target node?

    a. By hardcore border

    b. Bottom of robot grid

    c. Detected by a sensor

    d. 9th row

21. When scanning the grid, you

    a. Are blocked by walls

    b. Go towards goal

    c. Stop when completed

    d. Ignore the goal

Appendix D

November 4, 2009

College of Saint Mary

7000 Mercy Road

Omaha, NE 68106

Dear Ms. McAdams-Jones,

The Institutional Review Board at College of Saint Mary has reviewed your application for a Change of Protocol regarding your study *Using Music as Pedagogy in the Learning Process.* On November 2, 2009, the IRB granted approval of your change to delete Troy University and add Tuskegee University as a research site.

The IRB number assigned to your research will remain IRB # CSM 08-83.

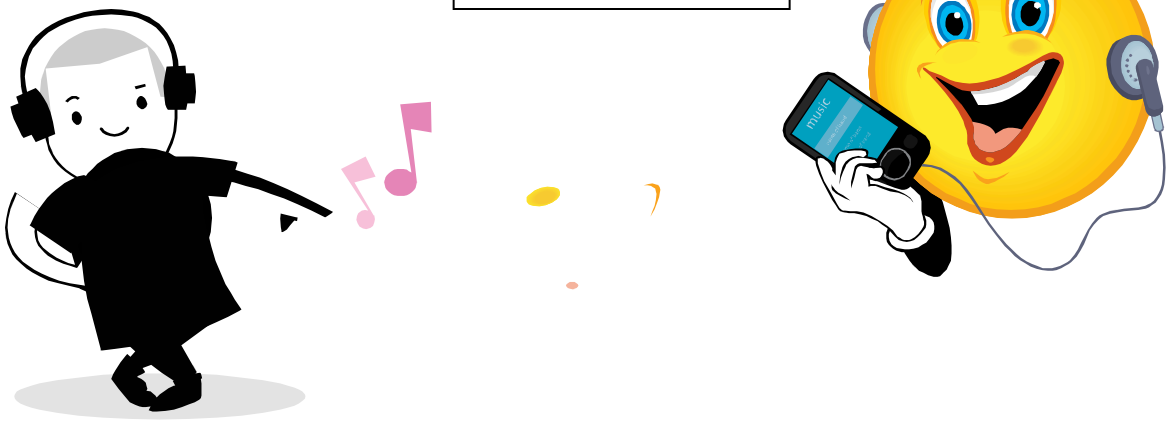
The expiration date will be July 2, 2010. If you are providing date stamped materials to your participants, these will need to be updated.

If you have questions, please feel free to contact me. Good luck with your research!

Sincerely,

Sue Schlichtemeier-Nutzman
Sue Schlichtemeier-Nutzman, Ph.D.
Assistant Professor
Chair, Institutional Review Board
Office: (402) 399-2628
sschlichtemeier@csm.edu

Appendix E



Music!!

Pre-Nursing Students and Beginning Level Nursing Students At College of Saint Mary are

Invited to apply to participate in a study about music! September 2, 2009

12noon in Rm 242: Please respond to Mcadams-jones06@csm.edu

or Dianne.mcadams-jones@uvu.edu

1-801-863-8197 or 1-800-380-0723

• There is minimal risk for participants and no compensation.

• All volunteers take brief surveys, may participate in a learning activity and may complete a brief interview on-campus in the auditorium of nursing department.

• Participation will take no longer than 45 minutes for the survey; learning activity and possible interview in nursing department auditorium.

Appendix F

IRB informed Consent College of Saint Mary

IRB # CSM 08-83

Date Approved 4/29/09

Valid Until: 4/29/10

IRB # CSM 08-83

Date Approved 4/29/09

Valid Until: 4/29/10

IRB#: CSM 08-83

USING MUSIC AS PEDAGOGY IN THE LEARNING PROCESS

Invitation:

You are invited to take part in this research study. The information in this form is meant to help you decide whether or not to take part. If you have any questions, please ask.

Why are you being asked to be in this research study?

You are being asked to be in this study because you are a college student.

What is the reason for doing this research study?

Most college students find it necessary to study. When studying they often employ different aids to assist them in the recall of the study material (lecture notes, power points, etc). Because no two people learn alike, students will likely employ different methods to enhance their learning experiences. This research is designed to better understand some of the strategies first year nursing students' use which may enhance recall and to explore the perceptions of these first year nursing students regarding their listening habits, how (if) they relate to studying and music and if these strategies could be used in teaching to enhance the learning environment.

What will be done during this research study?

Participants will be congregated in an auditorium on campus where an overview of the study will be given along with eligibility requirements, confidentiality and consent

information. Then all participants will take a pre/post test. After the pre/post test is completed, through random sampling, the participants will be separated into a control and experimental group where they will take the pre/post test again. This process will take approximately 15 minutes. Then, if selected to participate in the interview process, this interview process will take approximately 30 minutes.

What are the possible risks of being in this research study?

There are no known risks to you from being in this research study.

What are the possible benefits to you?

You may gain some understanding of why you study as you do; or you may gain some understanding of how you may enhance your study time. However, you may not get any benefit from being in this research study.

_____Initials

What are the possible benefits to other people?

The knowledge gained from this research study could give college students more options for enhanced study time and/or give the professors more options in reaching the first year nursing student at their preferred learning style.

What are the alternatives to being in this research study?

Instead of being in this research study you can choose not to participate.

What will being in this research study cost you?

There is no cost to you to be in this research study.

Will you be paid for being in this research study?

You will not be paid or compensated for being in this research study.

What should you do if you have a problem during this research study?

Your welfare is the major concern of every member of the research team. If you have a problem as a direct result of being in this study, you should immediately contact one of the people listed at the end of this consent form.

How will information about you be protected?

Reasonable steps will be taken to protect your privacy and the confidentiality of your study data. The survey data will be maintained under lock and key for 3 years and may be used in future research. After 3 years the survey data will be destroyed. There will be no data collected that would identify you in any contextual setting or lifestyle. All data collected through interviews and audio tapes will be destroyed immediately after it has been correlated and tabulated by the investigator.

The only persons who will have access to your research records are the study personnel, the Institutional Review Board (IRB), and any other person or agency required by law. The information from this study may be published in scientific journals or presented at scientific meetings but your identity will be kept strictly confidential.

What are your rights as a research participant?

You have rights as a research participant. These rights have been explained in this consent form and in The Rights of Research Participants that you have been given. If you have any questions concerning your rights, talk to the investigator or call the Institutional Review Board (IRB), telephone (402)-399-2400.

_____Initials

What will happen if you decide not to be in this research study or decide to stop participating once you start?

You can decide not to be in this research study, or you can stop being in this research study ("withdraw") at any time before, during, or after the research begins. Deciding not to be in this research study or deciding to withdraw will not affect your relationship with the investigator, the College of Saint Mary, Troy State University or Utah Valley University.

You will not lose any benefits to which you are entitled.

If the research team gets any new information during this research study that may affect whether you would want to continue being in the study, you will be informed promptly.

Documentation of informed consent

You are freely making a decision whether to be in this research study. Signing this form means that (1) you have read and understood this consent form, (2) you have had the consent form explained to you, (3) you have had your questions answered and (4) you have decided to be in the research study and (5) you consent to being audio taped.

If you have any questions during the study, you should talk to the investigator listed below. You will be given a copy of this consent form to keep.

If you are 19 years of age or older and agree with the above, please sign below.

Signature of Participant: ___ Date:

Time: _____

My signature certifies that all the elements of informed consent described on this consent form have been explained fully to the participant. In my judgment, the participant possesses the legal capacity to give informed consent to participate in this research and is voluntarily and knowingly giving informed consent to participate.

Signature of Investigator:_

Date: _____

Authorized Study Personnel

Principal Investigator:

Dianne McAdams-Jones

801-863-8197 office

801-380-0723 cell

Faculty Advisor:

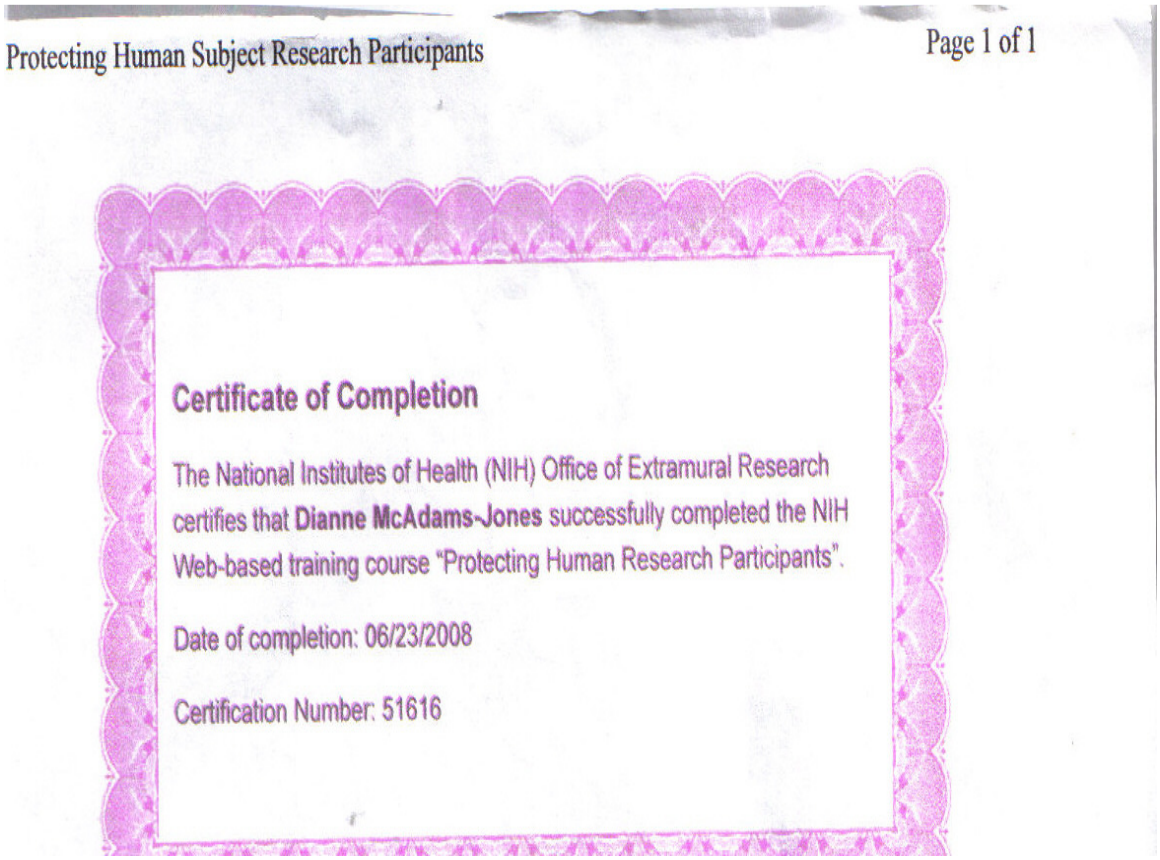
Peggy L. Hawkins, PhD, RN

402-399-2658

7000 Mercy Road • Omaha, NE 68106-2606 • 402.399.2400 • FAX 402.399.2341 • www.csm.edu

Appendix G

College of Saint Mary Certification of Completion NIH Office of Extramural Research



Protecting Human Subject Research Participants

Page 1 of 1

Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that **Dianne McAdams-Jones** successfully completed the NIH Web-based training course "Protecting Human Research Participants".

Date of completion: 06/23/2008

Certification Number: 51616

Title	Author (s)	Date/ Journal/ Book	Purpose/ Question	Design	Sample	Methods/ Theoretical Framework	Reliability/ Validity	Analysis Major Findings	Themes Identified
Music and Pre-operative Anxiety	Yung, Paul Man, Chui-Kam, Szeto French, Peter Moon, Tony	30 April 2002 Journal of Advanced Nursing	To examine whether music has an effect in reducing pre-operative anxiety in Chinese males waiting for TURP surgery in the surgical holding area	Quasi-experi-mental (with three groups, Music, nurse presence and control)	N=42 Chinese male surgical patients N=30 who actually participated	Questionnaire Interview	After the intervention, all three groups were assessed again for blood pressure and heart rate and were asked to rate their anxiety level on the state portion of STAI-C after 20 minutes	Results showed music can effectively reduce pre-operative anxiety symptoms, particularly blood pressure, in Chinese males waiting in a surgical holding area for TURP. Music can be effective tool in reducing anxiety	Music as a relaxing tool Music affects the listener

1. Relaxation and music to reduce postsurgical pain	Good, Marion, Stanton-Hicks, Michael Grass, Jeffrey, Cranston, Gene, Lai, HuiLing, Roykulcharoen, Varunyupa, Adler, Patricia	7 September 2000 Journal of Advanced Nursing	Investigated the effects of relaxation, music, and the combination of relaxation and music on postoperative pain, across and between two days and two activities (ambulation and rest) and across ambulation each day .	Randomized control-le d trial 1995-1997 Repeated measures design to ascertain the effects of these techniques between postoperative days and activities	N=468 (convenience sample)	Assigned to one of 4 groups; relaxation, music, their combination and control.	Concurrent validity correlations between the dual VAS and John-son's numerical rating scales ranged between r=0.89 and 0.92. Reliability has not been established	Pain decreased significantly from day 1-2, as deter-mined by repeated measures multivariate analysis of pretest scores on each day $F(4, 281)=28.46$, $P<0.001$. Relaxation , music and their combination reduce pain similarly on day 1 and 2, and during ambulation and rest.	Use of relaxation and music promotes acceleration of the post op process
2. Music and its effect on the physiological responses and anxiety levels of patients receiving mechanical ventilation a pilot study	Lee, On, Chung, Yuet, Chan, Moon, Chan, Wai	31 August 2004 Journal of Clinical Nursing	Investigate the effects of music on the anxiety of patients on mehanical ventilation, as assessed by objective parameters and a subjective validated anxiety scale	Randomized control trial	64 ventilator-dependent patients	2 groups or either music intervention or rest. Each group had a CD plugged in so that the data collector was blind as to the treatment conditions	None provided	The use of music as an anxiolytic intervention is evident. The benefits of preventing physiological reactions to anxiety were demonstrated, particularly in those patients who stayed in an ICU	Music relaxes and prevents adverse physiologic reactions

3. Effects of music on depression in students of Iran University of Medical Sciences, Tehran 2004	Hejazi, Sh, Ashayeri, H., Mahmoodi, M. Omidi, Sh.	Faculty of Nursing 7 Midwifery Quarterly 2005	To study the effects of music on depression in students of Iran University of Medical Sciences	Quasi-experimental	48 subjects with depression volunteered to participate	The experimental group was listening to its desired music over 8 sessions for 20 minutes every other day.	Content validity and test-retest methods were used to make the questionnaires valid and reliable respectively	Music may decrease signs of depression and its use in the treatment of depression is suggested.	Music relaxes and relieves anxiety and stress
4. Follow the song in CPR to stay alive	The Washington Post (David Matlock)	Newspaper 10/23/08	None	Integrative Review	Unknown	None	None	Maintaining proper rhythm with compressions during (CPR) is difficult for most who provide CPR. In the study, the participants performed CPR to Bee Gees Staying Alive: 5 weeks after study complete, these CPR providers maintained confidence in providing compressions	Music assists in maintaining coordination and rhythm during CPR

5. Feeling the beat: the meaning of rap music for ethnically diverse midwestern college students : A phenomenological study	Iwanmoto, Derek	Adolescence Summer 2007	What is the meaning ascribed to rap music by six ethnically and racially diverse midwestern college students What is the context in which they experience rap music and How can rap music be used to deal with everyday Stressors, and how does it alter a person's mood	Phenomenological Inquiry (qualitative inquiry	Purposive sampling Eight individuals agreed to participate	Questionnaire Discussions	Epoche/ Bracketing where the investigator eliminate any suppositions and raisings of know-ledge above every possible doubt. (set aside preconceived notions, assumptions and know-ledge of the experience in order to grasps and comprehend the participants' experiences	Rap music produces psychological and physiological responses, answers as a coping mechanism and outlet for frustration and stress.	Music is an art of expression and relieves tension and helps the person to define him/her self

6. To sing the body electric: Instruments and effort in the performance of electronic music	D'Escrivan, Julio	2006 Con-temporary Music Re-view	Explores what a contemporary notion of effort might be, inspired by a reading of Walt Whitman's poem "I sing the body electric"	Integrative Review	Not listed	Interpretive Authors interpretation of reviewed readings	None provided	Visualized emotion can be trans mitted through minimal physical gestures in performance Emotion can be attached to a physical action.	Music can attach to emotion and physical actions can be attached to emotions.. Music can preserve memory and mental health
7. Music and its effect on anxiety in short waiting periods: a critical appraisal	Cooke, M. Chaboyer, Wendy Hiratos, Mary	Journal of Clinical Nursing	What effect does music have on anxiety in the patient waiting in Day Surgery<	Integrative review of previous studies on subject; mostly quantitative reviews: mostly quasi-experimental with non random and random controls	Samples varied from nine to 198	Mostly Descriptive	State Trait Anxiety Inventory	Nurses need to augment patient care with inclusion of relaxation strategies that may assist patient comfort and anxiety. Music reduces pre-operative anxiety	Music reduces anxiety

8. The effect of music on preoperative anxiety in day surgery	Cooke, Marie, Chaboyer, Wendy, Schluter, Philip Hiratos, Maryanne	Journal of Advanced Nursing 2005	Day surgery patients who listen to music during their preoperative wait will have statistic-ally significantly lower levels of anxiety than patients who receive routine care	Random ized control-led trial 2004	199 patients met the inclusion criteria and 180 agree to participat e	Questionnaire Descriptive	STAI form Y1, validity well establish ed, (Spielber ger, 1983)sim ple to use and easy to score	Patients who have day surgery and listen to their choice of music have reduced anxiety levels.	Music relaxes
9. What students want: leave me alone… I'm socializing	Starkman, Neal	T.H.E. Journal 2007	What types of technologies do students like and why they like them	Qualitat ive	14 students of elementa ry, middle and high school	Interviews and discussions	None provided	Technology (music) is an escape as well as a social connector for students	Music tunes out the world (frustrations) but invites in the social clientele (internet gaming, cell phone texting) and we SOCIALIZE!
10. Music, Informal Learning and the School	Snead, Todd	Music Educators Journal September 2008	none	Integrati ve review	None listed	None	None provided	Pop music in schools is bait to lead into classical music	Students can compose music and it is a good idea to let them start composing with music which they like (Pop); let them listen to music which they like

11. Music and Literacy	Darrow, Alice	General Music Today Winter 2008	None	Integrative Review	None	None	None	Activities designed to teach reading are generally effective	Music therapists have designed original music activities t teach specific reading skills, especially for children with special needs
12. Music Education and Cultural identity	Davis, Robert	Educational Philosophy and Theory 2005	What is the relation-ship between music education and cultural identity	Integrative review	Not listed	Essay discussion of the relationship between music education and cultural diversity from info gleaned from selected articles	None provided	Baby's immediate auditory environment at birth is much quieter than that of the womb. The low frequency noises that dominate the womb have faded. Babies are hardwired for the experience of music and response to the indigenous music and the mother's prenatal and immediate postnatal communication	Music connects humans to something either a person, thing or an emotion
13. Music and Music Education	Regelski, Thomas	February 2005	Music is pragmatically social in origin, meaning and value	Integrative review	Not listed	Interpretive Author interpreted knowledge gained from readings (Praxial theories)	None provided	Praxial theories of music see music as pragmatically social in origin, meaning, and value	Music is social

14. Music is as distracting as noise: the differential distraction of back-ground music and noise on the cognitive test performance of introverts and extroverts	Furham, Adrian Strbac, Lisa	Ergonomics February 2002	Is back-ground noise more of a distracter to introverts performance on complex cognitive tasks than music	Integrative review	Not listed	Interpretive Author's interpreted knowledge gained from readings	None provided	Performance of introverts' was worse with back-ground noise and music	Music is a distracter to some students
15. The effects on patient well-being of music listening as a nursing intervention: a review of the literature	Biley, Frances	The journal of clinical nursing 2000	Can music be used as a therapeutic intervention in patient care? <	Integrative Review	None listed	Most studies used experimental or quasi-experimental design with small sample sizes and no follow-up	None provided	Seems to indicate that there often appear to be positive changes in physiological variables measured, although these changes are not consistent	Music can be relaxing and reduce physiologic parameters in patients
16. Recreational musical making: an integrative group intervention for reducing burnout and improving mood states in first year associate degree nursing students: insights and economic impact	Bittman, B, Snyder C., Bruhn, K., Liebfreid, F., Stevens, C. Westengard, J., Umbach, P.	International Journal of Nursing Education Scholarship 2004	Recreational music making reduces burnout and improves mood states in first year associate degree nursing students	Double blind peer reviewed Qualitative and quantitative	75 nursing students	Questionnaires and Interviews	None listed	RMM intervene-tin for first year AND revealed statistic-ally significant improvements for multiple parameters associated with burnout, mood states and TMD	Music decreases burnout through Recreational music making

17. Incorporating Music into Health Care Education: Experience at a college of pharmacy	Vance, Michael	Education for health July 2006	This article contains useful information regarding the background of music, how it has been incorporated into classes and how students have reacted to music	Integrative review	None listed	Interpretive Author's interpretation of readings	None provided	Music is an integral part of virtually all societies and something that students can quickly relate to. The incorporation of music and songs in pharmacy courses was a satisfying experience and could be a stimulus for other health care education areas to try similar approaches	Music is enjoyed by many students and is well received in the classroom
18. Rec needs a new rhythm cuz rap is where we're livin'	Lashua, Brett Fox, K.	Leisure Sciences 2006	The importance of listening to the lyrical stories of rap songs that young people create because they are powerful forms of story-telling	Auto-ethnographic Qualitative	4	Discussion of interviews	None provided	Rap and hip hop music is an effective method of releasing tensions built up resultant of racism and poverty	Music provides a way to reduce tension through self expression

19. Music and environ-mental studies	Turner, Kate Freedom, Bill	Journal of Environmental Education Fall 2004	The use of music in environmental education (EE) can help to inform students through ideas incorporated in musical lyrics and enhances interest in environ-mental topics	Integrative Review	None listed	Interpretive Author's interpretation of readings	None provided	Music offers an inherent connection between humans and the natural world. Music can be used to emulate, praise, and enjoy nature, and to tell about issues that associated with environ-mental and social damage	Music is an excellent way to teach as it allows the student to learn a concept or express him/her-self
20. Vibroacoustic Sound Therapy Improves pain Management and More	Boyd-Brewer C. McCaffrey, R.	Holistic nursing practice	What are the implications for nurses to use vibroa-coustic therapy to promote patient well-being and improve the therapeutic environment	Integrative review	None listed	Interpretive Author's interpretation of other's research	None provided	Vibroacoutics therapy is a noninvasive, safe therapy that has demonstrated ability to decrease pain, reduce anxiety, reduce the symptoms of illness, and generally promotes health in many patients. The vibroacoustic therapy creates a restful surrounding that can distract patients from discomfort and illness	Music relaxes and serves as a distracter from pain and/or discomfort

21. Tunes of the times: historical songs as pedagogy for recent US history	Binkiewicz, D.	The History Teacher	Discusses how music and its lyrics can assist students in learning a concept	Discussion of a current practice in teaching	none	The author discusses teaching methods (lecture notes set to music and lecture concepts set to a dance) used in her class	Self actualized: evidence based in positive results with student outcomes	Melodies and lyrics are a natural means to remember material.	Students learn from lectures/ concepts being set to music
22. Playing with sound: The therapeutic use of music in direct work with children	Lefebvre, Michelle	Child & Family Social Work Nov 2004	Author shares her reflection on introducing technique and theoretical approaches from music therapy into her own therapeutically oriented direct work	Integrative review	None listed	Author's discussion of her work and comparison to similar works of others	None listed	Musical instruments and techniques can usefully be introduced into direct work with children as a further 'tool' alongside other symbolic and creative media, such as puppets, sand, drama and visual arts to increase the avenues of engagement, expression and communication	Music provides children a means by which they can release stress and pain (singing their feelings) and improve their mental health

23. Cognitive Test Performance and Background Music	Cockerton, T. Moore, S., Norman, D.	1997, Perceptual and Motor Skills	Does music created by the software package Koan Plus, lower arousal and facilitate performance scores on a cognitive test	Repeated measures design where the order of the two conditions, music and no music were counter-balanced. Students were randomly assigned to an order	30 psychology undergraduates (17men and 13 women) ages 18-32.	No theoretical framework identified Method: group 1 experienced the condition with music then without music: group2 experienced the condition without music, then with music then this order was counterbalanced	None noted	Suggested that music facilitated cognitive performance compared wit the control condition of no music: more questions were completed and more answers were correct.	Music facilitates /enhances learning/

24. Tunes in our head	Gehr, Richard	AARP Bulletin, February 2008	The power of music to heal us and transform our lives	Article for discussion					Music is as medicine, blindness seems to enhance many people appreciation for music; patients with Alzheimer's respond differently to music than do patients with Parkinson's, but both groups benefit. Scientist can confirm that musically creative people continually have tunes in their heads, and they are incessantly playing with musical themes
25. It's time we got 'crazy!'	Fletcher, G	THE Journal Aug 2007	Article for discussion	Discussion			None provided		Music can get a message across to an audience more efficiently than the spoken word

26. The effect of music on preoperative anxiety in day surgery	Cooke, Marie, Chaboyer, Wendy; Schluter, Phillip, Hiratos, Maryanne	Journal of Advanced Nursing	Day surgery patients who listen to music during their pre-operative wait will have statistically significantly lower levels of anxiety than patients who receive routine care	Randomized controlled trial design	In an Adult Surgical Care Unit, 180 day surgery patients were given music to listen to during their preoperative stage	A control group was given no music, and a second group was given music to listen to during the pro-operative waiting period No TF	The standardized measure, the STAI, form Y1	Each treatment group contained 60 participants of 30 randomized males and females: one group was given music to listen to during preoperative waiting period	`Patients having day surgery who listen to their choice of music while waiting for their procedure have reduced anxiety levels, there-by enhancing their comfort and overall well-being.

27. A controlled trial of music and pre-operative anxiety in Chinese men undergoing transurethral resection of the prostate	Yung, P., Szeto, Chui-Kam, French, P., Moon, Tony	Journal of Advanced Nursing, 2002	What are the effects of music intervention on pre-operative anxiety in Chinese males undergoing transurethral resection of the prostate	A quasi-experimental design with three groups: music intervention, nurse presence and control group	A convenience sample of 42 Chinese male surgical patients	30 patients having TURP were randomly assigned (n=10 each group_ to one of the three groups. Pre- and post –test measures of systolic and diastolic blood pressure, heart rate and state anxiety using the Chinese State-Trait Anxiety Inventory were obtained for the three groups	The C-STAI was used to measure the anxiety level of the subjects. This test was tested in Hong Kong and the findings suggest that the C-STAI scales had a high internal consistency (=0.9)	The findings showed that the music intervention significantly reduced all blood pressure levels for the patients. A reduction in state anxiety level was also found of the music intervention group. No significant reductions in blood pressure. Heart rate and state anxiety level were found in the nurse presence and control groups.	
28. Music Taste Groups and Problem Behavior	Mulder, J., Bogt, T., Raaijmakers, W.	Youth Adolescence 2007	What is the structure of the music taste group? What is the full front of music taste groups in relation to problem behavior.	Cluster Analysis	Random sampling totaling 4159.	Demographics were obtained, and music preference was assessed	Factor analysis, four factor solution	The group which highly appreciate the most popular, chart-based pop music appears to buffer problem behavior either by internalizing or externalizing problem behavior	Music relieves stress and anxiety

29. Music as Medicine	Gardner, Kay	Inner Space July/August 1991	Article discussing effects of music in healing the body				None provided	Nine healing elements of music discussed.	
30. Music and Environmental Studies	Turner, Kate	Journal of Environmental Education, Fall 20004	The use of music in environmental education (EE) can help to inform students through ideas incorporated in musical lyrics. while enhancing interest in environmental studies	Article discussing music and environmental studies	none	none	none	Music offers an inherent connection between humans and the natural world, and it is a potentially useful tool in Environmental Education	Music can be used to emulate praise ad enjoy nature, and to tell about issues associated with environmental and social damage. Music can engage instructors and students, and help them to learn through ambience, melodies and lyrics.

31. The therapeutic use of music on agitated behavior in those with dementia	Goodall, Debby and Letters, Lynn	Holistic Nursing Practice: Nov/Dec 2005	Much can be done to improve demented patient's daily care and ultimately, their quality of life through the use of music	Integrative review of the literature			None provided	Examination of the different studies and findings offer some general conclusion: familiar music can evoke a more positive response than unfamiliar music. Potential for planned music therapy as an alternative to mediation and restraints was shown	Music relieves anxiety and in some cases may eliminate the need for medication…which lowers cost of hospital stay
32. "Sounds good to me" Canadian children's' perceptions of popular music	Bosacke, S., Francis-Murray, N. Pollon, D., Elliot, A.	Music Education Research, November 20006	What is the role of age and socioeconomic status (SES) in relation to children's popular musical preferences?	Cross-sectional study of a larger longitudinal study Descriptive and quantitative data analyses	19 girls mean age 6:7, 30 girls mean age 9:7 and 37 girls mean age 11:10 from 4 schools 2 amid low (SES) and 2 mid high (SES)	Children completed a 22 page pencil and paper self-report questionnaire investigating children's media preferences	None provided	Results suggest that music is important to children, that across ages and socioeconomic status, the majority of children shared common preference concerning popular music types.	Children love music. (follows logically that teens and college students (higher education love music.) Favorite music: pop and rock, hip-hop and rap

33. Transforming Music Teaching via Technology: The role of professional development	Bauer, W., Reese, S., McAllister, P	Journal of Research in Music Education, 2003	To determine if 1-week technology workshop can be effective means for the professional development of music teachers in using technology for instruction.	Quantitative questionnaire on line; then a 1 week technology course was taken followed by a post test	N=203 music teachers from 19 locations	None identified	Pilot study of in-service teachers enrolled in summer technology workshop during the previous year	Pre and post test versions completed by 203 participants showed those teachers who continued to be interested in and use technology regularly are the ones who made the effort to respond.	Significance to my interests is: teaching with music in a classroom requires effort, someone who is musically inclined and there is a learning curve. Administration can help by supporting faculty with funding for such ventures particularly as the literature shows students respond to music in their learning environment
34. Plugged in, spaced out, and turned on: electronic entertainment and moral mindfields	Steel, J.	Journal of Education, 1997	Discusses how the vanguard technologies of Nintendo, Music Television (MTV), and the Internet function with the youth culture	Integrated Literature Review	51 articles reviewed	Not applicable	Not applicable	Teachers and parents must become heroic and immerse themselves in a different culture: it's their salvation to staying in touch with their youth.	Students love music. Students relate to and learn from music. Students can learn the words to a song in one or two "listening periods". How soon do they learn a lecture? Is the interest the same?

35. A creative cocktail: creative teaching in initial teacher education	Grainger, T., Barnes, J., Scoff ham, S.	Journal of Education for Teaching 2004	The balance between standards and measurement in the core curriculum needs redressing. The nature of creative teaching in the context of initial teacher education is explored.	Triangu lation	240 students in the UK: opportun ity sampling	Three different sessions were observed: team teaching at a seminar: a work-shop and then a large lecture. The workshop used music to teach along with photography involving interpretation of the scales introduced earlier	None provided	Within the cocktail of ingredient which overlapped and interfaced, key themes were noted by 65% of the respondents (both students and tutors). The students were involved affectively and physically which challenged them to engage and reflect.	Emotive power of music was illustrated through discussion Themes emerged: a mixture of different teaching ingredient (music as one of these ingredient) when shaken up together yields a learning party for the students (involved physically and affectively) which challenged them to engage and reflect.

36. Babies know happy from sad music	Live Science Staff, Live Science, BYU Provo, Utah Accepted for publication in the Journal of Infant Behavior and Development	Deseret news, 2008	Babies know happy from sad music	Longitudinal	Infants up to 1 year	Vygotsky social development	None supplied	Babies as young as 5 months can distinguish an upbeat tune, such as "Ode to Joy" from Beethoven's Ninth Symphony, from a lineup of gloomy tunes. Researchers displayed an emotionally-neutral face for the baby while sad music played. When the baby looked away from the face, the music stopped and a new sad song would start. When the happier "Ode to Joy" played, the babies stared at the face three to four seconds longer, suggesting they were interested in the shift.	Babies relate to music, are affected by music, follows logically that as they grow and develop into teenagers and adults, they are connected to/enjoy music. In their infanthood, mothers often sing to their infants.

37. The Doing of Philosophy in the Music class: some practical considerations. Response to Bennett Reimer	Mary J. Reichling	Philosophy of Music Education Review Fall 2005	A response to another author's article on the same subject	An opinion based on lived experie nces		Authors demonstrates her view of how (based on Jerome Brunner's view)children can be taught anything if it is taught on their level; propositional and procedural knowledge can be integrated into the music curriculum	None	She offered lesson planning objectives which included thinking skills and musical activities	Music in the classroom can be integrated with learning
38. Music, Emotions, and Truth	Packalen, E. Philosophy of music Education Review, Spring 2008, Volume 16 no 1	Philosophy of music Education , Spring 2008 Volume 16 no.1	Focused on extra-musical descriptions which are believed by some to play a significant part in understanding music	Philoso phical viewpoi nt on musical theory which states emotion s are express ed via music	Literatur e review	Literature review	None	Slow music evokes quiet feelings (i.e. sadness) and fast music evokes such emotions as joy	Music affects the body's emotions

40. Justifying the right to music in education	Academy, S.	Journey of Education Philosophy 14 no 2 Fall 2006	Philosophical search of literature: music should be a mainstay in education	Argues allowing students to use their kind of music will help them learn	N one	Based on the United National Convention on the rights of the child	none	Children have the right to learn in a fashion that is generic to them and it is the duty of the state to secure this right for them (allowing them to express their cultural interest)	This author feels that the student should be given every opportunity for learning and feels the educator should ensure music in education as a right o f the child

	41. Rethinking Variations of Musical Meaningfulness	Arho, A.	Philosophy of music education review Vol 14 no 1 Spring 2006	To discuss music as a "lived experience" and to ground this thinking in "lived experiences"(in the musicianship constituted through experiences in making music	Literature review and "lived experiences"	None	"lived experiences of the researcher"	No tool used	The author discusses the meaningfulness of music for him who grew up a musician	Music is a culture and it is diverse. Many of the population are influenced by music since growing up
	42. Save the music? Toward culturally relevant , joyful and sustainable school music	Koza, J Philosophy of Music Education Review, vol 14 no. 1 Spring 2006	Philosophy of Music Education Review,, vol 14 no. 1 Spring 2006	Saving music inside the schools	Integrated Lit review		School music as an entity	None provided	Music is outside of the school and not suffering; how do we keep it inside for the student.	Levels of music for the children are diverse but generic to the level of learning of the student. Each with a distinct system of reasoning
	43. The Historical justification of music	Huttunen, M	Philosophy of Music Education Review, Vol 16 no; 1 Spring 2008	Music is historical through and through	Integrated literature review			None provided	Music has been around for a legacy and we continue to live under its influence	Music influences values of people

44. Enhancing language skills through music	Mizener, C	General Music Today v.21 no 2 Winter 2008	Literature review reinforcing researchers knowledge of how musical activities influence language development	Literature review			No tool used	Music has long been recognized by music practitioners as a positive reinforcement in language development Author uses text of sons to influence students	Rhythmic speaking singing and listening are all experiences that support language developmentally, examples of music listening activities demonstrate how students may develop all of the modalities of communication, including receiving and transmitting information aurally and receiving and transmitting information visually.

45. Watts, M. and Becker, W.	A little more than chalk and talk: results from a third national survey of teaching methods in undergraduate economics courses	Journal of Economics and Education Vol 39 no 3 sum 2008	To determine teaching methods of undergraduate course: principles and preprinciples; intermediate theory, courses on statistics economics and math	Longitudinal	1995: 3047 (628) 2000: 3,103(591) 2005: 3,711(477) Opportunistic sampling and self reported data		Questions that produced duplicate information in all three surveys were deleted	The teaching and evaluative methods across all of the (Carnegie) schools were similar, chalk, talk and drawing on the white board or chalk board	The results show slow growth and change on the teaching front where there are younger economists who likely know and use new technologies or research methods (internet, data searches, computer displays, presentations and experimental economics.)
46.Fearless Innovation---Songwriting for our lives; inspiring learners with arts-based practices that support creativity	Cantor, J	Multicultural Education v.14 no 2 (winter 2006) p. 57-54	To help credential candidates develop multicultural methods, materials, and strategies for facilitating arts-based learning experience	experiential	The author uses his classes	Experiential teaching methods of the author	No tools used. He reports positive results	Author says "I have songs in my head. I wanted to help children learn through song writing where they are expressing themselves	As a child he learned to read by having lessons based on the songs they learned to sing in class egg. Rocking Robin and Johnny Be Good. He was taught to support language learning with songs

47. A Musical interlude: using music and relaxation to improve reading performance	Carlson, J. Hoffman, J. and Gray, D.	Intervention in School and Clinic v. 39 no. 4 March 2004. P. 246-50	Investigated the effects of music and relaxation on student's reading performance Hypothesis: the introduction of slow, rhythmic music could facilitate a relaxation response in students, resulting n improved reading performance	Pre Post test	13 students	None given	Pre post test repeated results produced same answers	Students sat in a vibroacoustics music chair while completing reading based tasks. The chair presented music with 50-60 beats per minute.	Findings revealed that students who were reading below grade level at the beginning of the study improved their performance to grade level or higher, while most of the students who were reading above grade level before the intervention demonstrated advanced improvement over maturational expectations
48. Blues you can use: Teaching the Faust theme through music, literature, and film	Copeland, M. and Goering, C.	Journal of Adolescent and Adult Literacy V 46 no 5 Feb 2003	To stimulate high schoolers interest in reading: Blues is not music of the depressed and downtrodden; Blues lyrics takes a realistic view of the world, it is music of honesty and conviction	Qualitative	High school students(Number not indicated)	None mentioned		By incorporating new forms of literacy and popular culture into our classrooms we better prepare our students for the skills life demands	We cannot be content to settle for what has always worked before. . Using this method may offer tremendous potential for teachers struggling to teach traditional literary themes to students who are most often engaged in a world of mass marketing and consumerism.

49.From Broadway to Classroom: Using Entertainment Media to Get your Point across	Rieck, W. and Dugger-Wadsworth D.	The Clearing House v. 81. No 4 March/Aril 2008	To motivate students with media/movies/ music	Experiential	Grade school students	Maslow: motivation and personality	No tool	Initial motivation of students is more difficult now b/c of extensive experience children have wit movies and television. Creative teachers are our most valuable resource.	The magic of film and television are powerful tools that teachers are not always able to equal. The audio visual offerings in education are not of interest to the students. To increase student interest, motivate, and teach them we can use media that were not designed for educational purposes but can be educational: popular Broadway show music from film adaptations off theatrical productions.

50. Toward a critical pedagogy of popular culture: literacy development among urban youth	Morrell, E.	Journal of Adolescent & Adult Literacy v. 46 no 1 September 2002, p. 72-7.	New approaches, such as critical teaching f popular culture can help students acquire and develop the literacies needed to navigate in society	Qualitative/ethnographical Incorporation of Hip-hop music and culture into a traditional high school senior English poetry unit.	High school English Poetry class (number not given)	Cultural and Critical theory (Adorno & Horkheimer, 1999, Docker, 1994, Hall 1998)	No tool used	Students were more apt to meaningfully draw upon personal experiences during their reading concerning critical media literacy or during interviews thy conducted.	Because the research they were given involved comparing and contrasting the lives of the cast in movies they watched and books they read, they felt motivated to make a change in the lives of people around them. This assignment gave them critical thinking skill; problem solving skills.
51. Cool English: A musical guide to better grammar and writing	Davis, A.	Journal of Adolescent adult Literacy v. 46 no 2 October 2002 Pp 189-90	To teach grammar via musical learning module.	CD packet for students to listen to and work through a module www.coolrules.com	Anyone may purchase the packet		Not tested	Basic premise here is to give grammar a back beat so that students will start humming and tapping their feet along with rules of commas and apostrophes.	Students might be more engaged in the learning process because of the interactivity

52. Geher.	Lessons in analytical listening from the reel world	General Music Today Fall vol 15 no 1 2001 p 9-15	To teach critical listening skills	experie ntial	High school class no number indicated	Classroom Project where music students designed their own music video		Students were allowed to perform the piece of music desired and thereby were noted to develop critical thinking skill solving skills individually and in groups and problem	Gives rise to alternative assessment. So many other skills, I. e planning, insight, problem solving, critical thinking, team building and playing (important in nursing) were able to be observed and assessed.
53. Fearless innovation-songwriting for our lives; inspiring earners with arts-based practices that support creativity	Cantor, James S.	Multicultur al Education Winter 2006	NA	NA	NA	NA	NA	Paper/manuscript Music promotes creativity and thinking	Students can write music' Music promotes critical thinking Stimulates creativity