GENERAL MUSIC TEACHERS' PRACTICES AND ATTITUDES TOWARDS THE USE OF MULTIMODAL MEANS IN MUSIC INSTRUCTION

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ABSTRACT

The purpose of this study was to examine general music teachers' practices and attitudes regarding the use of multimodal pedagogy in music instruction. A survey design was used to explore the extent to which general music teachers, in a delimited geographical area in southeastern Pennsylvania, use multimodal pedagogy and their attitudes towards it. Data were gathered by contacting 600 potential participants via email and inviting them to take part. Of the 600 contacted, 170 respondents participated in the study (28% response rate). In total, 127 completed the survey and were considered by the researcher to be appropriate for analysis.

General music teachers reported that the most frequent teaching modalities used while planning, teaching, and assessing their students were, in decreasing order of frequency, aural, multimodal, visual, and kinesthetic modality. However, this array of modalities was used less frequently while assessing students than planning and teaching. The majority of respondents favored the use of aural modality while assessing their students. The availability of movement materials predicted general music teachers' use of multimodal pedagogy while planning, teaching and assessing students. Gender, teachers' educational degree, professional development, the availability of percussion instruments, and iPad and tablets predicted general music teachers' use of multimodal pedagogy while assessing students. Attending Orff, Kodály, and Dalcroze professional development programs had a significant relationship with general music teachers' use of multimodal pedagogy while planning and assessing their students. Responses to the open-ended questions provided evidence of how general music teachers actually experience the application of multimodal pedagogy in the classroom. Specifically, the responses showed

how individual teachers considered students' learning styles while planning and teaching, and assessing to secure students' success.

General music teachers reported a generally positive attitude towards the use of multimodal pedagogy. The availability of Orff instruments was a positive predictor, and guitar was a negative predictor for general music teachers' attitudes towards the use of multimodal pedagogy. Attending Orff, Kodály, and Music Learning Theory (MLT) professional development workshops had a significant relationship with the music teachers' attitude towards the use of multimodal pedagogy. These factors that contributed to general music teachers' positive attitudes towards the use of multimodal pedagogy partially because Kodály, MLT, and Orff techniques including Orff instruments encouraged general music teachers to incorporate different learning modalities inside the music classroom. The open-ended question captured the participants' voices and provided further evidence of general music teachers' positive attitudes towards the use of multimodal pedagogy and how they recognize the benefits of using it.

These results have implications for music educators that include developing professional development programs designed to assist in the use of multiple modalities. Recommendations for further research include examining the effects of multimodal music pedagogy on elementary students' acquisition of specific music skills (e.g., singing voice, rhythmic achievement).

For My Family

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CHAPTER 1

INTRODUCTION

The Chinese philosopher Confucius has been credited with stating the proverb, "I hear and I forget. I see and I remember. I do and I understand." Collett (1991) supports this Confucian wisdom and suggests, "Children retain 24 percent of what they hear, 40 percent of what they see, and 70 percent of what they learn through multisensory experiences. Such an approach is effective for all students, and is particularly successful for at-risk students" (p.42). A multimodal teaching approach can be particularly important in the music classroom, because music provides us, inherently, with the materials and tools to accommodate different modalities.

To better meet student needs, it may be advisable for music teachers to include varying modes of instruction (e.g., aural, visual, and kinesthetic). Miller (2002) advised that "planning to incorporate various learning modalities may allow students to construct their own understanding pertaining to musical concepts" (p.4). In addition, Collett (1991) advised music teachers to engage their students in a learning experience that encompasses all learning modalities.

General music teachers' practice and attitudes towards the use of multimodal approach in music teaching is not yet clear. This study examines the extent to which general music teachers rely on aural, visual, kinesthetic modality or combination modalities inside music classroom. Additionally, it focuses on how school factors, resources and professional development, and the music teachers' demographic information influence their choices and attitudes concerning multimodal pedagogy.

Learning Style

Learning styles are described as “cognitive, affective and physiological traits that are relatively stable indicators of how learners perceive, interact with, and respond to the learning environment” (Keef, 1979, p.4). Students learn through the combination of three elements: cognitive (how students access the information which includes perceptual modality), affective (motivational processes), and physiological (biologically-based modes) (Keefe, 1987). Different students use different learning styles to acquire knowledge and skills. Learning styles are integrally connected with ways in which learners access information. Some of the chief methods for information presentation in learning settings include auditory, tactile or kinesthetic, and visual. Learning modality is connected to learning as a part of the cognitive element which helps students to access the information.

Learning Modality

The term modality is often connected to such terms as learning, perceptual, and sensory (i.e., learning modality, sensory modality and perceptual modality, which are used interchangeably). For this dissertation, I define learning modality as the way that students access, process, and retain the information through aural, visual, and kinesthetic modality.

Students make meaning out of material through these various learning modalities. Students who tend to learn using a more aural approach may best understand the subject through lecture or class discussion; students who learn visually often approach the materials through reading and visualizing. Kinesthetic or tactile learning is characterized by students who most often prefer to learn by doing a “hands-on” approach. Students who tend to learn kinesthetically often approach the material though touching and moving (D'Amico & Gallaway, 2010). Music instructors have begun to consider using a variety of teaching modalities (vocal, visual, kinesthetic) separately to meet the diverse needs of individuals and groups of learners.

Teaching Modality

Teaching modality is the mode that teachers use to present the information to students. Teachers use vocal, visual, kinesthetic modeling or combining modality to teach music. The vocal mode on instruction depends on utilizing listening activities. The visual mode of instruction depends on utilizing visual activities. The kinesthetic mode of instruction depends on utilizing muscle activities (Hughes, 1990). The chief teaching modalities that are used in educational research is vocal, visual, and kinesthetic modeling. Through combining these teaching modalities, music teachers will be able to address students' different learning modalities inside the classroom.

Multimodal Pedagogy

Multimodality in education settings refers to a combination of two or more modes of learning, including: representation-linguistic (written words), visual, audio, gestural, and spatial (New London Group, 1996). It encompasses a wide variety of phenomena as it can be viewed as a kind of human interaction and media used to transfer knowledge and information. Through multimodal pedagogy, a teacher incorporates different modalities in the classroom. Stein (2008) used multimodal pedagogies to refer to curriculum, pedagogy and assessment practices that focused on mode as a defining feature of communication in learning environments. She refers to the classroom as a multimodal place in which teacher and student interact with each other through these modes.

Modeling

The learning modalities that are the most prevalent in education are aural, visual, and kinesthetic. Music teachers consider using these learning modalities through modeling in the music classroom. Learning modalities that are most prevalent in education are aural, visual, and kinesthetic. Through modeling, music teachers can accommodate students' learning modalities. Instructors have begun to use a variety of teaching methods to meet the diverse needs of individuals and groups of learners.

Aural modeling

In music education, it may be assumed that the use of the aural mode of instruction might best serve all students. After all, music is mostly an aural art. Researchers demonstrate that students can learn aurally through vocal modeling, and that music teachers and conductors can use vocal modeling as a teaching approach (Green, 1990; Grimland, 2001; Mann, 2008).

Visual Modeling

Teachers engaging the visual mode are often successful in attaining the goal of increased singing accuracy among students. Utilizing visual aids within the music instructions will "make the aural impression of melodies more concrete" (Apfelstadt, 1986, p. 4). Researchers have investigated the use of Curwen hand signs combined with solfège syllables to enhance student vocal accuracy. Curwen hand signs were developed by Sarah Glover then John Curwen in England. Specific hand signals represent each note of the diatonic scale (Frederickson, 1993; McClung, 2008; Youngson & Persellin 2001).

The researchers used Curwen hand signs as a visual aid to support students' singing in conjunction with the solfège syllables to enhance their vocal accuracy. Watching a music teacher use Curwen hand signs helps to reinforce the intervallic relationships between pitches and singing. Consequently, this might enhance students' vocal accuracy. Therefore, using Curwen hand signs in this fashion can be considered an example of visual modeling. In the next section, I will provide evidence suggesting the use of Curwen hand sign as a form of kinesthetic modeling.

Kinesthetic Modeling

Researchers demonstrate the effectiveness of using Dalcroze Eurhythmics and movement instruction on melodic discrimination and steady beat synchronization, and performance in music (Crumpler, 1983; Shiobara, 1994). Curwen hand signs are used as a kinesthetic tool accompanied with solfège syllables to help students reinforce their sight-singing (McClung, 2008). When students use Curwen hand signs while singing or sight-reading, it can be considered kinesthetic modeling. Students who use hand signals physically move their hands to represent the musical pitch. Additionally, movement instruction improved students' synchronization and performance ability for sixth-grade beginning instrumentalists in addition to enhancing beat perception (Rohwer, 1998).

Modality Preference

Modality preference refers to a learning or teaching modality that students or teachers favor to use while learning or teaching (Gates, 1993). The relationships between modality preference, learning, and teaching modalities have received much attention in music education research. Researchers have examined the effect of modality preference on students, and on music teachers, as well as whether the teachers' teaching modality affects their students' learning modality choice (Apfelstadt, 1986; Dunn, 1994; Gerson, 1981; Persellin and Pierce, 1988; Persellin, 1988).

Other factors that may influence music teachers' use and practice of learning modality are teachers' and schools' demographic factors. Teachers' demographic factors consist of: 1) gender, 2) level of education, and 3) years of music teaching experience. School demographics factors include school resources and professional development. Music teachers' gender influences their teaching approach (Meek, 1999; Gumm, 2003). The graduate education program is a critical element for the efficiency of music teachers (White, 1982); advanced study affects many aspects of music teacher development, including efficiency, delivery, and content knowledge (Dahlman, 1991). Expert music teachers demonstrate greater efficiency in using instructional time and using modeling to present the musical concepts through nonverbal instructions. They also tend to focus more on tone quality, articulation, and expression (Goolsby 1996, 1997, 1999). Expert music teachers are more confident (Ebbeck, Yim, Lee, 2009) and are more efficient in their use of complete and cyclic instruction sequences compared to novices (Stuber, 1997). Expert teachers know exactly what should be taught now. They design instruction sequences to achieve teaching goals (Duck, 2013). Expert teachers are more efficient than preservice teachers in evaluating music teaching instruction (Yarbrough and Price, 1994). Expert music teachers are more critical on their rating for the effectiveness of teaching than the preservice teachers (Madsen and Cassidy, 2005). Expert teachers always interact with students while assessing their progress and adapting instructions immediately for the next step in the lesson to accommodate students' needs inside the music classroom (Grant & Drafall, 1991; Taebel & Coker, 1980)

School Factors

School demographic factors that may influence music teachers' use and attitude towards learning modality include school resources and professional development. School resources include: 1) classroom; and 2) the equipment that the school offers for music teachers.

A music classroom that is designed especially to teach music, with fresh air and good lighting, is a successful tool for the music teachers to combine different learning modalities in the classroom (Campbell & Scott-Kassner, 2006). Music equipment is a critical element inside the classroom which may influence music teachers' choices and attitudes concerning multimodal pedagogy (Campbell & Scott-Kassner, 2006).

Professional development programs may influence music teachers' use and attitude toward the use of multimodal pedagogy. Teachers who attend workshop training in general, choral, and instrumental areas have been shown to be more confident, use more different learning modalities and are more efficient regarding the ensemble time, compared to those who do not attend (Gumm, 2003b).

Tarnowski and Murphy (2003) found the professional development programs elementary music teachers desire to attend are: Orff (61.21%), Kodály (46.26%), and Dalcroze (29.18 %). Music teachers who experience studying or teaching using instructional approaches of Kodály, Orff, and Dalcroze through undergraduate courses, graduate courses or through attending professional development training prefer teaching modalities which are related to these teaching approaches (Persellin, 1988).

The chief methods that are most utilized in teaching music include: Dalcroze, Kodály, Suzuki, Music Learning Theory, and Phyllis Weikart- Education Through

Movement. Each of these approaches focus more on one or two modalities than others. Teachers who use Dalcroze and Orff methods are more reliant on the kinesthetic modality, using movement as the primary means of instruction. Music teachers who apply the Kodály approach focus on the visual modality through using solfège and Curwen hand signs more than aural and kinesthetic modalities (Persellin, 1988). Teachers who use Music Learning Theory and Education Through Movement methods are more reliant on aural and kinesthetic modality than visual. Music teachers who apply the Suzuki approach focus on aural modality more than visual and kinesthetic modalities.

Rationale

Researchers have found that music teachers' gender, level of education, and years of experience influence their teaching approach (Dahlman, 1991; Ebbeck, et al, 2009; Goolsby 1999; Gumm, 2003b; Meek, 1999; Stuber, 1997). Although these researchers suggest that teacher demographic factors may influence music teachers' use of learning modality, no data-based research has been conducted to examine the effects of these factors on general music teachers' practices and attitudes toward the use of multimodal pedagogy.

School resources and professional development influence music teachers' approaches and their teaching effectiveness (Campbell & Scott-Kassner, 2006; Gumm, 2003b, Mark; 1996; Persellin, 1988; Tarnowski and Murphy, 2003). Gumm's work (2003b) is the only study to examine the influence of choral directors' professional development on their teaching style; however, he did not address learning modality. No researchers have investigated how school resources and professional development directly influence general music practice and attitude towards multimodal pedagogy.

The use of discrete teaching approaches (aural, visual, kinesthetic) in music teaching has been the subject of much documentation (Crumpler, 1983; Frederickson, 1993; Green, 1990; Grimland, 2001; Mann, 2008; McClung, 2008; Rohwer, 1998; Shiobara, 1994; Youngson & Persellin 2001). It is a logical assumption that if any one of these approaches are met with success, then perhaps teaching using a combination of these modes might increase instruction (and therefore, learning) effectiveness (Collett, 1991). Campbell and Scott-Kassner (2006) agreed with Collett and stressed that "The best teaching involves the stimulation of all modalities. This is particularly easy to do in music, which is multimodal by nature" (p. 29).

Researchers suggest using different modalities inside the music classroom in order to meet students' needs (Apfelstadt, 1986; Campbell & Scott-Kassner, 2006; Collett, 1991; Conway, 2009; Darrow, 2007; Gumm, 2003; Miller, 2002; Stein, 2008). These researchers focused more on learning and teaching using different modalities with regard to students' achievement and vocal accuracy; however, they do not examine general music teachers' use of multimodal pedagogy and their attitudes towards it.

Evidence exists that learning modality preference influences students' learning. Such preferences influence the way they listen to music (Dunn, 1994), the way they learn rhythmic patterns (Persellin and Pierce, 1988), and vocal accuracy (Apfelstadt, 1986). Although these researchers examined the influence of learning modality preference on students' learning, they did not examine the music teachers' practice and attitude towards multimodal pedagogy.

Persellin (1992, 1994) examined the influence of learning modality and multimodal instruction on children's learning rhythm patterns and melodic and rhythmic retention. She found that multimodal instruction increases the efficiency of learning rhythm patterns and enhances students' rhythm and melodic retention and vocal accuracy. However, she did not include the extent to which music teachers use multimodal pedagogy.

Persellin (1988) conducted a pilot study to examine the influence of teaching modality preferences on music educators' teaching methods. She found that music educators' modality preference affects their choices of teaching method. Educational practices and technology have undergone enormous changes since the time of the study. Music equipment in the classroom including computers and iPods, along with professional development training, which might influence their use and attitudes towards multimodal pedagogy, have also undergone change. It is feasible that this evolution might have had impact upon music teachers' attitudes towards the use of multimodal instruction. Persellin's pilot study needs further investigation to examine music teachers' practice and attitude towards multimodal pedagogy.

The paucity of current research concerning use of multimodal pedagogy, teachers' and schools' demographic factors, and how these variables influence general music teachers' practice and attitude toward the use of multimodal pedagogy needs to be addressed. This research will add to a small but growing body of research. The purpose of this study is to examine general music teachers' practices and attitudes regarding the use of multimodal pedagogy in music instruction.

Methodological Overview

This study uses a non-experimental quantitative method, utilizing cross-sectional survey design. The cross-sectional survey design is used to examine the relationship between variables: “In the cross-sectional survey design, the researcher collects data at one point in time” (Creswell, 2008, p. 389). The survey instrument explores music teachers’ attitudes towards and the extent to which they use multimodal pedagogy. The survey is also designed to gather participants’ demographic information (gender, degree of education, and years of teaching experience) and schools’ resources and professional development.

Descriptive statistics-central tendency (mean, median, and mode) and the distribution (range and standard deviation) and inferential statistics (factor analysis, ANOVA, and multiple regressions) will reveal general music teachers’ practice and attitudes towards the use of multimodal pedagogy.

Definition of Terms

Learning styles: refers to the “cognitive, affective and physiological traits that are relatively stable indicators of how learners perceive, interact with, and respond to the learning environment” (Keef, 1979, p.4).

Modality: The sensory path through which information is received and retained (Barbe & Swassing, 1979).

Learning Modality: The term modality is often connected to such terms as learning, perceptual, and sensory (i.e., learning modality, sensory modality and perceptual modality). Learning modality, sensory modality, and perceptual modality are used interchangeably. For purposes of this study, learning modality is the way that students access, process, and retain the information through aural, visual, and kinesthetic modality.

Aural Modality: The learning modality that depends on the ear (listening) as the channel to receive and retain the information.

Visual Modality: The learning modality that depends on the eye (visualizing) as the channel to receive and retain the information.

Kinesthetic Modality: The learning modality that relies on the muscle movement (hands-on activity) as the channel to receive and retain the information.

Vocal Mode of Instruction: The type of instruction in which the music teacher depends on utilizing listening activities, including discussion and lecture (Hughes, 1990).

Visual Mode of Instruction: The type of instruction in which the music teacher depends on using visual activities which may include reading, observing, mapping, and Curwen hand signs (Hughes, 1990).

Kinesthetic Mode of Instruction: The type of instruction in which the music teacher depends on utilizing muscle activities which may include moving, touching, drawing, using hand levels, and playing instruments or music games (Hughes, 1990).

Modality Preference: The learning or teaching modality that students or teachers favor while learning or teaching (Gates, 1993).

Multimodal Pedagogy: A combination of two or more modes of learning, including representation-linguistic (written words), visual, audio, gestural, and spatial (New London Group, 1996).

Limitations of This Study

This study examined general music teachers' practices and attitudes regarding the use of multimodal pedagogy in music instruction. There are a number of factors that may influence general music teachers' practice and attitudes toward the use of multimodal pedagogy. For the purpose of this study, the teachers' demographic information was limited to: gender, level of educational attainment, and years teaching music. The schools' factors were limited to school resources and professional development.

Participants were limited to certified general music teachers (elementary, middle, high school) who teach general music or a combination of general and other music subjects from southeastern Pennsylvania Districts 11 and 12. Music teachers who only teach subjects other than general music (instrumental, band, technology, choral) were not included.

Conclusion

With a non-experimental quantitative method, utilizing cross-sectional survey design, this research examines the extent to which music teachers use multimodal pedagogy and their attitudes towards it. The study examines the relationship between various participant factors (gender, degree of education, years of teaching experience, school resources, and professional development) and practice and attitudes towards the use of multimodal pedagogy. The results of this research may provide music educators with a clear understanding of the reality of music teachers' attitudes and towards and the use of multimodal pedagogy. The participants may consider using multimodal pedagogy while teaching and this may enrich their teaching experience.

CHAPTER 2

LITERATURE REVIEW

Introduction

Notable figures in history have emphasized the importance of learning through a variety of senses and experiences. Confucius is said to have demonstrated the essential nature of reading and accessing information though a visual modality: “You cannot open a book without learning something” (Scarborough, 1875, p.92). Hemingway pointed out the importance of learning aurally: “I like to listen. I have learned a great deal from listening carefully. Most people never listen” (Hemingway, 2002, p. 244). It is widely held that Picasso explained that learners should be inside the experience in order to approach information: “I am always doing something that I cannot do, in order that I may learn how to do it” (Krieger, 2002, p.132). While Confucius explained the importance of reading as a type of visual learning modality, Hemingway emphasized the importance of learning through listening (aural); Picasso pointed out another approach for acquiring knowledge through doing (kinesthetic).

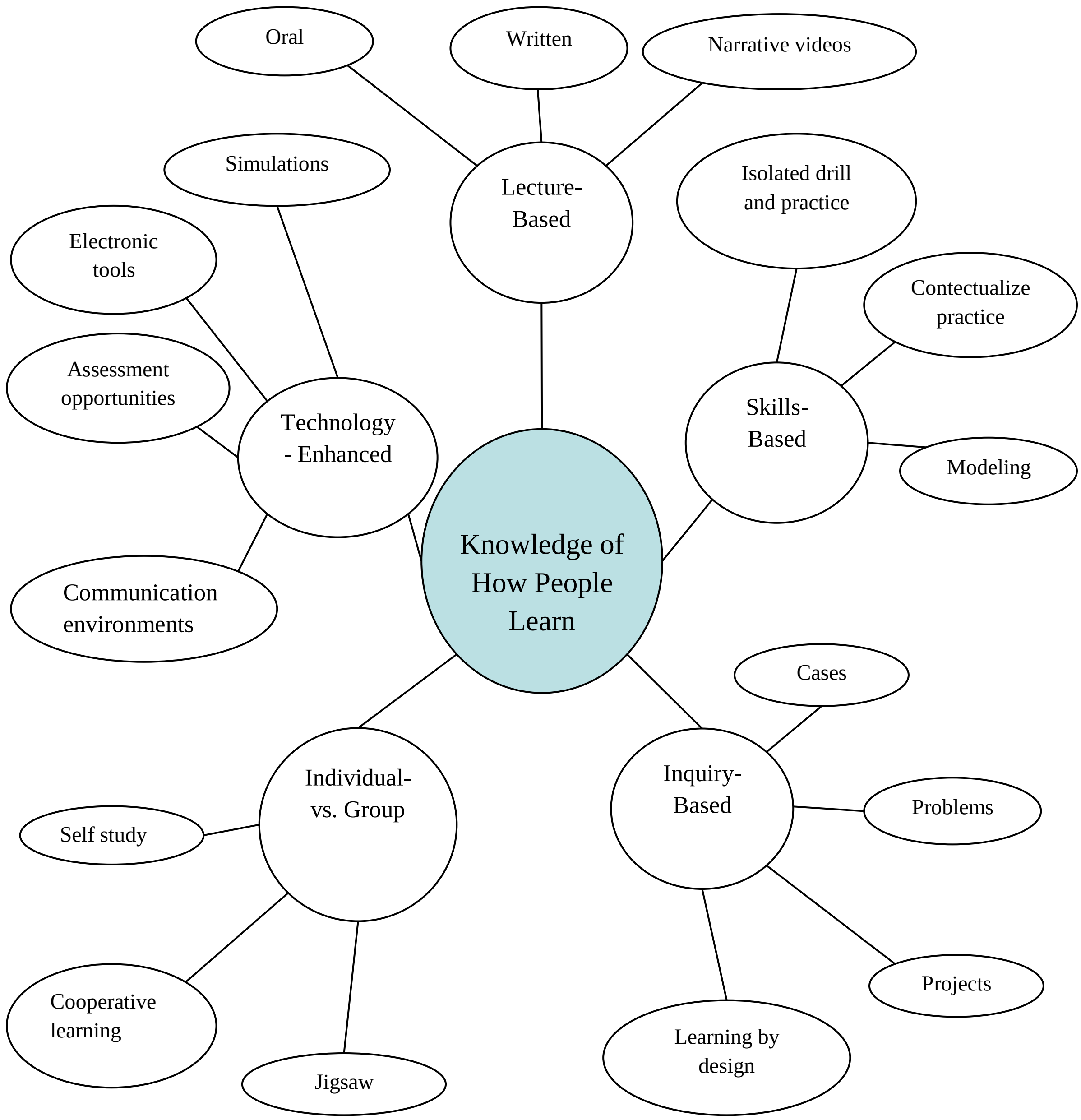
Today students learn much the same way as they have for centuries through different modalities to acquire knowledge and skills. Dunn and Dunn (1979) found only 20 to 30 percent of school age children appear to be auditory learners, 40 percent are visual, and the remaining 30 to 40 percent are tactile/kinesthetic, visual/tactile, or some other combination. In the past few decades much attention has been given to learning modality and its application specifically within the music classroom.

Music teaching and learning take place in a variety of forms. Teachers choose strategies which they deem most effective in shaping students' music development (See Figure 1). The National Research Council's report, *How People Learn* (2000) explains the complexity of student learning and suggests that the choice of teaching strategies is highly dependent upon the teaching/learning task. Music teachers can choose from these strategies to meet students' needs with different learning modalities. The report demonstrates how students learn differently through lecture-based, skills-based, technology-enhanced, inquiry-based and individual vs. group.

Music teachers can utilize lecture-base using oral modality (singing, reading, imitation) and narrative video to accommodate aural learners. Technological tools employed by music teachers provide students with visual aids and hands-on musical activities which support visual and kinesthetic learners (Burn, 2008). By using isolated drill, practice, modeling, and problem solving, a teacher can help kinesthetic learners be involved in the learning experience. Through using two or more of these strategies, known as multimodal approach, music teachers can accommodate students with different learning styles.

Figure 1

Diagram Present the Knowledge of How People Learn



The complex process involved with student learning (The National Research Council's report, 2000, p.22).

Learning Modalities in Music Education

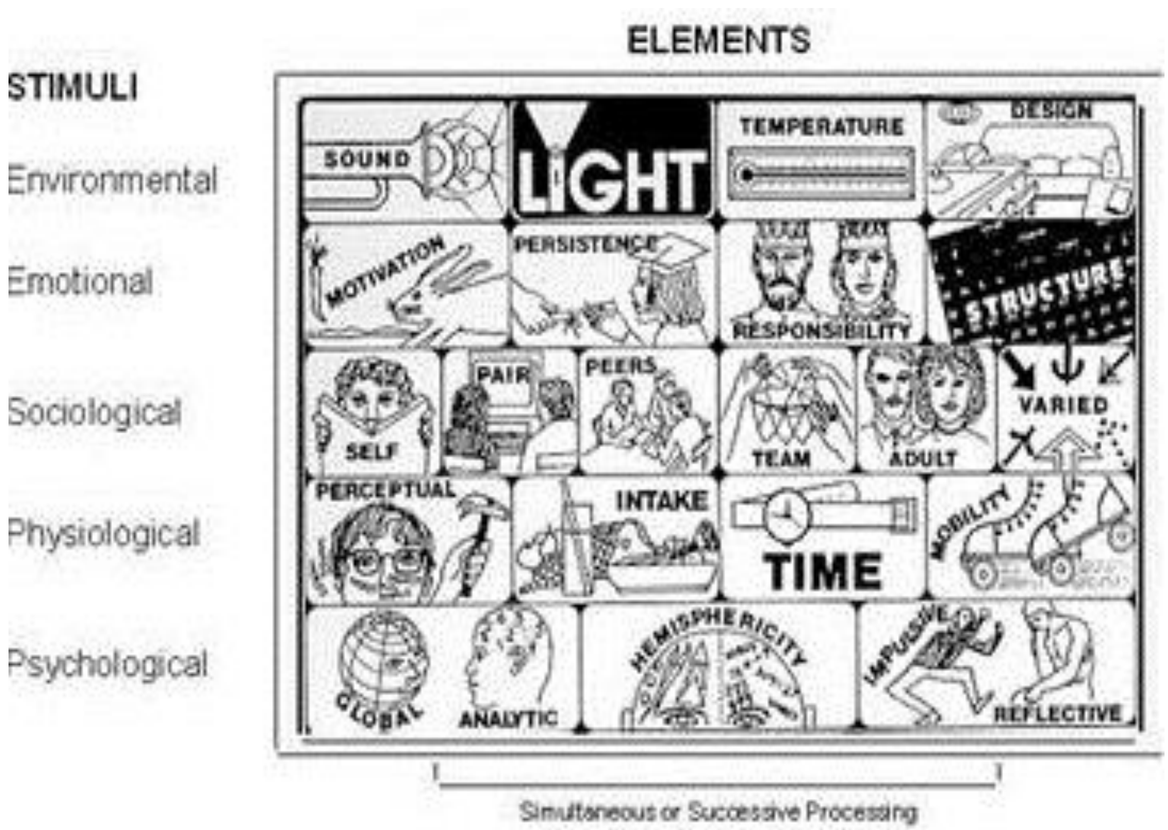
The chief learning modalities that students use are aural, visual and kinesthetic. Learning modality works as a filter between the mind and the learning materials. Learners access the information through aural, visual, kinesthetic modalities individually, or through multimodal which combines two or more learning modalities based on personal preferences, subject matter and type of the skills (Dunn, 1991).

The music educator, Dunn (1991), developed the Sensory Channel Processing Paradigm of Interaction (SCPPI) to describe music learning modalities. Dunn compared learning modalities to a video production process. Dunn related each camera to one of the sensory channels. Each camera (sensory channel) receives the data differently; the quality of the picture depends on individual modality strength. Within video production and learning modalities, Dunn described four stages of learning acquisition. The first stage is the initial sensation experience which uses one of the sensory channels; hear (auditory), sight (vision), touch (tactile) and movement (kinesthetic). Smell and taste are considered as a secondary channel for learning processes. The second stage resembles the television station in which the data of each camera presented simultaneously. Each individual prefers to use his/her strongest sensory channel to acquire knowledge. For example, kinesthetic learners will prefer to learn through hands-on activities to acquire the information. The third stage is resembled by a recorder which captures the data and could marginalize some of these data based upon the learners' attention. The third level records the data in the working memory which presents the cognitive phase of experience. The fourth stage is the long-term memory in which previous information could be retrieved, restored or combined with the new one.

Dunn and Dunn (1994) explained learning modality as a part of learning style. Leaning modality is included within the physiological category and the perceptual element which contain aural, visual, kinesthetic/tactile modality. The complexity of learning styles and factors that influence students' learning styles are clearly approached in Dunn and Dunn's (1994) research on learning style. The researchers present a diagnosing model for learning style that has five categories: environmental, emotional, sociological, physical, and psychological stimuli. The model includes 21 elements that comprise learning style within these five categories (see Figure 2).

Figure 2

Diagram Presenting Dunn & Dunn Learning Style model



Elements involved with students' learning style (Dunn & Dunn, 1994, p.4).

Modeling in Music Education Instruction

Music teachers often turn to modeling in their teaching. This method allows the teacher to encompass different learning modalities as they present information aurally, visually and kinesthetically is through modeling. Researchers have examined how music teachers use vocal modeling (Green, 1990; Grimland, 2001; Mann, 2008), visual modeling (Frederickson, 1993; McClung, 2008; Youngson & Persellin 2001), and kinesthetic modeling (Crumpler, 1983; Rohwer, 1998; Shiobara, 1994) as effective techniques in music education settings. While instruction often relies heavily on vocal modeling due to the nature of music, visual and kinesthetic models are useful aids that enhance students' vocal accuracy, achievement and steady beat and rhythm performance.

As might be expected, the use of vocal modality in music teaching has received the most attention from researchers. Green (1990) found that vocal modeling has an effect on children's pitch-matching accuracy. She used adult male, female and children's voices to model pitch. Children were more successful in pitch-matching tasks when listening to a child's voice compared to the adult voices regardless of gender. Grimland (2001) also advised that through vocal modeling, choral directors use their singing voices to produce ideal sounds suitable for imitation. Vocal modeling has been shown to be an effective teaching strategy in the choral ensemble setting and has a positive impact on music achievement and attitude among young learners (Mann, 2008).

While it is often assumed that aural processes in music instruction are the most effective, teachers engaging the visual mode in combination with aural are often more successful in attaining the goal of increased singing accuracy among students. Youngson and Persellin (2001), McClung (2008), and Frederickson (1993) found no differences in singing accuracy between a group of students using Curwen hand signs combined with the solfège syllables and a group of students using only the solfège syllables. Additionally, Frederickson reported that the group that watched music teacher while she presented the motion of the pitch and the intervallic rise and fall. The students who watched and imitated the hand level, performed significantly better than groups using only solfège syllables and those using solfège syllables combined with Curwen hand signs.

Kinesthetic modeling through movement has long been deemed a successful aid in music teaching. Researchers demonstrate the effectiveness of using Dalcroze Eurhythmics and movement instruction on melodic discrimination and steady beat synchronization, and performance in music. Dalcroze Eurhythmic activities have been shown to have a positive influence on the melodic-discrimination abilities of first-grade students and are successful techniques to present melodic concepts to children (Crumpler, 1983). Movement activities and experiences create a musical schema in students' minds when listening to new music (Shiobara, 1994). Movement instruction appears to improve students' synchronization and performance ability for sixth-grade beginning instrumentalists in addition to enhancing beat perception (Rohwer, 1998). These types of instruction (i.e., Dalcroze Eurhythmics and movement instruction) may be helpful in creating a bridge between body knowledge and performance skills of instrumental students. Previous research, in general, has provided some positive outcomes for music students who were taught with methods of singular modality. It stands to reason that a combination of instructional methods using multiple modalities may also prove effective.

Multimodal Pedagogy in Music Education

Multimodality in education settings refers to the combination of two or more modes of learning, including: representation-linguistic (written words), visual, audio, gestural, and spatial (New London Group, 1996). Since the nature of students' learning is complex, a multimodal approach may be beneficial in student learning in that it takes into account the students' needs, strengths, and modes of learning (Stein, 2008). The multimodal approach especially fits with music instruction; the teacher can present music aurally, visually, and kinesthetically through listening, singing, playing instruments, and moving (Darrow, 2007).

Multimodal pedagogy can help students retain musical information. The use of visual and kinesthetic activities in concert with the oft-used aural may be beneficial in helping students to "image it visually, think it reflectively, experience it actively, respond to it kinesthetically, and feel it emotionally" (Gumm, 2003a. p.76). Consider students who have difficulty in matching pitch, for example. A music teacher may choose to repeat the pitch verbally or on the piano only to see no improvement in the student's response. While any number of factors may be involved with the development of this skill, the presentation of the task through another or multiple modalities may help to increase the probability that the student will be successful. The use of multiple tools that represent multimodal pedagogy might involve presenting visual representations of pitch (e.g., images on a white board or video) or incorporating touch and/or movement (e.g., the use of manipulatives or proprioceptive exercises).

Researchers have uncovered many benefits of a multimodal focus in music education. Multimodal pedagogy helps students retain knowledge that they learned for longer periods of time as they become involved with the material intensely using aural, visual, and kinesthetic or tactile modalities (Baines, 2008). Multimodal learning enhances children's melodic and rhythm retention and pith matching (Persellin, 1994). Miller (2002) observed that using a multimodal approach in a music classroom results in five main advantages for both student and the music teachers:

> Developmentally appropriate activities, increased engagement by all students, more widespread initial learning, and deep learning illustrated by long-term retention and transfer of knowledge. This approach provides the music teacher also with more tools to make more frequent and accurate assessments of individual student understanding (p.10).

Darrow (2007) suggested another benefit is that multimodality supports the adaptation for music classroom instruction to fit students with disabilities based on their strengths as well as their weaknesses. Through multimodal pedagogies, music teachers can incorporate different aspects of learning strategies using different modality to accommodate student diversity in the music classroom. Researchers suggest using different modalities inside the music classroom in order to meet students' needs (Apfelstadt, 1986; Campbell & Scott-Kassner, 2006; Collett, 1991; Conway, 2009; Darrow, 2007; Ebie , 2004; Gumm, 2003b; Miller, 2002; Stein, 2008). Based on researchers' suggestions to combine different learning modalities inside the music classroom, music educators have begun considering the application of multimodal pedagogy.

Application of Multimodal Pedagogy in Music Instruction

The use of discrete teaching approaches (aural, visual, kinesthetic) in music teaching has been the subject of much documentation. It is a logical assumption that if any one of these approaches is met with success, then perhaps teaching using a combination of these modes might increase instruction (and therefore, learning) effectiveness (Collett, 1991).

Miller (2002) demonstrated that one mode that may prove successful with one student may prove unsuccessful with another. Consequently teachers should use the multimodal approach to provide students with the best opportunity to learn. Miller structured weekly lesson plans which included different modes, and stressed the teaching of one piece of music with different modalities. He provided a sample of a multimodal lesson plan for K-2. After observing teaching music with different modalities, "aural, kinesthetic, visual and tactile," he suggested that the most effective teaching should provide students with a variety of modalities. He advised that music instruction for K-2 students can begin with aural, then kinesthetic, then transfer to visual, and end with the tactile mode. As Dybvig (2005) explained, the difference between the kinesthetic and tactile activities is that "kinesthetic is a whole-body movement, while tactile is a feeling through the fingertips" (p.1). The former focuses on the macro level with whole body movement and the latter focuses on the micro level using the fingertip fingerprint. Miller pointed out the importance of the kinesthetic activities as children can use their whole body movement through moving, clapping or dancing with the song. In addition, he clarified the importance of the tactile activities as children can feel and use their fingertips fingerprint, through the tapping chart or the student map, consequently children can listen and touch the music.

Ebie (2004) employed multimodal pedagogy as a tool for students to master emotional performance, rather than for music achievement. Ebie investigated appropriate methods for teaching emotional performance techniques (e.g., happiness, sadness, anger, and fear) to 56 seventh or eighth grade middle-school vocal music students. All participants were taught using four different modalities: traditional instruction, aural modeling, kinesthetic exploration, and audio-visual learning in order to sing with emotional expressiveness. In traditional instruction, students were taught verbally what they should do with their voices and their performances. In vocal modeling, in order to express the various emotions, students were instructed to listen to prerecorded models and focus on how the model manipulated his or her voice. In the kinesthetic exploration modality, students explored various emotions through ways such as drawing a picture, walking, or through physical movements. In the audio-visual modality, using a Microsoft PowerPoint presentation, students viewed 20 individual pictures representative of a specific emotion while listening to a piece of music in order to represent the emotion being viewed.

After the various types of instruction, each participant practiced singing each of the four melodies. Each participant was recorded a total of 16 times (four emotions performed during each of four treatments). Judges rated each performance according to how much they felt that the performance resembled each one of the four emotions. Ebie found that the best methods, listed in order of significance respectively, were aural modeling, audio-visual modeling, and kinesthetic exploration, and were all statistically better than the verbal instruction (traditional instruction). The researcher advised that music educators should consider a varied approach and use all of these methods when teaching students. He also encouraged music educators to challenge their students to perform music with appropriate emotion and expression with the methods and modalities which ‘connect’ with their modalities.

Persellin (1992) found that using multimodality increased the efficiency of learning rhythm patterns. Persellin used aural, visual, and kinesthetic modalities to examine their effect individually on 210 students’ responses to the rhythm patterns. Six rhythm patterns were presented using seven modes of presentation: auditory, visual, kinesthetic, visual/kinesthetic, auditory/kinesthetic, and multimodal (visual, auditory, kinesthetic). For the auditory, visual and kinesthetic modalities, the rhythm patterns were presented using one mode: aurally through listening to a resonator bell; visually through watching an icon chart; and kinesthetically through patting the rhythm on students’ forearms. For the auditory/visual presentation, students listened to the rhythm patterns using the resonator bell accompanied with the icon chart. For the kinesthetic/aural, children silently patted the rhythm while seeing the pattern, and they listened to the patterns while the rhythm patterns were being patted on their arms. For the multimodal presentation, students listened, watched and patted the rhythm patterns simultaneously before reproducing it. Students were then asked to perform the pattern that was demonstrated to them. The results showed that teaching rhythm patterns through combined learning modalities increased the learning efficiency.

Persellin (1994) examined the effect of using learning modalities on preschool children's rhythmic and melodic retention and pitch-matching. She taught 61 children between 4 and 5 years old using one of the learning modalities, aural, visual, kinesthetic and multimodal. The auditory group was encouraged to sing the song and the rhythmic patterns without any visual or kinesthetic aid. The visual group sang the song while following the teacher drawing a line or viewing pictures of the rhythm syllables. The kinesthetic group was encouraged to respond to music through movement while they were singing. The multimodal group sang the song while seeing visual aids, moving, and listening to aural instructions. She administered *Audie* (Gordon, 1989), a game-like test to measure children's melodic and rhythmic retention as well as pitch matching accuracy. Persellin recorded children's responses while singing "Hello" in a descending pattern using G and E above middle C. Two judges rated the recordings for accuracy. She found that children in the aural and multimodal groups scored significantly higher on melodic, rhythmic retention and pitch matching than the other two groups.

Persellin (1992, 1994 found that multimodal pedagogy increased the efficiency of learning rhythm patterns and enhanced students' rhythm and melodic retention and vocal accuracy. She focused on children's learning modality and multimodal means for learning but did not include the extent to which music teachers use multimodal pedagogy. Miller (2002) and Ebie (2004) also suggested combining different learning modality while teaching.

Research on Music Modality Preference

It may be that teachers opt for one type of instruction over another as a reflection of their personal learning style and, therefore, their personal preference. Indeed, music educators' tend to teach using their preferred learning modality (Persellin, 1988). Modality preference extends to students as well.

Persellin and Pierce (1988) demonstrated the importance of helping students learn through modality that they prefer most; "when children are taught through their strongest learning modalities, visual, auditory, or kinesthetic, they learn better and more easily" (p. 825). Through using different modalities, aural, visual and kinesthetic, music teachers can accommodate students with different modality preferences. Researchers found that student perceptions about their own learning modality, influence students' and teachers' learning modality choices (Apfelstadt, 1986; Dunn, 1994; Gerson, 1981; Persellin and Pierce, 1988; Persellin, 1988).

Persellin and Pierce (1988) examined the relationship between students' learning modality preferences and their learning of rhythmic patterns. The researchers administered the Swassing Barbe Modality Index (SBMI) to identify 55 third graders' preferred learning modalities. The children were organized into three groups: aural, visual, and kinesthetic. The aural group listened to rhythm patterns played on a tone-bell then performed them. The visual group watched a symbolic representation of the rhythm patterns then played them on a tone-bell. The kinesthetic group patted the rhythm patterns on their shoulders and then played them on the tone-bell. Students tended to repeat the rhythmic patterns more accurately if they learned them through their preferred learning modality.

Students' learning modality also affects the way they listen to music. In a study conducted by Dunn (1994), the children were divided into three groups: aural, aural/visual and aural/kinesthetic. Each group experienced two repeated musical examples. For the aural presentation, students listened to the piece without any other stimuli. For the aural/visual presentation, listening was accompanied by watching the researcher trace the piece's movements using figural maps. For the aural/kinesthetic presentation, students listened to the music while closing their eyes and mapping the music's movements with their hands in the air with the researcher guide. The researcher administered the SBMI to identify students' preferred learning modality. In addition, the researcher sent a survey to students' parents, music teachers, and classroom teachers to get further information about the students' learning modality. The results showed that students' perceptual modality preference influenced their sensibilities to music content.

It has been noted that modality preference affects children's vocal accuracy and rhythmic learning. Visual learners sing and perform rhythm patterns better than auditory or kinesthetic learners (Apfelstadt, 1986; Gates, 1993; Persellin, 1993). To examine the relationship between learning modality preference and children's vocal accuracy, Apfelstadt constructed and administered the vocal test and the *SBMI* (Barbe and Swassing, 1979) to 65 second graders. The result showed that visual learners have more accurate singing than auditory learners. Moreover, visual learners were shown to match pitch significantly better than aural and kinesthetic learners (Persellin, 1993). She examined the influence of using different learning modalities on 1201 children while pitch matching. Persellin taught a folk song to the children using aural, visual and kinesthetic modalities. The researcher sang a portion of the song using one of the modalities and students responded using the same mode. Children were evaluated based on their performance to match the pitch using the same modality. The results showed that students who learned through visual modality sang more accurately than other modalities.

In examining learning modality's effect on students' rhythmic learning and modality preference, Gates (1993) found that visual learners achieved higher scores on the rhythmic test. Children were divided into three groups that were taught rhythmic instructions for 15 lessons. The first group was taught using kinesthetic-auditory, the second group was taught using auditory-auditory, and the third group was taught using visual-auditory modalities over six weeks. The researcher constructed and administered the Music Modality Preference Test for Children (MMPTC) and the Rhythm Test (RT). The results showed that the visual group scored significantly higher than the other groups on the modality preference test and rhythmic achievement.

Although previous research showed that students' and teachers' modality preference affects their learning and teaching approaches, these modalities are independent. Teachers' modality preference has no significant influence either on children's preference modality or their learning approaches (Gerson, 1981). To examine the influence of the teachers' teaching modality on students' learning modality, Gerson administered the SBMI to 175 children and 19 music teachers. She found that teachers' teaching modality preference did not affect students' learning modality preference. For example, if a music teacher is a visual learner using the Kodály approach to utilize more visual activity, this would not lead the child who is aural leaner to change his/her preference. This child would just struggle throughout the learning processes, and would seek to learn through his/her preferred modality. Music teachers should consider using multimodal pedagogy, which allows them to combine two or more modalities to meet children's needs with different modality preferences.

Music Teachers' Teaching Approach

Just as modality preference also influences a students' preference of instruction, modality preference influences music teachers' choices for teaching approach. Particularly, music educators tend to teach using their preferred learning modality (Persellin, 1988). The chief methods of teaching music are: Kodály, Orff, Dalcroze, Suzuki, Music Learning Theory, and Education Through Movement and singing-based. These approaches will be briefly outlined here.

Kodály's teaching techniques are borrowed from a variety of resources: the solfège system; the rhythm syllables; and the hand sign system. Kodály's teaching approach has three important aspects: combined rhythmic and melodic experiences; movable do; and Kinetic development. Students visualize a melody through the melodic activities using Curwen hand signs accompanied by solfège (Choksy, et al, 1986). Curwen hand signs were developed by Sarah Glover then John Curwen in England. Specific hand shapes represent each note of the diatonic scale. The purpose of using Curwen hand signs is to support the aural modality using the visual or kinesthetic modalities. Curwen hand signs can be used as a visual tool when students see teachers use them while teaching. Hand signals can also be used as a kinesthetic tool when students themselves use them in conjunction with singing or sight-reading. Music teachers who apply the Kodály approach focus on visual modality through using solfège and Curwen hand signs more than aural and kinesthetic modalities (Persellin, 1988).

Orff-Schulwerk features five components: speech, singing, movement, instrument playing, and improvisation. The children practice speaking, chanting, and clapping to the rhythm of the speech patterns. This activity prepares them to play games, sing songs, play barred instruments, and later develop their ability to improvise music (Mark, 1996). Music teachers who use Orff-Schulwerk approach utilize kinesthetic modality more than aural and visual (Persellin, 1988).

Eurhythmics, solfège, and improvisation are the three parts of Dalcroze's method. Eurhythmics consists of exercises for physical responses to music, which students express through clapping, marching, or tapping. With training, students became sensitive to rhythm by responding to it with their whole body. Solfège or ear training includes singing exercises and songs with syllables and words, which helps students to recognize tonal relationships between pitches. The main purpose of ear training is the inner hearing development, which enhances students' listening, hearing, and remembering abilities. Improvisation helps students to express themselves using tempo, dynamic, and rhythm through movement. Students use piano to improvise melodic fragments based on their understanding of interval relationships (Mark, 1996). Dalcroze is more reliant on kinesthetic and aural modality than visual (Persellin, 1988).

Suzuki developed the Mother-Tongue method, which is based on psycholinguistic development. The Suzuki's method is based on nurturing children in a musical environment to help them listen, observe, imitate and repeat until developing their intellectual awareness about the music. The Suzuki approach emphasizes the importance of listening to music over reading music (Mark, 1996); it is based upon aural modality more than visual and kinesthetic modalities because it emphasizes listening and repetition.

Gordon developed Music Learning Theory in order to demonstrate and clarify how students learn music, and how they should be taught. Gordon explains that students learn music through discrimination and inference learning. The discrimination learning sequence is the readiness for the inference learning. The discrimination learning sequence includes: aural/oral, verbal association, partial synthesis, symbolic association (reading-writing), and composite synthesis (reading-writing). The inference learning sequence includes: generalization (aural/oral, verbal, symbolic), creativity/improvisation (aural/oral, symbolic), and theoretical understanding (aural/oral, verbal, symbolic). Music teachers who use Music Learning Theory believe that ear needs to be trained before eye (Mark, 1996). Music learning Theory is more reliant on aural modality through audiation, and kinesthetic modality utilizing Laban movement more than visual.

Phyllis Weikart developed the Education Through Movement teaching approach based on movement and folk song. Education Through Movement depends on movement to enhance students' readiness skills for language development and learning music. Language prepares children for movement and plays the role for arranging children movement (Weikart, 1982). Movement works as a bridge between thinking, language and body. Music teachers' role is to provide children with a variety of opportunities for experiencing movement with music (Weikart, 2005). Education Through Movement is more reliant on aural modality through aural instructions and kinesthetic modality through movement than visual.

While both the Kodály and singing-based approaches are more visual and aural than kinesthetic, the Orff approach is more kinesthetic than visual. Furthermore, the Dalcroze approach is more kinesthetic and aural than visual. While both Music Learning Theory and Education through Movement approaches are more reliant on aural and kinesthetic modality, Suzuki's method is based upon aural modality more than visual and kinesthetic modalities. Persellin's research (1988) found that music teachers who prefer to learn visually used the Kodály approach and singing-based approaches. Music educators who prefer to learn using mixed modalities showed more tendencies to use Orff approach. The research results showed that music educators' modality preference affects their choices of teaching methods.

Demographic Information of Music Teachers

Other factors that may influence music teachers' use and practice of learning modality are teachers' background and school demographic information. Teachers' demographic factors consist of: gender, level of education, and years of music teaching experience. School demographics factors include: school resources, and professional development.

Research on music teachers' backgrounds and how these factors influence music teaching is a growing area of investigation. Music teachers' gender (Gumm, 2003; Meek, 1999), level of education (Dahlman, 1991, Gumm, 2003), and years of teaching experience (Ebbeck, Yim, Lee, 2009; Goolsby, 1996, 1997, 1999; Gumm, 2003; Meek, 1999) have each been studied to explain their effect on the development of music teaching.

Considering gender, female music directors have been shown to use different approaches than males to present new pieces for the ensemble and to direct students' behavior during the rehearsal. Female directors allow students to ask more questions during the ensemble (Meek, 1999), support students' feeling and ideas by giving them the opportunity to ask questions and express their thoughts during the ensemble (Gumm, 2003b), and offer students more answers to their questions, and allotted students more time for discussion than the male teachers (Zhukov, 2012). On the other hand, male teachers used broad directions and provide students with more clarification for the new concepts than the female teachers (Zhukov, 2012).

Music teachers' level of education is another factor that might influence their teaching modality. Dahlman (1991) found that music teachers' educational degree affected their selections for choral music literature. Almost all music directors, who participated in White's (1982) survey of 12 universities that offer Doctorate of Musical Arts (DMA), confirmed that graduate programs have been extremely beneficial for their teaching approach. Goodstein (1987) found that the most successful band directors attained master's degrees. On the other hand, Gumm (2003b) found that level of education had no influence on music teachers' teaching style.

Teaching experience is another factor that influences music teacher use of learning modality. Number of years in teaching experience has influence on music teachers' teaching approaches. The expert teachers used nonverbal modeling to provide students with instruction (Goolsby, 1996), focused more on tone quality, articulation and expression (Goolsby, 1997), and used more time on the performing than providing verbal instruction (Goolsby, 1999). Expert music teachers showed higher levels of confidence and happiness throughout different musical activities comparing with novice music teachers (Ebbeck, et al, 2009). Gumm (2003b) found that expert music teachers had more confidence, efficiency, and used the time professionally compared with novice teachers.

Teacher demographics of gender, level of education, and years of experience influence music teachers' teaching approach (Dahlman, 1991; Ebbeck, et al, 2009; Goolsby, 1996, 1997, 1999; Gumm, 2003b; Meek, 1999). Although these researchers suggest that predetermined factors influence music teachers' use of learning modality, none of them examined how these factors influence music teachers' use of learning modality. School demographic information is another factor that may influence music teachers teaching approach and their using of learning modality.

School Demographic Information

While licensed practicing teachers have all undergone instruction that culminated in the awarding of a degree signifying the successful completion of requirements suggesting that they have adequate knowledge and understanding in their subject matter, the physical environment in which they operate varies greatly and can, therefore influence teaching and learning. School demographic factors that may influence music teachers' use and attitude towards learning modality include: school resources and professional development. School resources include: the music classroom, the material and the available music equipment.

The physical setting of the music classroom helps music teachers to use different learning modalities. The classroom should have enough space to accommodate different music activities such as singing, visualizing, playing, and moving. A music classroom designed especially to teach music, with fresh air and good lighting, is important to teaching. A dedicated music room may make it possible for the teacher to readily move from one teaching modality to another. Classrooms dedicated to teach regular (non-music) classes, a gym, or a cafeteria are not as appropriate for music teaching and learning (Campbell & Scott-Kassner, 2006); the physical space may, in fact, inhibit the effective use of different modalities

The visual appeals of the music classroom helps music teachers to accommodate students with different learning modalities. Chalkboard or white boards with staff lines helps music teachers to teach solfège syllables through pointing to these syllables on the board. Bulletin boards can be used to introduce composers, instruments, Curwen hand signs, solfège, and rhythm syllables. Through the bulletin boards, music teachers can introduce new concepts, expressions, and song words for the lessons (Campbell & Scott-Kassner, 2006).

Music equipment is a critical element which may support music teachers using different modalities inside the music classroom. Music equipment includes items such as keyboards, Orff instruments, CD players, Mp3 player/iPods, movement materials (rhythm sticks, egg shakers, scarves, and bean bags), guitars, percussion instruments (drum, hand drums, tambourines, triangles, maracas, etc), and computers (Campbell & Scott-Kassner, 2006). Amen (1982) studied how the availability of music material inside the music classroom promoted music teachers' instruction. The researcher examined the factors that affect music teachers' use of classroom time. She found that music equipment is a positive stimulus, which encourages elementary music teachers to spend more time on music activities (Amen, 1982).

Professional development programs may also influence music teachers' teaching approach. Training workshops help music teachers to expand their information, implement this knowledge in their teaching, enhance their teaching practice, and use different learning modalities by utilizing technology in music classroom (Walls, 2008). Music teachers who attended workshop training with general, choral, instrumental focuses demonstrated more confident, used more different learning modalities, and were more efficient regarding the ensemble time, compared to those who do not attend (Gumm, 2003b).

The professional developments programs that the elementary music teachers desire to attend are: Orff (61.21%), Kodály (46.26%), and Dalcroze (29.18 %) (Tarnowski & Murphy, 2003). The chief approaches that are most utilized in teaching music includes Orff, Kodály, Dalcroze, MLT, Suzuki, and WETM. Each of these approaches focuses more on one or two modalities than others.

In conclusion, both school resources and professional development have a huge impact on music teaching. School resources including music classroom physical setting, visual tools and music equipment may influence music teachers' implementations and attitudes towards multimodal pedagogy (Amen, 1982; Campbell & Scott-Kassner, 2006). Professional development also impacts teachers' confidence, time management, and their teaching effectiveness (Gumm, 2003b, Mark; 1996; Persellin, 1988, Tarnowski & Murphy 2003; Walls, 2008). No studies have investigated the impact of school resources and professional development on general music practice and attitude towards multimodal pedagogy; after extensive review, only one study was identified that examined how professional development influence music teachers' teaching style (Gumm, 2003b); however, learning modality was not addressed.

Conclusion

The extant research on modeling, multimodal pedagogy application, modality preference in music education, music teachers' background, and school demographic information suggests that these factors influence music teachers' practice and attitudes towards the use of multimodal pedagogy. While researchers suggest that teachers should use different modalities inside the music classroom in order to provide students with the best opportunity to learn (Apfelstadt, 1986; Campbell & Scott-Kassner, 2006; Collett, 1991; Conway, 2009; Darrow, 2007; Gumm, 2003a; Miller, 2002; Stein, 2008), only one researcher has investigated general music teachers' attitude and implementation of multimodal pedagogy inside the classroom (Persellin, 1992, 1994). Even through Persellin's research found that the use of multimodal pedagogy increases the efficiency of learning rhythm patterns, and vocal accuracy, as well as enhances students' rhythm and melodic retentions, she did not examine the extent to which music teachers use multimodal pedagogy.

Due to the enormous changes in educational practices and technology in the past twenty-five years, Persellin's pilot study (1988), which found that music teachers' modality preference influences their teaching methods, needs further investigation to examine music teachers' practice and attitude towards multimodal pedagogy. Today, music equipment in classrooms might include computers, iPods, and tablet technology. Professional development training that can influence music teachers' use and attitudes towards multimodal pedagogy has also undergone change as the profession and society have evolved. It is feasible that this evolution might have had an impact upon music teachers' attitudes towards the use of multimodal instruction. Based on the paucity of current research concerning the use of multimodal pedagogy, teachers' and schools' demographic factors, the study of music teachers' practice and attitude towards the use of multimodal pedagogy is of critical importance.

Purpose and Research Questions

This study examines general music teachers' practices and attitudes regarding the use of multimodal pedagogy in music instruction. The following research questions guided my study:

1) To what extent do general music teachers rely on aural modeling of music instruction?

2) To what extent do general music teachers rely on visual modeling of music instruction?

3) To what extent do general music teachers rely on kinesthetic modeling of music instruction?

4) To what extent do general music teachers combine various modes of music instruction?

5) How do available resources and professional development influence general music teachers' choices and attitudes concerning multimodal pedagogy?

6) To what extent do gender, level of education, and years of music teaching experience influence general music teachers' choices and attitudes concerning multimodal pedagogy?

CHAPTER 3

RESEARCH METHOD

Introduction

This descriptive study used a survey design to explore the extent to which general music teachers in a delimited geographical area in southeastern Pennsylvania use multimodal pedagogy and their attitudes towards it. The survey also collected data regarding participants' demographic information (gender, degree of education, and years of teaching experience) and school resources.

Participants and Data Collection

Eligible participants were identified and selected from all certified public general music teachers (elementary, middle, high school) in Pennsylvania Music Educators Association (PMEA) Districts 11 and 12 who teach general music or a combination of general and other music subjects. Public music teachers who teach subjects other than general music (e.g., winds, percussion, strings, technology, choral) were not eligible. PMEA divides the state into six large geographical regions. These regions are further subdivided into a total of twelve districts (Pennsylvania Music Educators Association, 2014). PMEA Districts 11 and 12 are comprised of the area that encompasses Philadelphia and surrounding school districts. District 11 contains Bucks and Montgomery counties; District 12 contains Philadelphia, Delaware and Chester counties (Pennsylvania Music Educators Association, 2014).

Potential participants' contact information was identified using the Pennsylvania Department of Education online school directory (http://www.edna.ed.state.pa.us) and school district websites in southeastern Pennsylvania. If contact information for music teachers was not available via the school district's website, I telephoned the school to request this information. It was found that a number of schools in the directory had no music program or did not employ full-time music teachers. In such cases, these schools were eliminated from the invitation list. A total of 1005 general music teachers were identified from which 600 general music teachers were selected as viable participants through a stratified random sampling process.

Once the sample was identified, and after Temple University Institutional Review Board approval was attained, I sent emails to all participants inviting them to take part in the study (see Appendix B). The email message contained information about the study along with a link to the web-based survey instrument that was developed using SurveyMonkey® (see Appendix D).

Although teachers in the sample had indicated that they were general music teachers, I verified this information within the first question of the survey to ensure that responses would be representative of this defined population. In this question, respondents were asked if they teach general music only or a combination of general music and other areas of music. If respondents indicated "general music only," they were directed to the next question on the survey; if they answered that they taught general music in combination with other areas of music, respondents were thanked for their participation and the survey ended. If respondents indicated "general music or a combination of general music and other areas of music", they were directed to the next question on the survey; if they answered that they taught other areas than general music, respondents were thanked for their participation and the survey ended.

For the first and second weeks after the initial email invitation, I sent follow-up emails reminding potential respondents to complete the survey. Final follow-up emails were sent six weeks from the start of the survey (See Appendix C). Seven weeks after the initial survey, the data were downloaded from SurveyMonkey® to complete the data analysis processes.

Of the 600 participants contacted, 170 respondents participated in the study (28% response rate). Of the 170 initial participants, 154 were identified as general music teachers. Twenty-seven of those respondents did not complete the entire survey and consequently were excluded from the study. In total, 127 completed the survey and were considered by the researcher to be appropriate for analysis.

Development of the Survey Instrument

I developed the *General Music Teachers' Practices and Attitudes Towards the Use of Multimodal Pedagogy* survey to explore the extent to which general music teachers use multimodal pedagogy and their attitudes towards it. I designed the web-based survey using SurveyMonkey®. SurveyMonkey® provides secure data storage and protects the anonymity of the participants. SurveyMonkey® suggests five options for collecting survey responses: use of a survey web link; embedding the survey on website or blog; emailing the survey to respondents; adding the survey to Facebook fan page, and; sharing the survey link on Twitter. The use of the survey web link was chosen for this study as it is ideal for my purposes. Additionally, this option provides respondent anonymity. I sent each participant an email that included an invitation letter with a description of the study and the survey link (See Appendix B).

The *General Music Teachers' Practices and Attitudes Towards the Use of Multimodal Pedagogy* survey collected data regarding:

- General music teachers’ demographic information: gender, years of education, and educational degree.
- School’s demographic information: music classroom, music equipment, and professional development.
- General music teachers’ pedagogical choices: aural, visual, kinesthetic, and multimodal pedagogy.
- General music teachers’ attitude: music teachers’ attitude towards the use of multimodal pedagogy.

Survey Construction

Data were collected regarding general music teachers’ using of multimodal pedagogy and their attitude towards it. Questions on music teachers’ general pedagogical choices and professional development experiences were asked in order to establish answers to the research questions. The survey was organized based on: teachers’ demographic information, school demographic information, music teachers’ pedagogical choices, and music teachers’ attitudes towards the use of multimodal pedagogy. Survey questions were organized into four categories: Demographic Data, School Resources and Professional Development, Use of Modalities, and Attitudes Towards Use of Multimodal Pedagogy. Demographic data were collected to provide specific information about the respondents as related to the content questions.

Questions regarding School Resources provided information that referred to equipment that was at the teachers' disposal that may further indicate their proclivities towards the use of multimodal pedagogy. Questions regarding Professional Development were created in order to determine whether or not teachers engaged in further education in specific types of pedagogy regardless of modality. Questions concerning the Use of Modality were crafted to provide information regarding teacher behavior in the classroom. For example, while resources might point to the use of multimodal pedagogy, if teachers indicate a penchant for one modality over another, existence of certain equipment might not be a clear indicator of pedagogical choices. Finally, questions regarding Attitudes Towards Multimodal Pedagogy were asked in order to determine if there was a connection between what teachers report doing and their feelings towards different pedagogical strategies.

Answer types included a dichotomous scale (Yes/No), multiple choice questions, answer choice check boxes, 5-point Likert-type scale, and open ended responses when elaboration was necessary. Dichotomous scale questions were used at the beginning of the survey to verify if general music teachers teach strictly general music or a combination of general music and other topics, or do not teach general music at all. If respondents answered "Yes", (they teach general music either exclusively or in combination with other topics), they were directed to the next question on the survey. If respondents answered "No", the next page of the survey stated "Thank you for your participation," and the survey concluded. This scale was also used to gather information about the music teachers' professional development and whether schools district require them to combine different modalities inside the classroom.

Other types of information were best gathered using multiple-choice questions. Some required a single answer (e.g., those regarding teachers' learning experiences) while others provided a multiple answer possibility (e.g., questions regarding school music resources). A 5-point Likert-type scale was used to provide information regarding music teachers' pedagogical choices and attitudes towards the use of multimodal pedagogy. In certain questions, when appropriate, respondents were given the opportunity to elaborate with open-ended responses. The survey was brief, requiring no more than 10 minutes of time from the respondents.

Survey Assessment

The survey was examined for validity through piloting with a panel of experts that included four doctorate students studying music education, three university music education faculty members, and one licensed, practicing general music teacher. Panelists used a rating form (see Appendix A) to indicate face and content validity. Based on panelist feedback, I made necessary changes to the survey. All suggestions provided by panelist feedback had to do with face validity; all agreed that content was specific to the research questions. Language in some questions was modified for greater clarity and specificity. Certain instructions were also clarified. Wording was streamlined in a few questions and question grouping was made more efficient for the respondent.

In piloting the survey, the expert panel give feedback in the face validity, at the time of proposal defense committee members (all of whom were membership of the expert panel) indicated that certain content needed to be addressed. Based on this feedback, three questions were added to the survey. The first question asked general music teachers about their learning experience: aural, visual, kinesthetic, multimodal pedagogy. The second question asked general music teachers about their undergraduate or graduate courses which combine different modalities. The third asked about the professional development programs that the general music teachers attended (Music Learning Theory MLT, Zòltan Kodály, Emile Dalcroze, Carl Orff, Shinichi Suzuki, Weikart- Education Through Movement WETM).

Data Analysis

Seven weeks after the initial email, the data were downloaded from SurveyMonkey® to complete the data analysis processes. The survey items were coded for data entry and analysis. I used the Statistical Package for the Social Sciences (SPSS) software, v.18 to analyze the data using descriptive statistics and inferential statistics. Descriptive statistics (frequency) provided analysis as to the extent that general music teachers rely on aural, visual, and kinesthetic modalities, or a combination of various modalities while teaching music.

Inferential statistic measures included: multiple regressions, logistic regression, Chi-square, and t-test. Due to the small amount of data, I did not use factor analysis since it did not provide me with a clear distinction of music teachers' pedagogical choices. Multiple regression models were used to examine how teacher factors, available school resources and professional development programs influence general music teachers' attitudes towards the use of multimodal pedagogy. The predictors of the multiple regression models were gender, years of experience, and education degree, available school resources and the professional development program. The dependent variable was music teachers' attitudes towards the use of multimodal pedagogy. Logistic regressions model were used to examine how the teacher factors and available school resources and professional development programs influence general music teachers' pedagogical choices. The predictors of the multiple regression models were gender, years of experience, and education degree, available school resources and the professional development program. The dependent variable was music teachers' actual using of multimodal pedagogy while planning, teaching and assessment processes.

A t-test analysis was performed to determine the relationship general music teachers' attitudes towards the use of multimodal pedagogy and their attending the professional development (MLT, Zòltan Kodály, Emile Jacques Dalcroze, Carl Orff, Shinichi Suzuki, WETM, other). A Chi-square analysis was performed to determine the relationship between general music teachers' actual use of multimodal pedagogy while planning, teaching, and assessing their students and teachers' attending professional development programs.

CHAPTER 4

RESULTS

Introduction

The purpose of this study was to examine general music teachers’ practices and attitudes regarding the use of multimodal pedagogy in music instruction. A quantitative method using cross-sectional survey design was implemented. In order to achieve the purpose of the study, six questions were developed:

1) To what extent do general music teachers rely on aural modeling of music instruction?

2) To what extent do general music teachers rely on visual modeling of music instruction?

3) To what extent do general music teachers rely on kinesthetic modeling of music instruction?

4) To what extent do general music teachers combine various modes of music instruction?

5) How do available resources and professional development influence general music teachers' choices and attitudes concerning multimodal pedagogy?

6) To what extent do gender, level of education, and years of music teaching experience influence general music teachers' choices and attitudes concerning multimodal pedagogy?

Teachers' Demographic Information

In order to understand more about the respondents, I collected teachers' demographic information, including: gender, years of teaching experience, and educational background. Results are found in Table 1.

Table 1

Teachers' Demographic Information

Characteristics	Frequency	% of total participants population
Gender		
Male	46	36.2%
Female	81	63.8%
Years of Teaching Experience		
0-10	53	41.7
11-20	39	30.7
21-30	29	23.0
31+	6	4.7
Level of Education		
Bachelor	29	23.0
Masters	96	75.4
Doctorate	2	1.6

Table 1, Continued

Number of School Assignments/Teacher		
One	96	75.6
Two	24	18.9
Three	6	4.7
Five	1	0.8

Note, n= 127

The stratified, random sample of general music teachers from southeastern Pennsylvania was 600 out of a population of 1000 identified music teachers. Potential participants' contact information was identified using the Pennsylvania Department of Education online school directory (http://www.edna.ed.state.pa.us) and school district websites in southeastern Pennsylvania. Of the 600, 170 respondents participated in the study, constituting a 28% return rate. Of the initial participants, 154 were identified as general music teachers. Twenty-seven respondents did not complete the entire survey, leaving 127 valid responses.

More female music teachers (64%) participated in this study than male (36%), and mean years of experience was under 14 years, although there was great variability (M = 13.85, SD = 9.62). Nearly 42% taught general music for 0-10 years. The majority of the participants (73%) stemmed from the two categories, 0-10 years, and 11-20 years of experience. General music teachers holding masters' degrees composed the majority of the sample (75%). Teachers' years of experience and the professional educational degree were significantly correlated, $r = .521$, $p < .01$ (Table 2). Nearly all (94.5%) reported that they taught in one or two schools.

Table 2

Correlation Table for Teacher Years of Experience and Educational Degree

		Years of Teaching Experience	Educational Degree
Years of Teaching Experience	Pearson Correlation	1	.521**
	Sig. (2-tailed)		.000
	N	127	127
Educational Degree	Pearson Correlation	.521**	1
	Sig. (2-tailed)	.000	
	N	127	127

**. Correlation is significant at the 0.01 level (2-tailed).

Findings

Music Teachers' Pedagogical Choices

To answer the first four research questions, frequency counts garnered from the 5-point Likert-type scale (see survey in Appendix D) provided data focused on general music teachers' pedagogical choices and the extent to which they rely on aural, visual, kinesthetic, and multimodal pedagogy in their teaching. Answer choices on this scale ranged from "Never" to "Always". In order to demonstrate a clear distinction between positive and negative responses, answer choices "Always" and "Very Often" were combined as well as negative choices "Rarely" and "Never".

A majority of respondents reported that they very often or always considered using a particular modality while planning (Aural - 92%; Visual – 86%; Kinesthetic – 79%). Similarly, a majority (87%) reported the consideration of combining different modalities during lesson planning. Most respondents reported using a specific modality in teaching very often or always (Aural - 94%; Visual – 85%; Kinesthetic – 73%) while a large proportion (80%) reported the use of multimodal pedagogy while teaching. Assessment data revealed that the aural modality was most often used in assessment while the use of other specific modalities was less prevalent (Aural - 80%; Visual – 55%; Kinesthetic – 58%). About 63% reported the regular use of multimodal pedagogy in assessment processes.

General music teachers' use of learning modalities in planning, teaching, and assessing is shown in Table 3. Even though respondents reported that they use multimodal pedagogy more frequently than visual modeling while planning lessons, they rely on the visual modality more frequently than combining modes while teaching.

Table 3

General Music Teachers' Pedagogical Choices

	Aural	Visual	Kinesthetic	Multimodal
Planning	92%	86%	79%	87%
Teaching	94%	85%	73%	80%
Assessing	80%	55%	58%	63%

Participants' responses to the open-ended questions which asked them to explain how they use multimodal pedagogy in their classes and how they perceive its benefits demonstrated the importance of combining learning modalities while planning, teaching and assessing students. Respondents cited specific examples of how they use multimodal pedagogy inside the music classroom. The following is a sampling of quotes from multiple participants regarding their use of multimodal pedagogy. Each paragraph represents a thought from different respondents.

> *I always consider how to utilize each method and while every lesson may not be presented each way, I do utilize all three approaches the majority of the time. This is probably the main thing that I focus on while lesson planning to make sure that I am including all learners.*
>
> *When students learn new songs, I often sing or play the song for them (aural). As they are listening to the song, I usually have a presentation on the SMART Board that contains lyrics and pictures to help them learn the song better. Many songs have actions or movement games that go along with the words, too. I teach musical concepts the same way. There is usually some aural component to the concept (e.g., a song that shows Rondo form), a visual component (e.g., shapes that correctly show Rondo form along with music notating the themes of each different section), and a movement component as well (ex.- "Give me something simple that we could do with our bodies to show the A, B, and C sections of a Rondo").*
>
> *I teach Kindergarten. First I usually introduce a song with the pure rote process (aural). I usually add a picture to go with some of the movements (visual),*

and finally I introduce the song using body movements to help with pitches (Kinesthetic)

I use movement activities, singing, playing instruments, and listening every class period. I use music books with the older students for many songs so they have the opportunity to read and follow along when we listen to and learn new music. With the younger students, I have large poster books to illustrate the concepts I am teaching. In all my classes, we walk the beat, or do patterned dances to reinforce steady beat skills, and understanding of rhythm, dynamics, and tempo.

When teaching guitar chords students need to see the fingering on the guitar and on chord charts and then work on strumming to the actual chord to see how it sounds and achieve the right tonality.

An example of multimodal pedagogy to teach musical FORM would be: Introducing a song while students read the music and words from a score; discussing where sections occurred aurally and how each section was the SAME or DIFFERENT; using specific dance movements for each section; putting it all together and labeling sections with letters to show patterns in the music (showing visually through letter/shape patterns).

I have a keyboard lab and it's a hands-on environment. I use Aural and Visual to instruct and review concepts and the student learning is multimodal - Visual to identify pitch & rhythm notation and Kinesthetic - to practice and perform on the keyboards.

While I may begin with an aural/oral presentation of material, I will almost always incorporate movement (to the beat, or expressive, continuous flow) in songs, chants, rhymes, even pattern instruction. I teach a music literacy curriculum, so the instruction progresses eventually to visual presentation. I do also use Curwen hand symbols with tonal pattern instruction. While students may not receive visual notation immediately, I do believe that when it is introduced it reinforces previous aural learning, and may help things "click" for visual learners who may have struggled with the aural/oral steps in a unit.

Music concepts are practiced/learned through body percussion, visuals drawn on board, call/response, game playing, and student choice.

I always take into consideration how much time I spend on any one area of the lesson. I find the students, especially the younger they are, benefit from varied activities, such as singing and/or playing while moving and/or being stationary.

Multimodal pedagogy allows me to informally assess each student by giving them opportunities to show me what they know in a way that they feel comfortable.

Teaching and assessing in a variety of ways and differentiating my instruction helps me meet the needs of all students. Not all students are musically gifted/talented or capable. I can find different ways to present information as well as helping students meet goals.

Music Teachers' Attitudes Towards The Use Of Multimodal Pedagogy

In section four of the survey (see Appendix D), participants were asked to reveal attitudes towards the use of multimodal pedagogy utilizing a five-point Likert-type scale with answers that ranged from "Strongly Agree" to "Strongly Disagree." The attitude statements included five positive (e.g., "I believe that multimodal pedagogy plays an important role in teaching music") and eight negative statements (e.g., "I believe that teaching using multimodal pedagogy is a fad and using an individual modality [Aural, Visual, and Kinesthetic] is the best approach for teaching my students"). Negative sentences were reverse coded to function as positive attitudes sentences. A mean score greater than 3 indicated a positive attitude towards the use of the multimodal pedagogy. The overall general attitude of the music teachers completing the survey was positive towards the use of multimodal pedagogy (M= 3.97; SD=.49) (see Table 4). Figure 3 shows a normal distribution of the data.

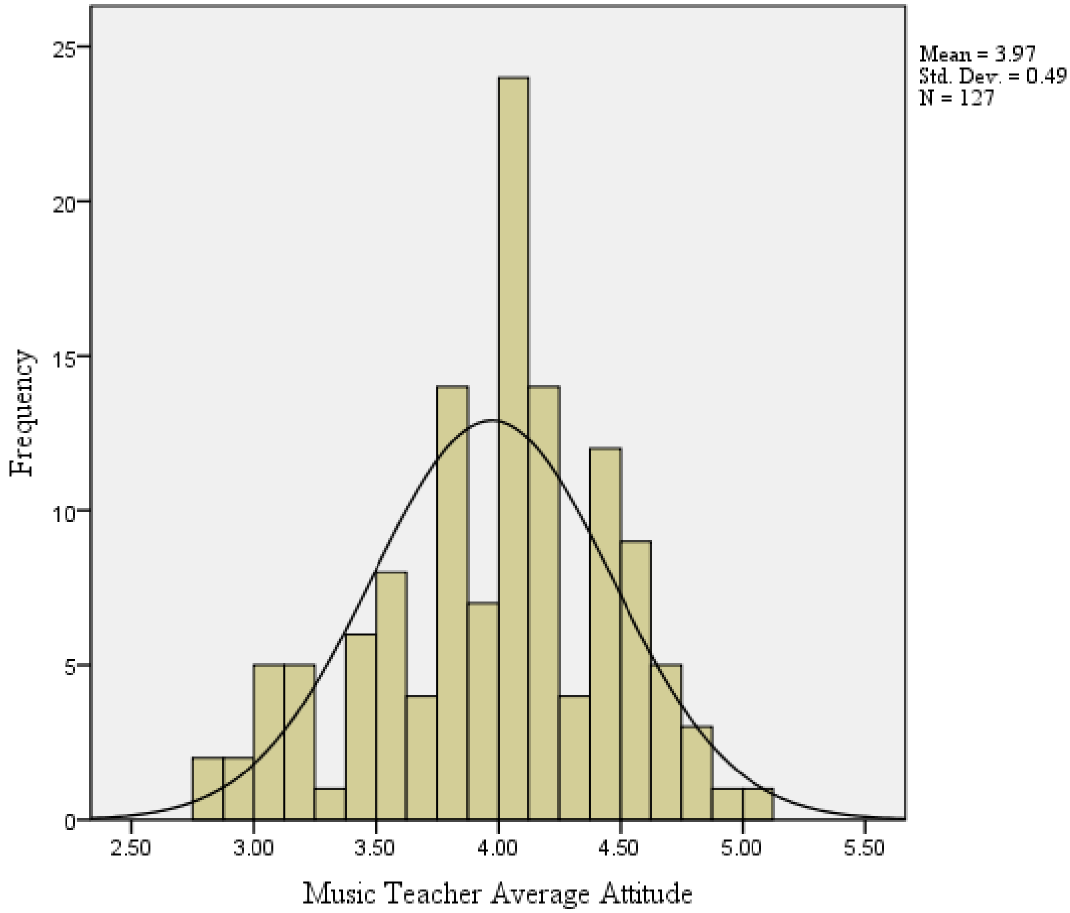
Table 4

Normal Distribution of General Music Teachers' Attitudes Towards the Use of Multimodal Pedagogy

N	Minimum	Maximum	Mean	SD	Skewness		Kurtosis	
					Statistic	Std. Error	Statistic	Std. Error
127	2.76	5.00	3.9740	.49036	-.412	.215	-.199	.427

Figure 3

Normal Distribution of General Music Teachers' Attitudes Towards the Use of Multimodal Pedagogy



Participants' responses to the open-ended question that asked them to explain how they use multimodal pedagogy in their classes and how they perceive its benefits clearly demonstrated their positive attitudes towards the use of multimodal means in the music classroom. Participants explained the benefits that they experienced and observed while using multimodal pedagogy in their music classroom. The following is a sampling of quotes from multiple participants about their experiences using multimodal pedagogy and their attitudes towards it. Each paragraph represents a thought from different respondents.

It's not just that students enjoy different activities, but because their understanding of musical concepts are demonstrated through the different actions they perform.

Multimodal pedagogy stimulates all students to find their way to understanding the concept and opens students' minds to seeing a concept in a different way.

Multimodal pedagogy ensures students are engaged with all learning tasks. Through this method students see, hear and experience musical concepts. A multimodal pedagogy combined with the use of creativity and composition in the classroom ensures students have an opportunity to experience and demonstrate their learning.

Some react to understanding rhythm through dance or use of arms-kinesthetic matters, others react to visual or only aural- but when students have combinations of these- they are much more connected to making ART with music-because it is all sensory.

Some students learn better aurally, visually, or kinesthetically. It would be unwise to just pick one to focus on. If you use all three, all students in the class will have the opportunity to learn the material in the best way for them.

I feel that it benefits my students in that it allows students to experience the concepts and skills that are being practiced in a number of ways, allowing for stronger connections to be made for recalling the information later.

It helps keep them engaged and helps illuminate content that might otherwise be misunderstood by some students.

Students benefit because they experience the content in a variety of ways. At least one mode should tap into their particular strength. Most kids find them all helpful.

I believe that a combination of modalities helps to reach students at whichever their strength.

I believe multimodal pedagogy reaches all of the students on different levels and helps them understand the content of the lesson.

Multimodal ped, engages students, reaches a multitude of learners and creates an exciting atmosphere in the music classroom. Wouldn't do without it.

I believe that using multimodality helps all students to comprehend and allows each student's strengths to be heightened and their weaknesses to get stronger. You can see the "light bulb" go on at different times during the lesson for different students. It's very exciting!

I often incorporate multimodal pedagogy because I believe it fits in with the universal design concept. Good teaching practices are good teaching practices for any subject. Part of that includes consistently and constantly hitting the different modes of student learning.

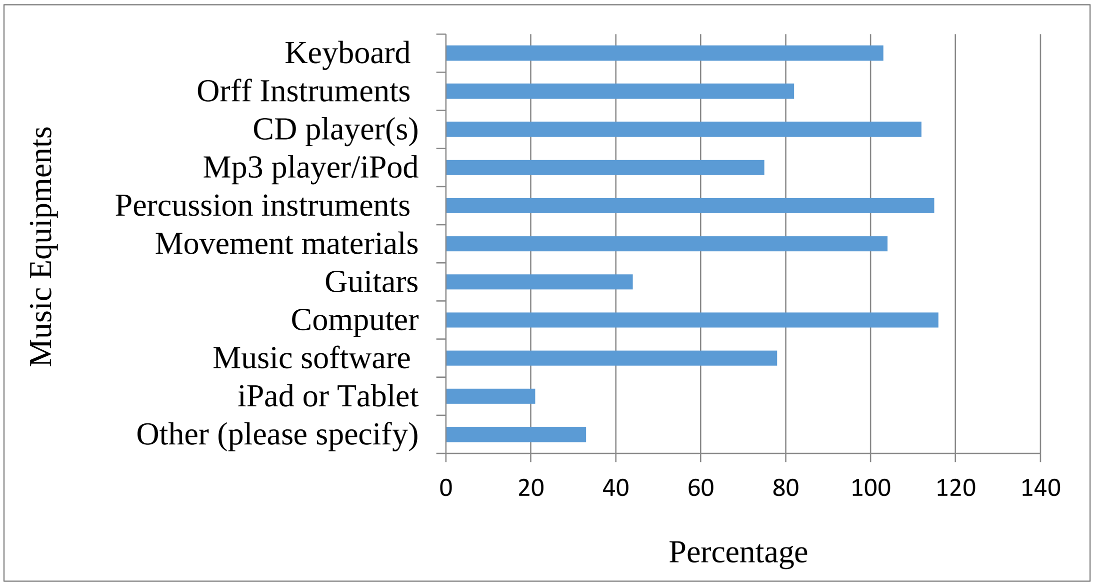
School Resources and Professional Development

School resources include the physical spaces in which the respondents teach and the music equipment available to teachers and students in that space. Participants were asked if they teach in a music classroom dedicated to teach music or a regular classroom. They were also asked to indicate what types of equipment they had at their disposal (e.g., keyboards, Orff instruments, CD players, Mp3 player/iPods, movement materials, guitars, percussion instruments, and computers).

Most respondents (90.6%) reported teaching in a dedicated music classroom. Most teachers reported having access to several types of music teaching equipment. The most frequently indicated are computers and percussion instruments with 89% of the respondents reporting the availability of these items in their school. A majority reported having CD players (87%) and 82% have keyboards. Figure 4 shows the distribution of responses regarding availability of equipment used for music instruction.

Figure 4

Frequencies of the Availability of School Music Equipment



Participants' responses to the open-ended question that asked them to explain how they use multimodal pedagogy in their classes and how they perceive its benefits clearly demonstrated that the availability of the music equipment helps them to use multimodal pedagogy. Respondents cited specific examples that revealed how this equipment encouraged them to combine different learning modalities inside the classroom. The following is a sampling of quotes from multiple participants about their experiences using multimodal pedagogy utilizing the available music equipment. Each paragraph represents a thought from different respondents.

> *My classroom is a combination of modalities because I have a keyboard lab and it's a hands-on environment. I use Aural and Visual to instruct and review concepts and the student learning is multimodal - Visual to identify pitch & rhythm notation and Kinesthetic - to practice and perform on the key boards.*

When students learn new songs, I often sing or play the song for them (aural). As they are listening to the song, I usually have a presentation on the SMART Board that contains lyrics and pictures to help them learn the song better. Many songs have actions or movement games that go along with the words, too. I teach musical concepts the same way.

Differentiated Instruction, Multiple Intelligence - because music is an aural art form, that component [can] be there first and foremost. I supplement those experiences with visual and often kinesthetic experiences. For example: demonstrating the onset of a project is done both visually and aurally, rhythm patterns are read and counted while moving to a beat, tonic, dominant and SD tonal patterns are learned aurally and sung while looking at a Venn diagram, music listening and history lessons are done with a keynote presentation...

As an elementary music teacher, I use movement activities, singing, playing instruments, and listening every class period. .... I use music books with the older students for many songs so they have the opportunity to read and follow along when we listen to and learn new music. With the younger students, I have large poster books to illustrate the concepts I am teaching.

By having visual, aural and kinesthetic teaching, all students should be able to learn. I have videos, teaching cards, listening lessons, hands on playing of rhythm and melodic instruments to teach all degrees of students.

Respondents were asked if their school districts require them to attend professional development in the effective use of combined pedagogy and if they were required to combine different learning modalities while teaching. While the majority of general music teachers (84%) reported that their school districts did not require them to attend such professional development sessions, 56% reported that their school districts do, in fact, require them to combine modalities while teaching.

Teacher and School Factors Influences on Music Teachers' Attitudes

Logistic regression was used to examine the influence of teachers' demographic information, school resources, and professional development on general music teachers' pedagogical choices and attitudes towards multimodal pedagogy while planning, teaching, and assessing their students. Teacher factors (gender, educational degree, and years of experience), school resources (music classroom, music equipment) and professional development were identified as predictors; the dependent variable was attitude.

Multiple linear regression analysis was used to examine the influence of school resources and teacher factors as predictors of general music teachers' attitudes towards the use of multimodal pedagogy (see Table 5). These predictors explained a significant portion (22.6%) of the variance (R^2 =.22, F (16,110) =2.01, p < .05). It was found that the only significant predictors for the music teachers' attitudes towards the use of multimodal pedagogy were the availability of Orff instruments and guitar. The availability of Orff instruments significantly, positively predicted general music teachers' attitudes (β = .219, p <. 05), whereas guitar was a significant negative predictor (β = -.197, p <.05).

Table 5

Multiple Regression Results of the Predictors of General Music Teachers' Attitudes towards the Use of Multimodal Pedagogy

Variables	*B*	*SE*	Β	*P*
Orff Instruments	.223	.110	.219*	.044
Guitars	-.203	.092	-.197*	.029

*p < .05

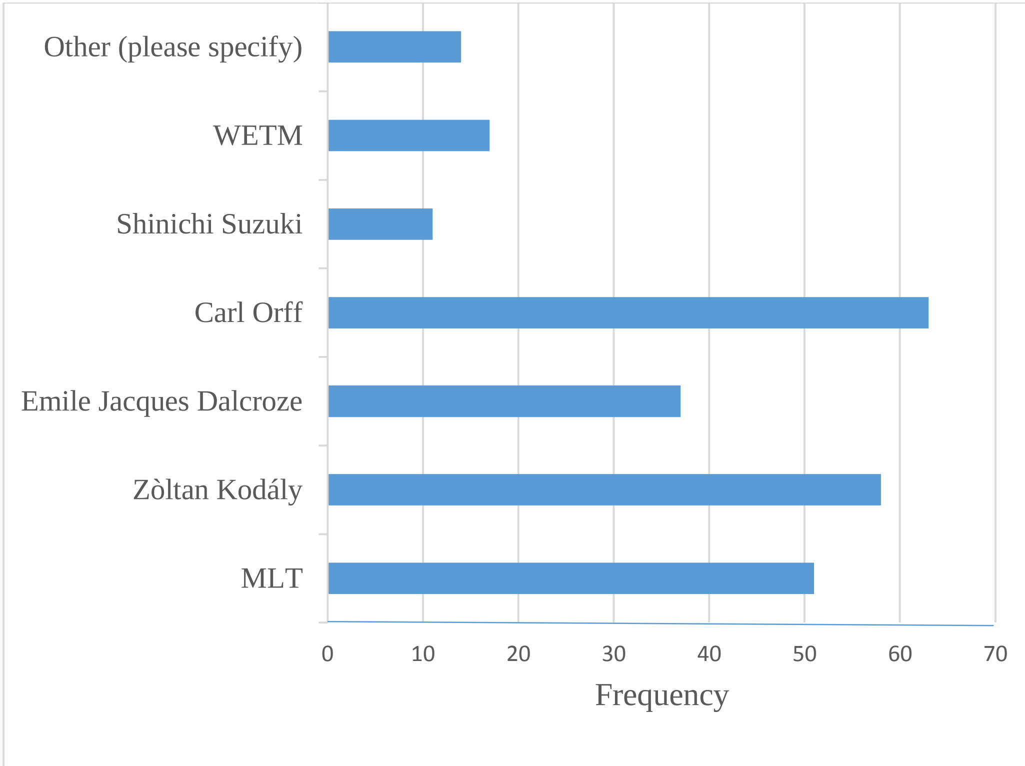
Professional Development Influences on Music Teachers' Attitudes

Respondents were asked to indicate the type of professional development workshops they have attended. The list included: Music Learning Theory MLT, Kodály, Dalcroze, Orff, Suzuki, and Weikart- Education Through Movement WETM, and others (see survey in Appendix D). The results showed the most frequently attended professional development programs were Orff, Kodály, MLT and Dalcroze. [1]Out of 127 participants in this study, 83 who had experience with multimodal pedagogy during their undergraduate or graduate music programs answered this question. Out of these, 68% attended Orff, 63% attended Kodály, 55% attended MLT and 40% attended Dalcroze (see Figure 5).

[1] Due to a problem in the development of the survey, two questions had missing data. The two questions asked about the teachers' learning modality and the type of professional development programs they attended. Eighty-three participants answered these questions.

Figure 5

General Music Teachers' Professional Development



Independent-sample t-tests were performed to compare attitudes towards the use of multimodal pedagogy between music teachers by attendance (attended vs. not attended) in different professional development programs (MLT, Kodály, Dalcroze, Orff, Suzuki, WETM, and others). The overall results for the t-tests showed that attending vs. not attending MLT, Kodály, and Orff professional development workshops had a statistically significant relationship with the music teachers' attitude towards the use of multimodal pedagogy (Table 6). On the other hand, attending vs. not attending Dalcroze, Suzuki, WETM, and other professional development programs did not have a significance relationship with general music teachers' attitudes towards the use of multimodal pedagogy.

Significantly more positive attitudes towards the use of multimodal pedagogy were found for those who attended specific types of professional development programs compared to those who did not: MLT professional development showed such results (*M* = 3.87, *SD* = .51; *t* (125) = -3.22, *p* < .05) and Cohen's effect size value (*d* = .61) suggested a moderate to large practical significance. Kodály professional development also showed such results (*M* = 3.87, *SD* = .49; *t* (125) = -2.80, *p* < .05). Cohen's effect size value (*d* = .50) suggested moderate practical significance. Finally, Orff professional development yielded similar results (*M* = 3.88, *SD* = .51; *t* (125) = -2.31, *p* < .05). Cohen's effect size value (*d* = .44) suggested a small to moderate practical significance.

While some types of professional development programs resulted in significantly more positive attitudes towards the use of multimodal pedagogy when comparing data from those who attended them and those who did not, other types of professional development programs yielded no significant differences between these groups. Dalcroze professional development programs yielded no differences in attitude (*M* = 3.92, *SD* = .50; *t* (125) = -1.82, *p* = .070). Neither did attending or not attending Suzuki professional development programs (*M* = 3.96, *SD* = .49; *t* (125) = -.336, *p* = .59), WETM programs (*M* = 3.94, *SD* = .49; *t* (125) = -1.50, *p* = .134), or other professional development workshops (e.g., Alexander, Danielson Framework for Teaching, and Promethean) (*M* = 3.96, *SD* = .48; *t* (125) = -6.36, *p* = .526).

Table 6

T-Test Results Comparing Attitudes towards the Use of Multimodal Pedagogy between Music Teachers by Attendance in Different Professional Development Programs

Professional Development Program		*N*	*Mean*	*SD*	*t*	*Df*	*P*
MLT							
	Attended	47	4.15	.388	-3.229	125	.002
	Not Attended	80	3.87	.515			
Kodály							
	Attended	53	4.11	.452	-2.802	125	.006
	Not Attended	74	3.87	.494			
Orff							
	Attended	58	4.08	.443	-2.316	125	.022
	Not Attended	69	3.88	.512			

Teacher and School Factors' Influences on the Use of Multimodal Pedagogy

Logistic regression analyses were used to examine the influence of teacher and school factors on general music teachers' actual use of multimodal pedagogy while planning, teaching, and assessing their students. The logistic regression models involved teacher factors (gender, educational degree, and years of experience), school resources and professional development as the predictors; the dependent variable was music teachers' use of multimodal pedagogy while planning, teaching, and assessing their students.

The overall results of the logistic regression analyses indicated that teacher factors, school resources and professional development did not significantly predict general music teachers' use of multimodal pedagogy while planning or teaching. Of the sixteen possible predictors, only movement materials significantly predicted general music teachers' use of multimodal pedagogy. As opposed to use of multimodal pedagogy while planning and teaching, teachers' use of the pedagogy during assessment was predicted by school and teacher factors. Gender and teachers' educational degree predicted general music teachers' use of multimodal pedagogy while assessing their students.

The Use of Multimodal Pedagogy in Lesson Plans

The first logistic regression model was conducted to predict general music teachers' use of multimodal pedagogy while planning their lessons with school factors (music classroom, music equipment, professional development) and teacher factors (gender, years of teaching, educational degree) as predictors. The logistic regression was not significant (χ^2 [16] = 15.844, p = .464), Nagelkerke R^2 = .215.

The availability of movement materials (*eb* = 7.58) was the only significant variable that predicted music teachers using multimodal pedagogy while planning their lessons. Movement materials participants listed included rhythm sticks, egg shakers, beanbags, and scarves. Table 7 shows the logistic regression coefficient, the Wald test, and the odds ratio for the predictor. Employing a .05 criterion of statistical significance, the availability of movement material was the only variable that had significant partial effects.

The odds ratio for the availability of movement materials indicated that when holding all other variables constant, the odds that general music teachers who had available movement materials would use multimodal pedagogy while planning their lessons were 7.58 times higher than general music teachers who did not have movement materials available in their school. The use of multimodal pedagogy while planning music lessons showed 6.58% increased odds for music teachers who had available movement materials.

Table 7

Logistic Regression Result of the Predictors of General Music Teachers' Use of Multimodal Pedagogy While Planning their Lessons

Variables	*B*	*SE*	*Wald*	*Exp(B)*
Movement Materials	2.026	.949	4.559	7.586*

*p < .05

The Use of Multimodal Pedagogy in Teaching

The second logistic regression analysis was conducted to predict general music teachers' use of multimodal pedagogy while teaching with school factors (music classroom, music equipment, professional development) and teacher factors (gender, years of teaching, educational degree) as predictors. The logistic regression was not significant (χ^2 [16] = 24.376, p = .08), Nagelkerke R^2 = .274.

The availability for movement materials (*eb* = 6.03) was the only significant predictor for the music teachers' use of multimodal pedagogy while teaching. Table 8 shows the logistic regression coefficient, the Wald test, and the odds ratio for the predictor. Employing a .05 criterion of statistical significance, the availability of movement materials had significant partial effects.

The odds ratio for the availability of movement materials indicated that when holding all other variables constant, the odds that general music teachers who had available movement materials would use multimodal pedagogy while teaching were 6.03 times higher than general music teachers who did not have movement materials available in their school. The use of multimodal pedagogy while teaching showed 5.03% increased odds for general music teachers who had movement materials available in their school.

Table 8

Logistic Regression Result of the Predictors of General Music Teachers' Use of Multimodal Pedagogy While Teaching

Variables	*B*	*S.E*	*Wald*	*Exp(B)*
Movement Materials	1.798	.852	4.451	6.038*

*$p < .05$

The Use of Multimodal Pedagogy in Assessing

The third logistic regression analysis was conducted to predict general music teachers' use of multimodal pedagogy for assessment with school factors (music classroom, music equipment, professional development), and teacher factors (gender, years of teaching, educational degree) as predictors. The logistic regression was statistically significant (χ^2 [16] = 34.665, $p < .05$), Nagelkerke $R^2 = .326$. The equation correctly classified 70.9 % of the general music teachers' use of multimodal pedagogy to assess their students.

The significant predictors related to teacher factors were gender (*eb* = 3.06), and teachers' educational degree (*eb* = 4.08). The significant predictors related to school resources were professional development (*eb* = 2.11), the availability of movement materials (*eb* = 11.74), percussion instruments (*eb* = .039), and iPod and tablets (*eb* = 6.85).

Table 9 shows the logistic regression coefficient, the Wald test, and the odds ratio for the predictors. Employing a .05 criterion of statistical significance showed that gender, educational degree, professional development, movement materials, percussion instruments and iPads and tablets variables had significant partial effects.

The odds ratio for gender indicated that when holding all other variables constant, the odds that female general music teachers would use multimodal pedagogy for assessment were 2.06 times higher than the male music teachers. The use of multimodal pedagogy for assessment showed 1.06% increased odds for the female music teachers.

The odds ratio for educational degree indicated that when holding all other variables constant, the odds that general music teachers would use multimodal pedagogy during assessment were 4.01 times higher for general music teachers who had advanced educational degree (masters, doctorate). The use of multimodal pedagogy for assessment showed 3% increased odds for the teachers' holding higher educational degree.

The odds ratio for the availability of movement materials indicated that when holding all other variables constant, the odds that general music teachers would use multimodal pedagogy during assessment were 11.7 times higher for general music teachers who had available movement materials. The use of multimodal pedagogy in assessment showed 10.7% increased odds for general music teachers who had available movement materials in their schools.

The odds ratio for the availability of percussion instruments indicated that when holding all other variables constant, the odds that general music teachers would use multimodal pedagogy during assessment were .039 times higher for general music teachers who had available percussion instruments. The use of multimodal pedagogy for assessment showed a less than 1% increased odds for music teachers who had available percussion instruments in their schools.

The odds ratio for the availability of iPads or tablets indicated that when holding all other variables constant, the odds that general music teachers would use multimodal pedagogy during assessment were 6.85 times higher for general music teachers who had available iPads or tablets in their school. The use of multimodal pedagogy for assessment showed 5.85% increased odds for music teachers who had available iPads and tablets in their schools.

The odds ratio for attending professional development programs indicates that when holding all other variables constant, the odds that general music teachers would use multimodal pedagogy during assessment were 2.11 times higher for general music teachers who attend professional development programs. The use of multimodal pedagogy for assessment showed 1.11% increased odds for music teachers who attend professional development programs.

Table 9

Logistic Regression Results of the Predictors of General Music Teachers' Use of Multimodal Pedagogy While Assessing their students

Variables	*B*	*SE*	*Wald*	*Exp(B)*
Gender	1.119	.492	5.176	3.061*
Educational Degree	1.391	.630	4.875	4.018*
Movement Materials	2.463	.962	6.561	11.740*
iPads or Tablets	1.925	.848	5.153	6.853*
Percussion Instruments	-3.250	1.212	7.196	.039*

*p < .05

Attending Professional Development and Music Teachers' Use of Multimodal Pedagogy

Chi-square analyses were performed to determine the relationship between general music teachers' use of multimodal pedagogy while planning, teaching, and assessing students, and teachers' attendance in professional development programs (MLT, Kodály, Dalcroze, Orff, Suzuki, WETM, others).

The overall result for Chi-square analyses showed that attending Kodály, Dalcroze, and Orff professional development programs had a statistically significant relationship with general music teachers' use of multimodal pedagogy while planning and assessing their students (Tables 10 and 11). However, there was no significant relationship with the use of multimodal while teaching. Attending a WETM professional development program had a statistically significant relationship with general music teachers' use of multimodal pedagogy while assessing their students (Table 11). However, there was no significant relationship with the use of multimodal while planning or teaching. MLT, Suzuki, and other professional development programs did not have a significant relationship with the general music teachers' use of multimodal pedagogy in planning, teaching, or assessing.

Further evidence for the influence of attending Orff, Kodály and Dalcroze professional developmental programs on the participants' use of multimodal pedagogy was determined in participants' responses to open-ended questions that asked them to explain how they use multimodal pedagogy in their classroom. One of the participant provided an example that showed how these methods encourage the use of multimodal pedagogy *I like to get my students up and moving and often incorporate Dalcroze methods and Orff movement activities into lessons that also are based in Kodaly methodology (procedure, singing, hand signs).*

There was a significant relationship between attending a Kodály professional development program and general music teachers' use of multimodal pedagogy while planning their lessons (χ^2 (1, N = 127) = 4.68, p <.05). Attending a Kodály professional development program had a small effect Cramer's Phi (.192) on general music teachers' use of multimodal pedagogy while planning their lessons. Ninety-four percent of music teachers who attended a Kodály professional development program also used multimodal pedagogy in planning their lessons, whereas only 84% of those who did not attend a Kodály professional development program used multimodal pedagogy in planning their lessons. However, there was no significant relationship between attending a Kodály professional development program and general music teachers' using multimodal pedagogy while teaching (χ^2 (1, N = 127) = .681, p =.409).

There was a significant relationship between attending a Kodály professional development program and general music teachers' use of multimodal pedagogy while assessing their students (χ^2 (1, N = 127) = 8.53, p <.05). Attending a Kodály professional development program had a small to moderate effect Cramer's Phi (.252) on general music teachers' use of multimodal pedagogy while assessing their students. Seventy seven percent of music teachers who attended a Kodály professional development program also used multimodal pedagogy while assessing their students, whereas only 52% of those who did not attend a Kodály professional development program used multimodal pedagogy for assessing their students.

There was a significant relationship between attending a Dalcroze professional development program and general music teachers' use of multimodal pedagogy while planning their lessons (χ^2 (1, N = 127) = 4.369, p <.05). Attending a Dalcroze professional development program had a small effect Cramer's Phi (.185) on general music teachers' use of multimodal pedagogy while planning their lessons. Ninety-seven percent of general music teachers who attended a Dalcroze professional development program also used multimodal pedagogy in planning their lessons, whereas only 82% of those who did not attend a Dalcroze professional development program used multimodal in planning their lessons. However, there was no significant relationship between attending a Dalcroze professional development program and general music teachers using multimodal pedagogy while teaching (χ^2 (1, N = 127) = 2.162, p = .141).

There was a significant relationship between attending a Dalcroze professional development program and general music teachers' use of multimodal pedagogy while assessing their students (χ^2 (1, N = 127) = 5.370, p <.05). Attending a Dalcroze professional development program had a small to moderate effect Cramer's Phi (.206) on general music teachers' use of multimodal pedagogy while assessing their students. Seventy nine percent of music teachers who attended a Dalcroze professional development program also used multimodal pedagogy for assessing their students, whereas only 56% of those who did not attend a Dalcroze professional development program used multimodal for assessing their students.

There was a significant relationship between attending an Orff professional development program and general music teachers' use of multimodal pedagogy while planning their lesson (χ^2 (1, N = 127) = 9.039, p <.05). Attending an Orff professional development program had a small to moderate effect Cramer's Phi (.268) on general music teachers' use of multimodal pedagogy while planning their lesson. Ninety-six of music teachers who attended an Orff professional development program also used multimodal pedagogy while planning their lesson, whereas only 78% of those who did not attend an Orff professional development program used multimodal while planning their lessons. However, there was no significant relationship between attending an Orff professional development program and general music teachers using multimodal pedagogy while teaching (χ^2 (1, N = 127) = 2.925, p =.087).

There was a significant relationship between attending an Orff professional development program and general music teachers using multimodal pedagogy while assessing their students (χ^2 (1, N = 127) = 7.585, p <.05). Attending an Orff professional development program had a small to moderate effect Cramer's Phi (.224) on general music teachers' use of multimodal pedagogy during assessment processes. Seventy-five percent of music teachers who attended an Orff professional development program also used multimodal while assessing their students, whereas only 52% of those who did not attend an Orff professional development program used multimodal pedagogy while assessing their students.

There was no significant relationship between attending a MLT professional development program and general music teachers using multimodal pedagogy while planning their lessons (χ^2 (1, N = 127) = .468, p = .468). There was no significant relationship between attending a MLT professional development program and general music teachers using multimodal pedagogy while teaching (χ^2 (1, N = 127) = 1.426, p =.232). There was no significant relationship between attending a MLT professional development program and general music teachers using multimodal pedagogy for assessing their students (χ^2 (1, N = 127) = .830, p =.362).

There was no significant relationship between attending a Suzuki professional development program and general music teachers using multimodal pedagogy while planning their lessons (χ^2 (1, N = 127) = .192, p = .662). There was no significant relationship between attending a Suzuki professional development program and general music teachers using multimodal pedagogy while teaching (χ^2 (1, N = 127) = .039, p =.884). There was no significant relationship between attending a Suzuki professional development program and general music teachers using multimodal pedagogy while assessing their students (χ^2 (1, N = 127) = .490, p =.484).

There was no significant relationship between attending a WETM professional development program and general music teachers using multimodal pedagogy while planning their lessons (χ^2 (1, N = 127) = .953, p = .329). There was no significant relationship between attending a WETM professional development program and general music teachers using multimodal pedagogy while teaching (χ^2 (1, N = 127) = 2.566, p =.109).

There was a significant relationship between attending a WETM professional development program and general music teachers' use of multimodal pedagogy while assessing their students (χ^2 (1, N = 127) = 8.157, p <.05). Attending a WETM professional development program had a small to moderate effect Cramer's Phi (.253) on general music teachers' use of multimodal pedagogy during assessment processes. Ninety-four percent of music teachers who attended a WETM professional development program also used multimodal while assessing their students, whereas only 58% of those who did not attend a WETM professional development program used multimodal for assessing their students.

There was no significant relationship between attending other professional development workshops and general music teachers using multimodal pedagogy while planning their lessons (χ^2 (1, N = 127) = .043, p =.835). There was no significant relationship between attending other professional development workshops and general music teachers' use of multimodal pedagogy while teaching (χ^2 (1, N = 127) = .521, p =.470). There was no significant relationship between attending other professional development workshops and using multimodal pedagogy for assessing their students (χ^2 (1, N = 127) = .908, p =.341).

Table 10

Chi Square Results Comparing the Use of Multimodal Pedagogy While Planning Their Lessons between Music Teachers by Attendance in Different Professional Development Programs

	Multimodal Plan					
	Use	No Use	χ^2	*Df*	*P*	ϕ
Kodály						
Attend	50	3	4.68	1	.030	.192
Not Attend	60	14				
Dalcroze						
Attend	33	1	4.36	1	.037	.185
Not Attend	77	16				
Orff						
Attend	56	2	9.09	1	.003	.268
Not Attend	54	15				

Table 11

Chi Square Results Comparing the Use of Multimodal Pedagogy While Assessing their Students between Music Teachers by Attendance in Different Professional Development Programs

	Multimodal Assess					
	Use	No Use	χ^2	*Df*	*P*	ϕ
Kodály						
Attend	41	12	8.05	1	.005	.252
Not Attend	39	35				
Dalcroze						
Attend	27	7	5.37	1	.020	.206
Not Attend	53	40				
Orff						
Attend	44	14	7.58	1	.006	.244
Not Attend	36	33				
WETM						
Attend	16	1	8.15	1	.004	
Not Attend	64	46				

Music Teachers' Learning Experience

Respondents were asked if they took courses during their undergraduate or graduate music program that focused on combining different modalities in music instruction. More than half (66%) reported that they took courses that combined different modalities during their studying in their music programs. The majority of the music teachers who took courses that use multimodal pedagogy (90%) reported that General Music Methods was the most frequent course that addressed combining different modalities.

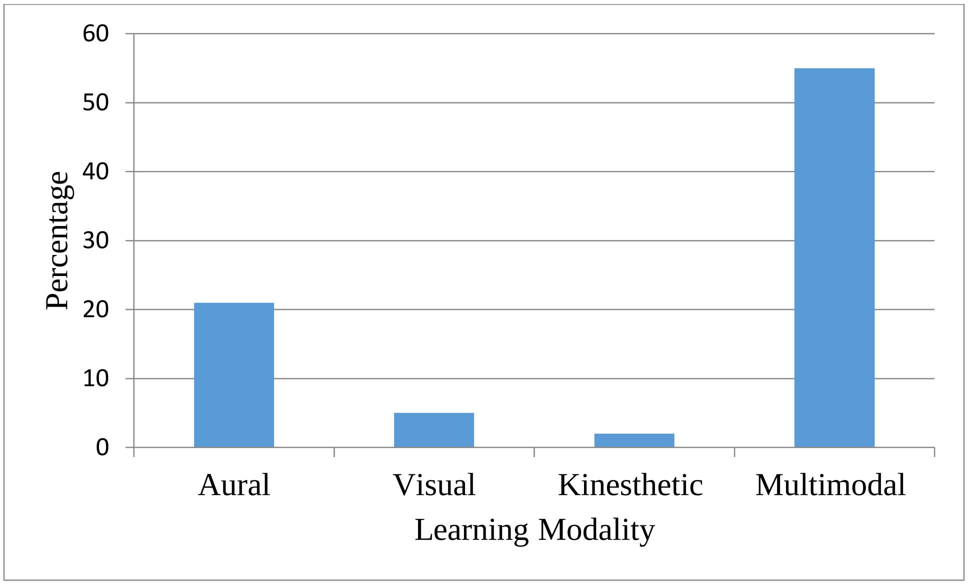
Music Teachers' Learning Modality

Respondents were asked which learning modalities best described their personal learning experience throughout their undergraduate music programs. Out of 127 participants in this study, 83 who had experience with multimodal pedagogy during their undergraduate or graduate music programs answered this question. Although this question was not directly related to the research questions, it added important information for the research about how music teachers learn.

Out of the participants who answered this question ($n = 83$), 66.3% reported that they learned through multimodal pedagogy, and 33.7% learned through unimodal or separate modality. Among the 28 (33.7%) music teachers who described their learning through unimodal learning, 75% used aural modality, 17.8% used visual, and 7.2% used kinesthetic modality. Figure 6 shows these results.

Figure 6

General Music Teachers' Learning Modality



Chi-square analyses were performed to determine the relationship between general music teachers' learning modality (aural, visual, kinesthetic, and multimodal pedagogy) and their teaching modality (multimodal vs. unimodal). There was no significant relationship between general music teachers' learning modality and their using multimodal pedagogy while planning their lesson (χ^2 (3, N = 217) = .708, p = .871) (Figure 7). There was no significant relationship between general music teachers' learning modality and their using of multimodal pedagogy while teaching (χ^2 (3, N = 217) = 3.683, p = .298) (Figure 8). There was no significant relationship between general music teachers' learning modality and their using of multimodal pedagogy during assessment processes (χ^2 (3, N = 217) = 3.281, p = .350) (Figure 9).

Figure 7

General Music Teachers' Learning Modality and the Use of Multimodal Pedagogy While Planning Lessons

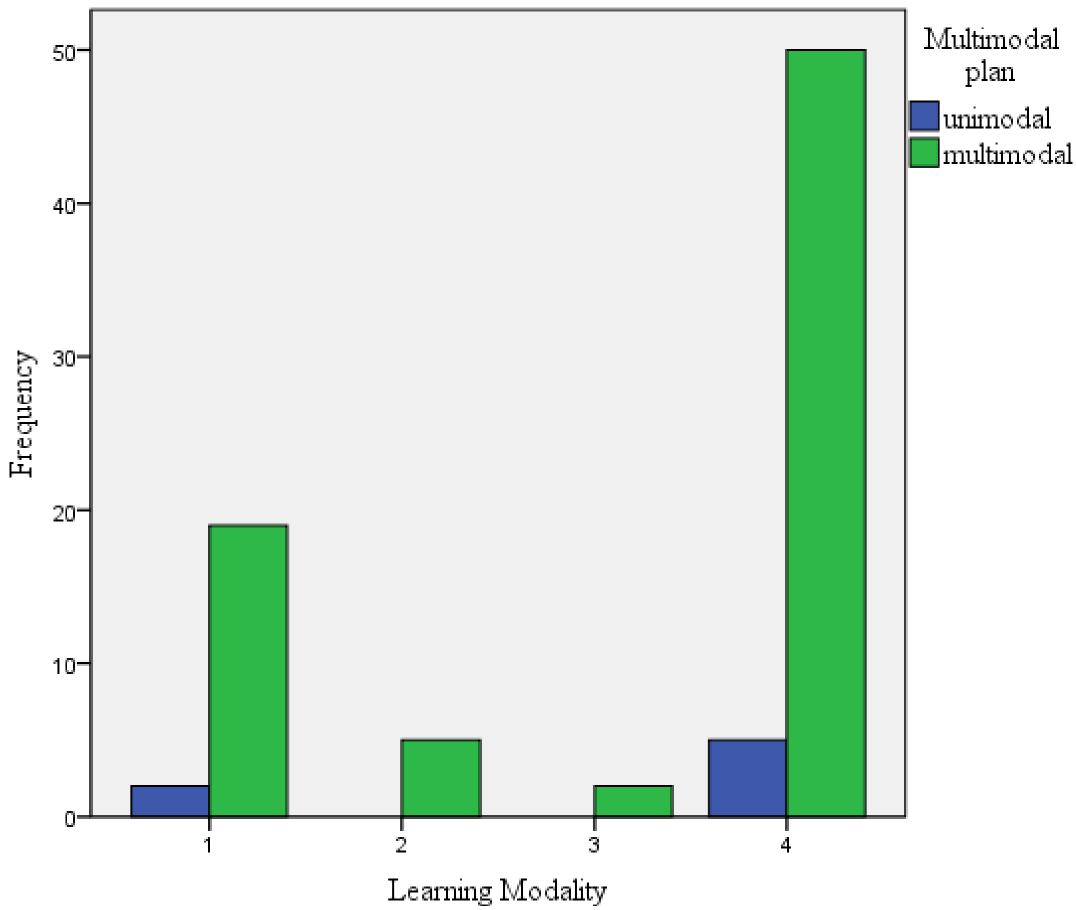


Figure 8

General Music Teachers' Learning Modality and the Use of Multimodal Pedagogy While Teaching

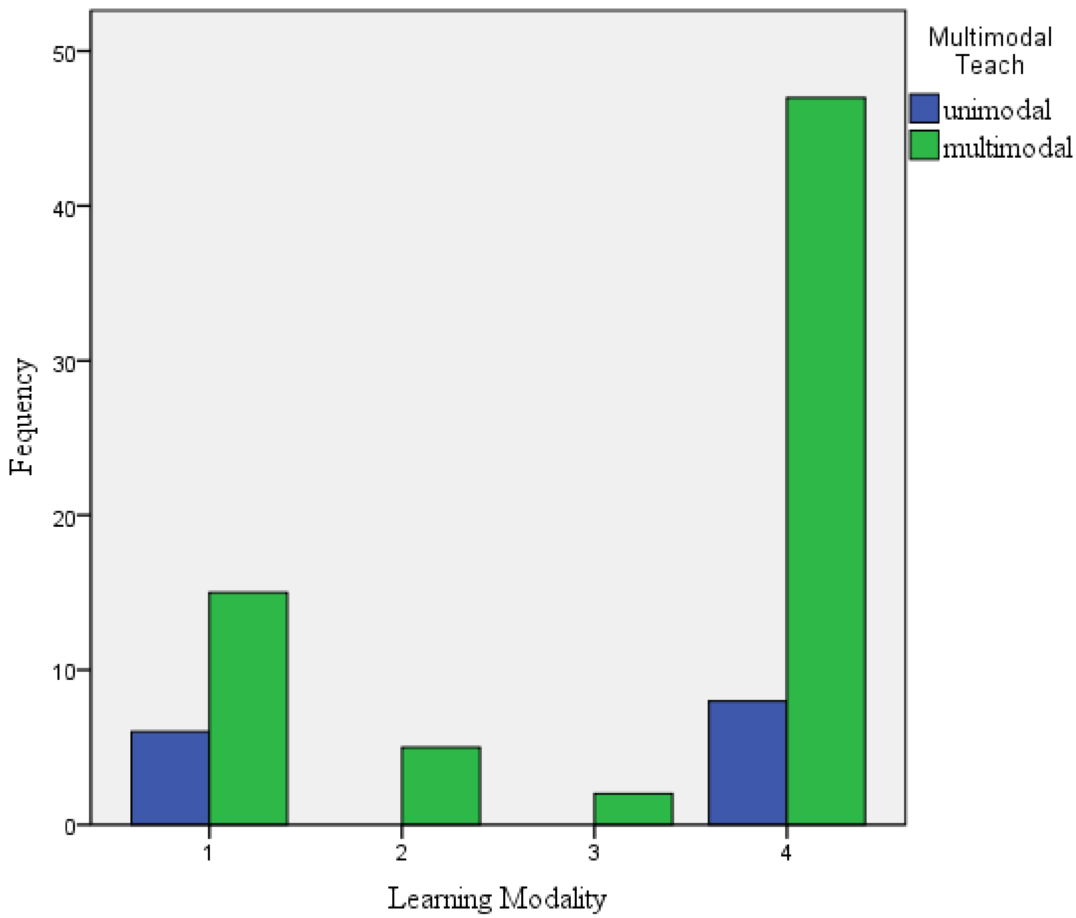
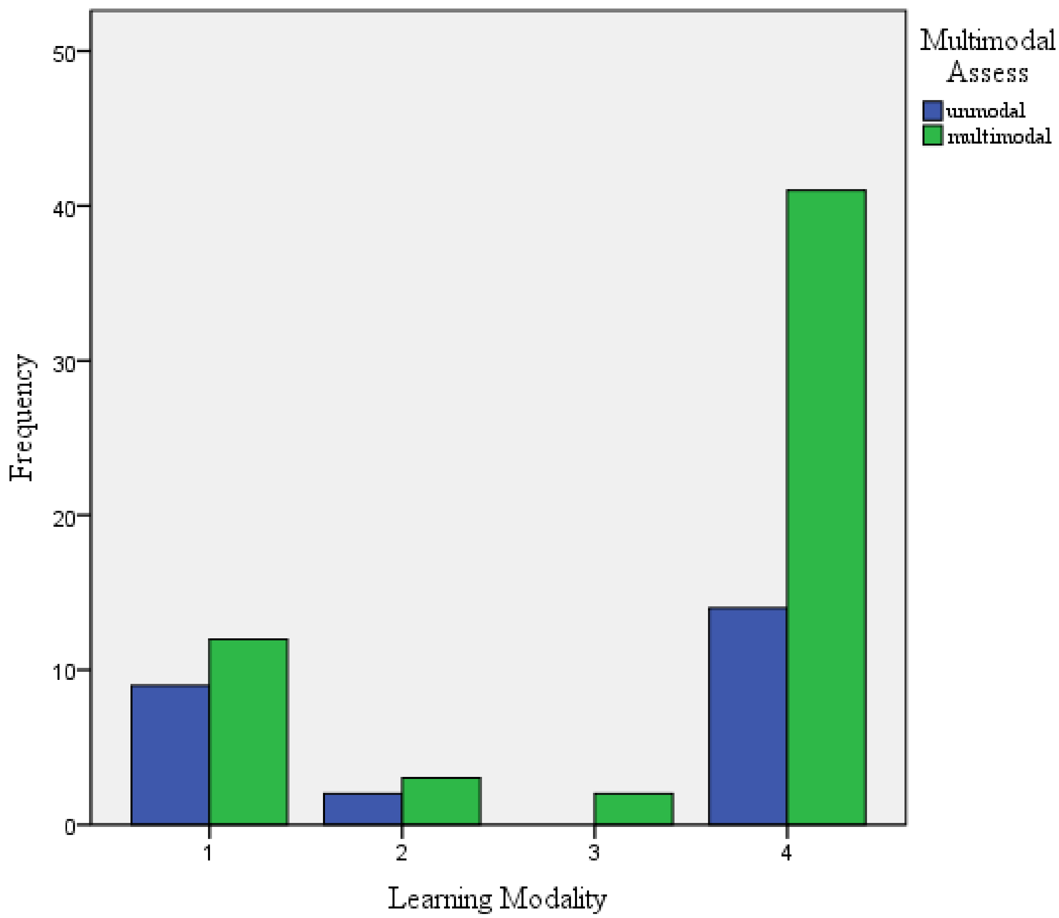


Figure 9

General Music Teachers' Leaning Modality and the use of Multimodal Pedagogy While Assessing their Students



CHAPTER 5

SUMMARY AND CONCLUSIONS

Introduction

In this investigation, I examined general music teachers' practice and attitudes towards the use of multimodal pedagogy. A survey design was used to explore the extent to which general music teachers, in a delimited geographical area in southeastern Pennsylvania, use multimodal pedagogy and their attitudes towards it. The survey also collected data regarding participants' demographic information (gender, degree of education, and years of teaching experience) and school resources.

Data were gathered by contacting 600 potential participants via email and inviting them to take part. Participants were music teachers who teach general music or a combination of general and other music subjects in Pennsylvania Music Educators Association (PMEA) Districts 11 and 12. Of the 600 contacted, 170 respondents participated in the study (28% response rate). Of the 170 initial participants, 154 were identified as general music teachers. Twenty-seven of those respondents did not complete the entire survey and consequently were excluded from the study. In total, 127 completed the survey and were considered by the researcher to be appropriate for analysis.

Discussion

Research Questions One to Four: Teachers' Pedagogical Choices

Research questions #1 to #4 focused on general music teachers' pedagogical choices, and the extent to which they rely on aural, visual, kinesthetic, and multimodal pedagogy. The third section of the survey was designed to answer these questions using a 5-point Likert scale ranging from "Always" to "Never."

The overall result of general music teachers' pedagogical choices showed that the most frequent teaching modalities used while planning, teaching, and assessing their students were, in decreasing order of frequency, aural, multimodal, visual, and kinesthetic modality. These results aligned with previous research results, which demonstrated the important role of aural modality through vocal modeling. Furthermore, music teachers and conductors commonly use aural modality and modeling as a teaching approach (Green, 1990; Grimland, 2001; Mann, 2008).

Findings provided evidence that these general music teachers use an array of learning modalities while planning lessons and daily instructions more often than they do in assessing. Data showed that the majority of respondents favored the use of aural modality while assessing their students. Still, half reported the use of kinesthetic and visual methods in assessment. Roughly two thirds reported using multimodal pedagogy while assessing their students. These findings indicated that the types of assessment tools used by general music teachers tend to apply aural modality to a greater degree than the other learning modalities.

Since the results showed that general music teachers used aural modality more than other learning modalities while assessing students, this might indicate that students are not given the opportunity to express their full understanding of the music concepts and skills. For example, if the teachers use aural and kinesthetic modalities while teaching and use just aural modality while assessing, some students might not be able to express their understanding without having the chance to combine the two learning modalities that assisted their learning process.

Assessment activities that mirror learning activities that combined different learning modalities in music education is one of the fields that needs more attention from music educators. Goolsby (1995) pointed out the importance of music teachers' training for assessment. Music teachers should consider combining different modalities inside the classroom as a teaching goal that should be considered while planning, teaching, and assessing. Music teachers need to explore ways to assess their students using different learning modalities. Music teachers may create a portfolio for each student, which features evidence of music learning derived from musical activities based in combined learning modalities.

Participants' responses to the open-ended questions which asked them to explain how they use multimodal pedagogy in their classes and how they perceive its benefits demonstrated the importance of combining learning modalities while planning, teaching and assessing students. The participants' answers explained how they considered combining learning modalities while planning, teaching and assessing students provided general music teachers with the confidence that secures students' success inside the music classroom. While planning the lesson, general music teachers ensured they knew their individual students' learning styles, and considered ways to cover these learning styles through combining different learning modalities. While teaching, general music teachers used numerous musical activities that incorporate aural, visual, and kinesthetic presentation. Aural presentation included activities such as listening to musical selections, singing, chanting, and developing discussion. Visual presentations incorporated visualizing Curwen hand signs, SMART Board, Venn diagrams, poster books, charts, teaching cards, videos, and reading music notation. Kinesthetic presentations often involved moving (to the beat, or expressive, continuous flow), playing instruments, and writing music. During the assessment processes, general music teachers stressed that using multimodal pedagogy helps students to express their understanding of the musical content and skills through their preferred learning modality in a way that makes them feel comfortable. Participants explained that using multimodal pedagogy allowed them to assess individual students regardless of their learning modalities, which secure students' musical results.

The participants' answers that demonstrated their use of multimodal pedagogy while teaching and assessing their students aligned with Miller's (2002) research finding that showed that utilizing multimodal pedagogy helped general music teachers to create numerous music activities that increased students' engagement. Utilizing multimodal pedagogy during assessment provided general music teachers with various tools to assess students through musical activities that combined learning modalities.

Research Questions Five and Six: Influences on Attitudes Regarding Teachers' Pedagogical Choices

Research questions #5 and #6 focused on the influence of teachers' demographic information, school resources, and professional development on general music teachers' pedagogical choices and attitudes towards the use of multimodal pedagogy.

General Music Teachers' Attitudes towards the Use of Multimodal Pedagogy

To examine general music teachers' attitudes towards the use of multimodal pedagogy, section four of the survey asked the participants about their attitudes towards the use of multimodal pedagogy utilizing a five point Likert scale from "Strongly Agree" to "Strongly Disagree." As might be expected, general music teachers who tended to use multimodal pedagogy while planning, teaching, and assessing their students on a regular basis, had a higher (positive) score on the multimodal attitude scale. Even so, attitudes of those general music teachers who indicated that they never use multimodal pedagogy were also quite positive.

General music teachers positively perceive the value of using multimodal pedagogy because of the multimodal nature of music and variances in how children best learn. The essence of music and music behavior are often best addressed using materials and tools that naturally lend themselves to the application of varied instructional modalities in the classroom.

Experiencing multimodal pedagogy through attending undergraduate or graduate courses may be another reason for the general music teachers' positive attitude towards the use of multimodal pedagogy. More than two thirds of the participants reported that they took courses that combined different modalities during their academic music programs

General music teachers also experienced combining learning modalities through attending Orff, Kodály, and MLT professional development programs. Techniques characteristic of Orff, Kodály, and MLT are often combinations of aural, visual, and kinesthetic learning modalities. Attending these professional development programs may have encouraged general music teachers to combine different modalities inside the classroom, which can contribute to their positive attitude towards using multimodal pedagogy. Experiencing multimodal pedagogy while learning, attending professional developments and teaching created a positive attitude among general music teachers.

Participants' responses to the open-ended question that asked them to explain how they use multimodal pedagogy in their classes and how they perceive its benefits clearly demonstrated their positive attitudes towards the use of multimodal means in the music classroom. Participants explained the benefits that they experienced and observed while using multimodal pedagogy in their music classroom. Using multimodal pedagogy helped students to think more deeply and comprehensively while learning and creating the connections between learning styles. This reinforced their previous learning through using different learning modalities. Consequently, this helped them to retain the information and recall it easily. General music teachers' experiences indicated that using multimodal pedagogy made learning music effective, enriched students' academic growth, reinforced students' steady beats, rhythmic elements, dynamics, tempo and melodic expressions through movement, listening, singing, repetition (ostinato), and dancing. The use of multimodal pedagogy enabled general music teachers to accommodate students with special needs and teach them more effectively. General music teachers agreed that using multimodal pedagogy provided students with the best opportunity to learn since it enabled them to focus on their individual modality strengths as well as tap into other methods of learning that are in need of development.

Participants' answers aligned with previous research findings that showed that using multimodal pedagogy helped students to retain knowledge (Baines, 2008), enhanced children's melodic and rhythm retention and pitch matching (Persellin, 1994), increased students' engagements through using different learning modalities (Miller, 2002), and adapted music classroom instruction to fit students with disabilities (Draw, 2007).

Influences of Teacher and School Factors on Music Teachers' Attitudes

The availability of music equipment was the main significant predictor for general music teachers' attitudes towards the use of multimodal pedagogy. This finding corroborated Amen's (1982) research results, which showed that factor of music equipment functioned to encourage teachers to spend time on different type of music activities. Consequently, engaging music teachers in combining learning modalities through activities using different music equipment created a positive attitude towards the use of multimodal pedagogy. I assumed that the *quantity* of music equipment would affect general music teachers' attitudes more than the instrument types; however, results showed that the *type* of equipment had the most influence on music teachers' attitudes towards the use of multimodal pedagogy.

The availability of Orff instruments was the only predictor for general music teachers' attitudes towards the use of multimodal pedagogy. This result was expected since using Orff instruments engage students in musical activities that combined different learning modalities. Orff instruments include barred instruments, wooden or metal, unpitched percussion instruments, and recorders. Orff instruments are usually placed on the floor and the players sit on their knees; there is a space for other students to move musically. Orff-approach classroom settings create the atmosphere to combine learning modalities. Using Orff methods, general music teachers can implement multimodal pedagogy through numerous activities that may include call and response chanting and singing (aural), moving to the music in a variety of ways (kinesthetic), playing the song tonic bordun on the bass xylophone (kinesthetic), playing the ostinato on the alto or soprano xylophone, playing melody portion, or adding variation for the song on the glockenspiels (kinesthetic), reading the song words, rhythm, or melody on the black or white board (visual). Using Orff instruments builds an atmosphere that creates general music teachers' positive attitudes towards the use of multimodal pedagogy.

Although the categories of percussion instruments and movement materials equipment share similarities with Orff instruments, the results showed that they did not predict general music teachers' attitude. The context of using the equipment might be one of the reasons that Orff instruments, rather than percussion instruments or movement materials, influenced general music teachers' attitudes. Similarly, computers, CD players, and keyboards were the most frequently available music equipment; however, none influenced general music teachers' attitudes towards the use of multimodal pedagogy. It is unclear as to why this was the case and bears further investigation. General music teachers should explore ways and approaches for using the musical equipment in activities that combine different learning modalities.

A plethora of technological tools to aid music instruction are available to the general population as well as to music educators. General music teachers who explore the use of such tools (e.g., GarageBand, Bebot Robot Synth, Moozart, Songsterr, Dolce Music, RecorderMaster, My First Classical Music App, etc.) can augment students' involvement in musical activities that combine different modalities. Keyboards can be used inside the classroom to combine different learning modalities. Students sing a song while music teachers play the song chord on the keyboard (aural). Students tap, clap, and explore rhythm activities supported by the keyboard's accompaniment (kinesthetic). Students visualize the relationship between the notes and the stave on the keyboards (visual). General music teachers should consider the context in which they use the available instrument (guitar, keyboard, percussion instrument, Orff instruments) in the music classroom. These musical instruments can be used effectively as teaching tools for combining learning modalities.

The availability of guitars negatively influenced general music teachers' attitudes towards the use of multimodal pedagogy. This result provided evidence that the limited use of the guitar might create the negative attitude for the general music teachers to combine different modalities in the music classroom. When music teachers use guitar in general music classrooms, they often sit or stand while playing and children are more likely to sit down. Using the guitar in this fashion may, inadvertently, lead to a focus on aural modality learning; children sing the song while the teacher plays the harmony on the guitar. In order to use guitar actively in general music classroom, teachers need to involve students in different musical activities that combine different learning modalities. One of the participants provided an example in using multimodal pedagogy while teaching guitar. The students compare the fingering on the guitar and on the chord charts (visual), strumming the actual chord on the guitar (kinesthetic), and checking the sound for the tone quality (aural).

In order to use the guitar effectively in the music classroom, music educators should reconsider their approach to teaching guitar. Music education programs that include guitar instruction can focus on performance practice as well as methods for the effective use of the guitar as an educational tool in the general music classroom. Pre-service and music teachers' training and professional development programs should consider guitar teaching techniques that use the guitar as an educational tool to combine different learning modalities inside the music classroom.

Influences of Attending Professional Development on Music Teachers' Attitudes

The most frequently attended professional development programs were Orff, Kodály, MLT and Dalcroze. It might be surmised that this result provides evidence that these methods are regularly being used in the general music classroom. The effectiveness of these methods have long been documented; participants in this study indicated that they continue to grow and develop in their understanding and subsequent use of these methods. This finding aligned with Tarnowski's & Murphy's (2003) research result, which found that the most frequent professional development programs elementary music teachers desire to attend were Orff, Kodály, and Dalcroze. Through using these teaching approaches, general music teachers can use different teaching techniques that combine different learning modalities.

The Orff teaching approach was the most attended professional development programs and had a significant influence on general music teachers' attitudes towards the use of multimodal pedagogy. Orff-Schulwerk's method is composed of five components: speech, singing, movement, instrument playing, and improvisation. During the classroom period, children practice speaking, chanting, and clapping to the rhythm of the speech patterns. Through Orff method activities, children play games, sing songs, play barred instruments, and start to improvise. These components and activities clearly combine different modalities inside the music classroom.

Persellin (1988, 1992) proposed that the Orff method focuses more on kinesthetic than visual and aural modalities since Orff teachers delay reading rhythm and notation. I argue that Orff's teaching approach helps general music teachers to combine learning modalities during classroom activities. Aural modality is used throughout the method utilizing speech chant, singing, and aural instruction. Kinesthetic modality is used in the method through involving students in numerous movement activities, playing percussion and barred instruments. Visual modality is used through a variety of means that may include reading rhythm and melody notation from posters, boards, or computer screens.

This result connects to the previous result; the availability of Orff instruments predict general music teachers' attitudes towards the use of multimodal pedagogy. This result provided evidence that using Orff instruments in the context of Orff teaching techniques supports using multimodal pedagogy, which creates general music teachers' positive attitudes towards the use of multimodal pedagogy.

The Kodály approach was the second most frequently attended professional development workshops, and has a significant influence on general music teachers' attitudes towards the use of multimodal pedagogy. This method combines the solfège system, rhythm syllables, and hand signs. Kodály's teaching approach uses movable do and kinetic activities. Although Persellin (1988) proposed that Kodály's approach focused more on aural and visual modality, and less kinesthetic modalities, her research results (1992) showed the importance of coupling aural and kinesthetic modality with visual presentation in the Kodály approach. She (1992) advised general music teachers to "involve their children in auditory and kinesthetic rhythmic activities before introducing the children to the printed page" (p.314). The Kodály method encourages the use of different modalities inside the classroom: the aural modality through singing, practicing ear training, solfège, and using movable do; the visual modality through Curwen hand signs; and the kinesthetic through activities using musical movement that express song rhythm and melody.

Music Learning Theory was the third most frequently attended professional development program and had a significant influence on general music teachers' attitudes towards the use of multimodal pedagogy. MLT combines using aural modality utilizing audiation, kinesthetic modality utilizing Laban movement, and visual modality through reading notation. Students experience combining modalities through audiating the patterns in the context of tonality or meter, singing, moving, reading and writing notation. Attending MLT professional development programs trains general music teachers to apply the MLT approach that combine different modalities, and consequently, as reported by the participants in this study, reinforces positive attitudes towards the use of multimodal pedagogy.

The participants explained in their answers to the open ended question regarding their use of multimodal pedagogy and its benefits that using Orff, Kodály, and MLT methods provided them with many activities (singing, using Kodály- Curwen hand signs, moving) that combined different learning modalities. The participants also expressed positive attitudes towards the use of multimodal pedagogy as it allowed them to accommodate students' needs regardless their level of achievement and preferred learning modalities. Accommodating students' needs created the music-learning environment that allowed students to engage in musical activities using their dominant and preferred learning modalities. This environment allowed students to remain comfortable while expressing their understanding of the content and skills during assessment. Consequently, this increased student achievement and academic growth. Using multimodal pedagogy helped general music teachers achieve their teaching goals successfully and secured students' success. The participants' answers aligned with previous research findings that showed the importance of using multimodal pedagogy to engage students through music activities (Millers, 2002), increased their rhythmic and melodic achievement (Persellin, 1994), and enriched their cognitive development through readily recalling the musical knowledge (Baines, 2008).

Teacher and School Factors' Influences on the Use of Multimodal Pedagogy

To examine general music teachers' actual use of multimodal pedagogy while planning, teaching, and assessing students, section three of the survey asked the participants about their use of multimodal pedagogy utilizing a five point Likert scale from "Always" to "Never."

The Use of Multimodal Pedagogy in Planning and Teaching

The availability of movement materials was the only predictor for general music teachers' use of multimodal pedagogy while planning and teaching their lessons. This finding provided evidence that the accessibility of movement materials encouraged general music teachers to consider combining learning modalities while planning and teachingMovement materials are often some of the most affordable for music teachers. This may contribute to the frequency with which they are used.

Movement materials lend themselves to supporting a learning environment in which learning is approached through multiple modalities. Runfola and Rutkowski (2010) shared an example in which scarves are used in activities to help children differentiate between chest and head voice. The teacher directs children to follow the scarf movement with their voices using "*whooooo*"; when it goes high the children use their head voices and put their hands on top of their heads. When the scarf comes down, the children put their hands on their chests and sing the movement using the lower register. Through the scarf movement, children engage in different modalities as they sing (aural), follow the scarf movement (visual), and imitate the scarf movement with their hands (kinesthetic). Combining different learning modalities through using movement materials will meet students' needs regardless of their learning modalities and musical achievement. All students will be engaged in the musical activities that combine different learning modalities using movement materials. School district music programs should ensure that movement materials are available inside every music classroom.

Gender, music teachers' educational degree, and years of experience were not found to be significant in predicting general music teachers' use of multimodal pedagogy while planning and teaching. Male and female general music teachers in this study were similar in their use of multimodal pedagogy while planning and teaching. This result conflicts with some evidence from previous research that showed that gender (Gumm, 2003b; Meek, 1999; Zhukov, 2012) influenced music teachers' teaching approach.

General music teachers in this study used multimodal pedagogy similarly regardless of their educational degree. This result was unanticipated; it was expected that general music teachers with masters or doctorate degrees would have more experience using multimodal pedagogy and would, therefore, have reported multimodal applications with greater frequency compared to those without advanced degrees. This might be an indication that there is a need for a substantial change in the graduate music education programs that address the importance, applications, and benefits of combining different learning modalities. These programs should engage general music teachers in teaching using multimodal pedagogy. This result aligned with Gumm's (2003b) research results that showed that music teachers' educational degree did not have any influence on their teaching style. On the other hand, this result conflicted with data that showed that educational degree (Dahlman, 1991; White, 1982) influenced general music teachers' teaching methods.

General music teachers who had one year of teaching experience might use multimodal pedagogy similar to the teachers with five or more years teaching experience. This result was unexpected as one assumes that the more general music teachers teach, the more they will be able to incorporate different learning modalities in the music classroom. This might indicate the need for training teachers and professional development programs that focus on the teaching techniques that combine different learning modalities. This result conflicted with some research that showed that music teachers' years of experience (Ebbeck, et al, 2009; Goolsby, 1996, 1997, 1999) influenced their teaching approach.

The presence of a dedicated music classroom, music equipment (except movement materials), and professional development were not found to be significant in predicting general music teachers' use of multimodal pedagogy while planning and teaching their lessons. These results provided evidence that general music teachers used multimodal pedagogy similarly while planning and teaching regardless of whether or not they teach in a dedicated classroom with music equipment or in a non-music classroom. These results indicate that music teacher education curricula should include the study of the use of musical instruments (e.g., keyboards, guitar, percussion instruments) as general music teaching tools. Through undergraduate and graduate courses in music education programs, students should experience numerous examples of combining different learning modalities.

The absence of these relationships could be considered good news for music educators since the finding of this study showed that teachers' gender, education degree, years of experience, dedicated classroom, and music equipment (except movement materials) did not influence general music teachers' use of multimodal pedagogy while planning and teaching. This absence provides evidence that teachers' backgrounds and/or teaching environment do not cause biases or pose potential barriers to the use of multimodal pedagogy inside the music classroom. Although not all teachers with positive attitudes towards the use of multimodal pedagogy utilize it in the classroom yet, this finding provides evidence that future implementation will not be limited by background or environment. To foster the use of multimodal pedagogy in the future, teachers' training and professional developments should address the importance and benefits of using multimodal pedagogy inside the music classroom.

The Use of Multimodal Pedagogy in Assessing

Gender and teachers' educational degree predicted general music teachers' use of multimodal pedagogy while assessing their students. Female general music teachers in this study reported using multimodal pedagogy for assessment more frequently than male music teachers. This result needs to be interpreted cautiously in that the number of female teacher respondents in this study was greater than males by a ratio of 3:1. Zhukov (2012) found that there was no difference between male and female teachers while assessing their students using positive and negative feedback. While the numbers in the current study were somewhat skewed, the data indicate that there may be a difference that is a function of gender. There is a need for more research to examine general music teachers' learning and teaching modality and explore the possibility of any difference between male and female music teachers.

General music teachers having an advanced educational degree (masters and/or doctorate) reported a greater use of multimodal pedagogy while assessing their students more than general music teachers who held only a bachelor degree. Again, caution in interpretation must be applied; general music teachers holding masters degrees comprised 75% of the participants. General music teachers with advanced degrees may have been exposed to many approaches to assessment (informal and formal). Informal assessment can be completed during class activities. For instance, while children are engaging in musical activity (singing, tapping or moving), the music teacher can use a rubric to assess their progress through these activities. Music teachers can schedule periodic formal assessments in association with curriculum goals. General music teachers might develop their rubric for their students through their courses, or through their own research during their masters or PhD programs. General music teachers may create a portfolio for each student's musical progress, which combines different musical activities and different learning modalities.

The availability of movement materials predicted general music teachers' use of multimodal pedagogy while assessing their students. This result was expected since the movement materials were the only school equipment that predicted general music teachers' planning and teaching using multimodal pedagogy. This finding provided evidence that the accessibility of movement materials encouraged general music teachers to consider combining different learning modalities while assessing their students. As described before, movement materials are often some of the most affordable for music teachers. This may contribute to the frequency with which they are used.

General music teachers can use movement materials to assess their students by involving them in musical activities that combine different learning modalities. For example, children sing and engage in call and response activities when tossed a bean bag (aural, visual), sing the song while playing the song rhythm using the rhythm stick (aural, kinesthetic), follow the scarf movement using their voice (aural, visual), and imitate the scarf movement with their hands (kinesthetic).

The availability of percussion materials predicted general music teachers' use of multimodal pedagogy during student assessment. This was an expected result since percussion instruments, like some of the movement materials, enabled teachers to readily combine modalities while assessing their students. Percussion instruments facilitate modality combination in assessment as students sing songs while using the instrument to perform melodic rhythm (aural, kinesthetic), and move to the macrobeat while singing and adding percussive effects (aural, kinesthetic). As previously stated, a multimodal approach may go a long way to reinforce students' musical development and their abilities to express understanding of musical concepts and skills. Results from this study show that the inclusion of movement materials and percussion instruments function positively in assisting teachers to produce a multimodal experience for students.

The availability of the iPads and tablets predicted general music teachers' use of multimodal pedagogy while assessing their students. The accessibility of iPads and tablets encouraged general music teachers to combine different learning modalities during assessment processes. Tablet technology can be incorporated into music education assessment in a number of ways. General music teachers can supplement assessment processes using tablets as a useful tool for the creation of class digital portfolios that would include audio recordings, video, and samples of written work such as compositions or journals. Digital portfolios readily enable teachers to chronicle student progress using a variety of means that underscore the usefulness of a multimodal approach.

The availability of iPads and tablets did not predict general music teachers' use of multimodal pedagogy while planning and teaching their students. This was an unexpected result as using iPads and tablets as instructional tools may encourage general music teachers to combine learning modalities in music instruction settings. This type of technology easily enables downloading and listening to a vast array of musical stimuli. Students can listen and sing (aural), graphics and text can be enlarged to enhance reading (visual), and students can experience performance using appropriate applications such as GarageBand (kinesthetic) (Riley, 2013). Tablets can also be used to illustrate for students how to transfer a song melody to notation (aural, visual). IPads provide students with the opportunity to make music regardless of their musical level or their learning modalities. Music teachers can use YouTube for listening to numerous musical examples to compare different musical forms, composers, time periods, and cultures (Riley, 2013). There is a need for undergraduate and graduate music education curricula, professional development programs, and teacher training to include approaches to using iPads and tablets as educational tools in the general music classroom. These teacher education settings should be replete with instruction in ways to combine different learning modalities using tablet technology to help general music teachers incorporate these tools while planning, teaching and assessing students.

Attending Professional Development and Music Teachers' Use of Multimodal Pedagogy

Attending an Orff professional development program was significantly related to general music teachers' use of multimodal pedagogy while planning and assessing students. This result provided evidence that general music teachers who attended an Orff professional development program may consider combining different learning modalities while planning and assessing students. This was expected since the result showed that Orff was the most frequently attended professional development workshop. This result aligned with Tarnowski and Murphy's (2003) findings that showed that Orff was the professional development program that most general music teachers desire to attend. Through attending an Orff professional development program, general music teachers experienced numerous activities, which encouraged them to consider combining different learning modalities while planning lessons and assessing students.

This result was anticipated since attending Orff's professional development had a significant relationship with general music teachers' positive attitudes, and the availability of Orff's instruments was the only predictor for general music teachers' positive attitudes. Although Persellin (1988, 1992) proposed that the Orff method focuses more on kinesthetic than visual and aural modalities since Orff teachers delay reading rhythm and notation, I argue that Orff's teaching techniques helps general music teachers to utilize multimodal pedagogy through using numerous musical activities that combine different learning modalities.

The results showed that there was no significant relationship between attending an Orff professional development program and general music teachers' use of multimodal pedagogy while teaching. This was unexpected since the results showed that attending an Orff professional development program had a significant relationship with general music teachers' use of multimodal pedagogy while planning and assessing students. Orff skills require students to maintain consistency in performance with rhythmic control over ostinato patterns being a prime example. Orff performances are often marked with a great deal of repetition as well. These skills challenges may, from time to time, affect teachers' use of such methodology in music education settings even if the instructor has had express instruction in the method (Tayler, 2012). Such perceived and real challenges may cause this divide between receipt of curricular instruction and teachers' penchant towards multimodal pedagogy in music teaching. This is, of course, conjecture, and a great deal of further research is warranted.

Attending a Dalcroze professional development program had a significant relationship with general music teachers' use of multimodal pedagogy while planning and assessing students. This result provided evidence that general music teachers who attended a Dalcroze professional development program may consider combining different learning modalities while planning and assessing students. This was expected since the results showed that Dalcroze was the third most frequently attended professional development program (supporting the findings of Tarnowski and Murphy, 2003). I assumed that attending Dalcroze professional development programs that trains general music teachers on this approach, which encourage combining different learning modalities, might have a significant relationship with their use of multimodal pedagogy.

Dalcroze professional development enables general music teachers to access numerous musical activities that combine learning modalities. Using the Dalcroze approach while planning enables general music teachers to consider combining learning modalities. During eurythmic exercises, it is not unusual for general music teachers to improvise on an accompanying instrument while students walk the pulse or macrobeat while clapping microbeats or melodic rhythm (aural, kinesthetic). Students express rhythm skills through movement of notated rhythm exercises that can be presented visually in some fashion such as on a poster, a board, or through a projector (visual, kinesthetic). During solfège activities, students sing the solfège syllables when the teacher points to the syllables on the staff (aural, visual). Students sing songs using solfège syllables while walking the pulse (aural, kinesthetic). During improvisation exercises, the teacher claps the rhythm phrase and asks students to make variations on this phrase (aural, kinesthetic), the teacher plays a phrase on the piano as a question and students sing the answer using neutral syllables (aural). Through these activities, general music teachers can combine learning modalities while assessing their students informally while teaching and formally using a rubric for assessment.

Data from this study revealed no significant relationship between attending a Dalcroze professional development program and general music teachers' use of multimodal pedagogy while teaching. By way of promoting caution in results interpretation, it must be reiterated that I did not investigate causality and can only speculate on possible reasons for these results. The Dalcroze method obligates the general music teacher to master, to some degree, certain keyboard skills that allow them the freedom to improvise without restriction. Improvisations often are comprised of rhythmic variations in multiple keys that relate to eurythmic activities (Campbell & Scott-Kassner, 2006). Even if educators attend professional development sessions that focus on the Dalcroze method, it is possible that if their level of keyboard competency does not enable them to improvise freely, they may not elect to use this approach in their teaching. If this is the case, students would not have the opportunity to react to piano improvisation using body movement (Woods, 1987) and the window for multimodal instruction is closed.

Attending a Kodály professional development program had a significant relationship with general music teachers' use of multimodal pedagogy while planning and assessing students. This result provided evidence that general music teachers who attended Kodály professional development program may consider combining different learning modalities while planning and assessing student. This was expected since the results showed that Kodály was the second most frequently attended professional development program (supporting the findings of Tarnowski and Murphy, 2003). I assumed that attending Kodály professional development programs that trains general music teachers on this approach, which enable music teachers to combine different learning modalities, might have a significant relationship with their use of multimodal pedagogy.

Through attending Kodály professional development program, general music teachers experience Kodály pedagogical processes that enable them to combine different learning modalities inside the music classroom. Examples of practices using the Kodály approach can include students singing melodies using text, neutral syllables, or solfège (aural); tapping and clapping melodic rhythm (kinesthetic); singing in response to Kodály-Curwen hand signals (aural, visual), and; singing while clapping ostinato rhythms (aural, kinesthetic).

Attending a Kodály professional development program enables general music teachers to experience numerous musical activities that combine different learning modalities. Data from this study seem to indicate that these experiences may have something to do with the decisions of these participants to use multimodal pedagogy in lesson planning. The Kodály approach provides general music teachers with many tools for informal and formal assessment that combines different learning modalities. For example, general music teachers can separate one of the rhythm or melody patterns and, after practicing these patterns, ask students to sight read one of the familiar songs that include these patterns (aural, visual), sing the song while clapping the rhythm (aural, kinesthetic), and sing the song melody using neutral syllables and solfège accompanied with Kodály-Curwen hand signs (aural, kinesthetic).

This result is consistent with Persellin (1992) whose findings showed the importance of coupled aural and kinesthetic modalities with visual presentation while using the Kodály approach. Persellin advised general music teachers to "involve their children in auditory and kinesthetic rhythmic activities before introducing the children to the printed page" (p.314). These features of the Kodály pedagogical processes may be the reason for the significant relationship between attending a Kodály professional development program and general music teachers' use of multimodal pedagogy while planning and assessing their students.

There was no significant relationship between attending a Kodály professional development program and general music teachers' use of multimodal pedagogy while teaching. This was unexpected since the results showed that attending a Kodály professional development program had a significance relationship with general music teachers' use of multimodal pedagogy while planning and assessing students.

The lack of relationship between attendance at a variety of professional development programs and use of multimodal methods in teaching may be due to the difficulties faced by general music teachers while using these approaches in their physical setting. It should be noted that a portion of the sample included schools situated in an urban setting. Many of these schools are a space challenged. A focus on the aural modality, in essence, becomes the “go to” for many teachers in that it is inexpensive, portable, not in need of security, and does not require physical space (which is at a premium in many of the settings in which study participants teach). Although this study did uncover some interesting data, it did not go so far as to determine causality. That is still left for investigation. There is a need for more research to examine the relationships between attending Orff, Kodály, and Dalcroze professional development programs and general music teachers’ use of multimodal pedagogy while planning, teaching and assessing students.

Further evidence for the influence of attending Orff, Kodály and Dalcroze professional developmental programs on the participants’ use of multimodal pedagogy was determined in the participants’ responses to open-ended questions that asked them to explain how they use multimodal pedagogy in their classroom. The participants’ answers demonstrated how using these approaches enables general music teachers to use multimodal pedagogy. Participants shared ideas about musical activities that can underscore the multimodal nature of singing, playing, moving, and reading.

Music Teachers’ Learning Experience

Approximately two thirds of the participants reported that they took courses that combined different modalities in their music programs. This result provided evidence that a good portion of music education programs offer courses that focus on combining learning modalities. This result could possibly stand as an explanation as to why general music teachers’ generally have positive attitudes towards the use of multimodal pedagogy.

Participants provided information as to which courses they took that combine different learning modalities. Most reported that a course in general music methods was that which most frequently addressed combining different modalities. This result was expected since general music methods course content often includes a focus on processes derived from Kodály, Orff, Dalcroze, and MLT which all have characteristics of multimodal teaching in the content. It would follow, of course, that music teacher educators who shepherd these types of courses likely present a variety of teaching strategies and assessment processes that combine learning modalities. A background in general music methods derived from such courses may encourage pre-service general music teachers to attend professional development programs related to Kodály, Orff, Dalcroze, and MLT teaching approaches. Consequently, attending these workshops positively influenced general music teachers' attitudes and their use of multimodal pedagogy while planning their lesson and assessing their students.

Data indicated that other music teacher preparation methods courses (e.g., vocal/choral, instrumental, vocal pedagogy, instrumental pedagogy, etc.) may not include as much of a focus on the use of multimodal pedagogy in comparison to general music methods courses. It is unclear as to why this was the case and is worthy of greater exploration.

Music Teachers' Learning Modality

Participants were asked which learning modalities best described their personal learning experience throughout their undergraduate music programs. Approximately two thirds of the participants who answered this question reported that they learned through multimodal pedagogy, while the rest reported having learned through means that were characterized by unimodal or separate modality. This result was inconsistent with Persellin's (1988) findings that showed that music educators tend to teach using their preferred learning modality. [2] Caution should be taken, however, in interpreting these results. Although participants who answered this question reported that they had experienced multimodal pedagogy during their undergraduate or graduate music programs, a technical problem with the survey that arose after the pilot prevented some from answering this question.

The lack of relationship between participants' preferred learning modality and use of multimodal pedagogy while planning, teaching, and assessing may give evidence that general music teachers may teach using modalities that differ from their own preferred mode. Awareness of their own and students' preferred learning modalities may be important as teachers make purposeful choices when determining teaching methodology. Meetings students' needs in terms of preferred learning modality in addition to experience using multiple modalities may help to improve student achievement and motivation. Music educators can take advantage of extant tools that help examine students' and teachers' learning style (e.g., Kolb Learning Style Inventory LSI (1974), Swassing- Barbe Modality Index SBMI (1979), and Fleming's VARK modalities (2001), VARK standing for Visual, Aural, Read/write, and Kinesthetic sensory modalities

[2] Due to a problem in the development of the survey, two questions had missing data. The two questions asked about the teachers' learning modality and the type of professional development programs they attended. Eighty-three participants answered these questions.

Implications

In order to narrow the gap between the positive attitudes of general music teachers towards the use of multimodal pedagogy and the actual day-to-day integration of the pedagogy in their teaching, continued training and support is required. Professional development that combines different learning modalities may be helpful. Professional development programs designed to assist music educators using multiple modalities could include: information concerning various learning modalities, the importance of meeting students' needs during music instruction, challenges of using multimodal pedagogy in music instruction, and processes for overcoming these challenges. Also included should be a plethora of musical activities that are applicable to music instruction and that demonstrate a variety of music concepts that are approached through a variety of modal lenses.

Pre-service music teachers should be made keenly aware of the benefits of multiple learning modalities as they are incorporated into music instruction practices. They need to focus on a student-centered approach; teacher should work to strengthen teaching processes within their preferred modality as well as working to eliminate weakness in modalities outside of their preferred method. By strengthening methods in multiple modalities, teachers are better equipped to instruct their students. Reinforcement of this focus can take place when there is agreement of inclusion across the entirety of music teacher education curricula. Put another way, these methods should be universally addressed in courses that lead to music teacher licensure, regardless of the music content focus. Through these courses, pre-service music teachers should experience developing lessons that use multimodal pedagogy in different focuses (choral, instrument, general, etc.).

In order to help general music teachers combine different modalities through using technology tools (e.g., iPads and tablets), music teacher education courses can embed the use of technological tools towards application of music concepts from various modality perspectives. This can also be addressed, of course, through professional development programs and in-service training.

Recommendations for Further Study

The scope of this research was limited to southeastern Pennsylvania districts 11 and 12. Further research is needed on a larger scale to better understand if these findings are indeed generalizable across the nation, or if these results are a phenomenon of the region.

The participants of the study were identified and selected from all certified public general music teachers (elementary, middle, high school). Further research is needed to examine use and attitudes towards the use of multimodal pedagogy of those who teach other music subjects (e.g., instrument, winds, percussion, strings, technology, choral).

There is a need for future research to:

1) Examine the validity and reliability of *General Music Teachers' Practices and Attitudes Towards the Use of Multimodal Pedagogy* survey as a standard rubric in further research.
2) Examine the effects of multimodal music pedagogy on elementary students' acquisition of specific music skills (e.g., singing voice, rhythmic achievement)
3) Examine higher education music teachers' practice and attitude for the use of multimodal pedagogy.

4) Determine if there is a relationship of attitudes and use of multimodal pedagogy among music educators from the USA and countries other than the USA.

Conclusion

General music teachers reported a generally positive attitude towards the use of multimodal pedagogy. The availably of Orff instruments was a positive predictor, and guitar was a negative predictor for general music teachers' attitudes towards the use of multimodal pedagogy. Attending Orff, Kodály, and MLT professional development workshops had a significant relationship with the music teachers' attitude towards the use of multimodal pedagogy. These factors have contributed to general music teachers' positive attitudes towards the use of multimodal pedagogy partially because, Kodály, MLT, and Orff techniques including Orff instruments encouraged general music teachers to incorporate different learning modalities inside the music classroom. The open-ended question captured the participants' voices and provided further evidence of general music teachers' positive attitudes towards the use of multimodal pedagogy and how they recognize the benefits of using it.

General music teachers reported that they use an array of learning modalities (aural, multimodal, visual, and kinesthetic) while planning lessons and daily instructions more often than they do in assessing. The majority of respondents favored the use of aural modality while assessing their students. The availability of movement materials predicted general music teachers' use of multimodal pedagogy while planning, teaching and assessing students. Movement instruments created the environment for general music teachers to combine different learning modalities inside the music classroom. Gender, teachers' educational degree, professional development, the availability of percussion instruments, and iPad and tablets predicted general music teachers' use of multimodal pedagogy while assessing students. Attending Orff, Kodály, and Dalcroze professional development programs had a significant relationship with general music teachers' use of multimodal pedagogy while planning and assessing their students. These teaching methods and techniques enabled general music teachers to experience numerous musical activities that combine learning modalities. Responses to the open-ended questions provided evidence of how general music teachers actually experience the application of multimodal pedagogy in the classroom. Specifically, the responses showed how individual teachers considered students' learning styles while planning and teaching, and assessing to secure students' success.

Professional development programs and music teachers' training may be required in order to address the applications, benefits, and challenges of using multimodal pedagogy. These programs and teacher training should explore teaching techniques for combining different learning modalities to help general, instrumental, string, and choral music teachers to use multimodal pedagogy. Undergraduate and graduate courses in music education programs should address multimodal pedagogy and application regularly throughout program courses. The complete and comprehensive development of the musical child deserves no less than to explore the most effective means for reaching them. Teachers' adeptness in providing instruction using a number of methods from multiple perspectives using various modalities will help to ensure this outcome.

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APPENDIX A

IRB PROTOCOL

1) Abstract of the study

The purpose of this study is to examine general music teachers' practices and attitudes regarding the use of multimodal pedagogy in music instruction. Multimodality in education settings refers to a combination of two or more modes of learning, including: visual, audio, gestural (kinesthetic), representation-linguistic (written words), and spatial design (New London Group, 1996). A multimodal teaching approach can be particularly important in the music classroom, because music provides us, inherently, with the materials and tools to accommodate different modalities. The nature of students' learning is complex; a multimodal approach may be beneficial in student learning in that it takes into account the students' needs, strengths, and modes of learning (Stein, 2008). Scholars in music education have discussed the importance of this complexity and the need for a multimodal approach to learning both individually and in groups (Apfelstadt, 1986, Campbell &Scott-Kassner, 2006; Collett, 1991; Conway, 2009; Darrow, 2007; Gumm, 2003; Miller, 2002; Stein, 2008). Previous research has shown that modality preference affects music teacher's choices of teaching method (Persellin, 1988). Learning modality enhances students' rhythm and melodic retention and vocal accuracy (Persellin, 1994).

A web-based survey will be used to examine general music teachers' practice and attitudes towards the use of multimodal pedagogy. With responses derived from general music teachers from the southeastern Pennsylvania area (n = 600), I will determine the extent to which music educators rely on aural, visual, kinesthetic modalities, or a combination of modalities in their teaching. I will examine factors that might influence general music teachers' pedagogical choices which include: the resources and professional development at schools, the teachers' characteristics of gender, level of educational attainment, and years teaching music. I will invite the participants to the study by sending an email with a link to the survey using SurveyMonkey®. Three weeks after the initial survey, the data will be downloaded from SurveyMonkey® to complete the data analysis process.

Collected data will be analyzed using descriptive and inferential statistics. A factor analysis will be used to verify music teacher pedagogical choices for their teaching. Bivariate regression analysis will be used to examine how the available school resources and professional development program influence general music teacher's pedagogical choices in their music classroom. The researcher will use a 2x3x4 factorial ANOVA to determine the extent to which the music teacher's characteristics of gender, level of educational attainment, and years of teaching music influence pedagogical choices in the music classroom. Based on the data, multiple regression techniques may be used.

2) Protocol Title

General music teachers' practices and attitudes towards the use of multimodal means in music instruction

3) Investigator

Principal Investigator: Dr. Deborah Confredo (Sheldon)

Professor, Department of Music Education and Therapy

Boyer College of Music and Dance

Temple University, 2001 N. 13th Street Philadelphia, PA 19122

Contact Information: DebConfredo@temple.edu

Student-Investigator: Mahmoud Elwakeel,

Ph.D. Candidate, Department of Music Education and Therapy

Boyer College of Music and Dance

Temple University, 2001 N. 13th Street Philadelphia, PA 19122

Contact Information: email Mahmoud.elwakeel@temple.edu

4) Objectives

The purpose of this study is to examine general music teachers' practices and attitudes regarding the use of multimodal pedagogy in music instruction.

The following research questions will guide this study:

1) To what extent do general music teachers rely on aural modeling of music instruction?

2) To what extent do general music teachers rely on visual modeling of music instruction?

3) To what extent do general music teachers rely on kinesthetic modeling of music instruction?

4) To what extent do general music teachers combine various modes of music instruction?

5) How do available resources and professional development influence general music teachers' choices and attitudes concerning multimodal pedagogy?

6) To what extent do gender, level of education, and years of music teaching experience influence general music teachers' choices and attitudes concerning multimodal pedagogy?

5) Rationale and Significance

The Chinese philosopher Confucius has been credited with stating the proverb, “I hear and I forget. I see and I remember. I do and I understand”. Collett (1991) supports this Confucian wisdom and suggests, “Children retain 24 percent of what they hear, 40 percent of what they see, and 70 percent of what they learn through multisensory experiences. Such an approach is effective for all students, and is particularly successful for at-risk students” (p. 42). A multimodal teaching approach can be particularly important in the music classroom because music provides us, inherently, with the materials and tools to accommodate different modalities. The effectiveness of a multimodal approach in music teaching is not yet clear.

New London Group (1996) refers to multimodality as a combination of two or more modes of learning including: visual, audio, gestural (kinesthetic), representation-linguistic (written words), and spatial design. Persellin and Pierce (1988) demonstrated the importance of helping students learn through the modalities with which they are most comfortable; “when children are taught through their strongest learning modalities, visual, auditory, or kinesthetic, they learn better and more easily” (p. 825). Music instructors have begun to consider using a variety of teaching methods to meet the diverse needs of individuals and groups of learners.

To better meet student needs, it may be advisable for music teachers to include varying modes of instruction (e.g., aural, visual, and kinesthetic). Miller (2002) advised that “planning to incorporate various learning modalities may allow students to construct their own understanding pertaining to musical concepts” (p.4). In addition, Collett (1991) advised music teachers to engage their students in a learning experience that encompasses all learning modalities.

The multimodal approach especially fits with music instruction; the teacher can present music aurally, visually, and kinesthetically through listening, singing, playing instruments, and moving (Darrow, 2007). Multimodal pedagogy allows the teacher to help students find another approach to retain the musical sound in their mind. In multimodal pedagogy, instead of just relying only on aural modeling, music teachers also can use visual and kinesthetic activities to help students “image it visually, think it reflectively, experience it actively, respond to it kinesthetically, and feel it emotionally” (Gumm, 2003. p.76).

In music education, it may be assumed that the use of the aural mode of instruction might best serve all students. After all, music is mostly an aural art. Researchers demonstrated that students can learn aurally through vocal modeling, and that music teachers and conductors can use vocal modeling as a successful teaching approach (Green, 1990; Grimland, 2001; Mann 2008).

While it is assumed by some that aural processes in music instruction are most effective, it has been shown that teachers engaging the visual mode are often successful in attaining the goal of increased singing accuracy among students. Youngson and Persellin (2001), McClung (2008), and Frederickson (1993), found that there was no difference between a group of students using Curwen hand signs combined with the solfège syllables and a group of students using only the solfège syllables. However, Frederickson found that a group that reflected the motion of the pitch movement and the intervallic rise and fall by floating their hands up or down, performed significantly better than groups using only solfege syllables and those using solfège syllables combined with Curwen hand signs.

Kinesthetic modeling through movement has long been deemed is a successful tool in music teaching. Researchers demonstrate the effectiveness of using Dalcroze Eurhythmics and movement instruction on melodic discrimination, steady beat synchronization, and performance in music (Crumpler, 1983; Rohwer, 1998).

The use of discrete teaching approaches (aural, visual, kinesthetic) in music teaching has been the subject of much documentation as alluded to in the previous studies. It is a logical assumption that if any one of these approaches are met with success, then perhaps teaching using a combination of these modes might increase instruction (and therefore, learning) effectiveness (Collett, 1991). Campbell and Scott-Kassner (2006) agreed with Collett and stressed that, “The best teaching involves the stimulation of all modalities. This is particularly easy to do in music, which is multimodal by nature” (p. 29).

Overall, there are several benefits of a multimodal focus in music education. Multimodal pedagogy helps students retain the knowledge they learned for a longer period of time as they become involved with the material intensely (Baines, 2008). Through multimodal pedagogies, music teachers can incorporate different aspects of learning strategies with different modes to accommodate student diversity in the music classroom.

Researchers suggest using different modalities inside the music classroom in order to meet students’ needs (Apfelstadt, 1986; Campbell and Scott-Kassner, 2006; Collett, 1991; Conway, 2009; Darrow, 2007; Gumm, 2003; Miller, 2002; Stein, 2008).

Although they suggest or observe the use of multimodal pedagogy, these studies do not investigate the general music teachers' attitude and implementation of multimodal pedagogy inside the general music classroom. Twenty-five years ago, Persellin (1988) conducted a pilot study to examine the influence of perceived modality preferences on music educator's teaching methods. She found that music educators' modality preference affects their choices of teaching method. Persellin (1994) examined the effect of using learning modalities on preschool children's rhythmic and melodic retention and vocal accuracy. She found that learning modality enhances students' rhythm, melodic retention and vocal accuracy. Based on the paucity of current research, I will examine general music teachers' practices and attitudes regarding the use of multimodal pedagogy in music instruction.

6) Resources and Setting

SurveyMonkey® will be used as the tool for survey distribution. SurveyMonkey® provides secure data storage and protects the anonymity of the participants.

I (Elwakeel) will send each participant an email that will include an invitation letter and a description for the research purpose. The email also will include the link for the survey (See Appendix B).

I will use the Statistical Package for the Social Sciences (SPSS) Version 18 during the data analysis process. A password protected MacBook Pro and password protected DELL laptop computers, maintained in private offices at home and at Temple University, will be used. Participants will be able to access the survey through their PC or laptops using the internet.

7) Prior Approvals

NA

8) Study Design

a) Recruitment Methods

I will identify (600) general music teachers from southeastern Pennsylvania districts 11 and 12. District 11 contains Bucks and Montgomery counties, while district 12 contains Philadelphia, Delaware and Chester counties. Potential participants will be identified using the public school district's website in southeastern Pennsylvania. If the school district's website does not have the contact information for the music teachers, I contact the school and request the music teacher's contact information. I will select a stratified random sample in order to be representative of general music teachers in southeastern Pennsylvania.

Once the potential sample is identified, the participants will receive an email (see Appendix B) with a link to a SurveyMonkey® page containing the survey (see Appendix D). I will verify general music teachers by their response to the first question on the survey regarding if they teach general music or a combination of general music and other topics. If respondents answer "Yes," they will be directed to the next question on the survey. If respondents answer "No," the next page of the survey will state "Thank you for your participation," and the survey will conclude.

Potential subjects may choose not to participate in the research. If the potential subject participants agree to participate, they will be able to complete and submit the survey. For the first and second weeks after the initial email invitation, I will send follow-up emails reminding potential respondents to complete the survey (See Appendix C).

Recruitment material is limited to the invitation letter and the first question on the survey. No payment will be given to participants in this research study.

b) Inclusion and Exclusion Criteria

All certified public general music teachers (elementary, middle, high school) who teach general music or a combination of general and other music subjects are eligible for the study. Public music teachers who only teach subjects other than general music (instrumental, band, technology, choral) are not eligible. I will verify general music teachers by their response to the first question on the survey regarding if they teach general music or a combination of general music and other topics. If respondents answer "Yes," they will be directed to the next question on the survey. If respondents answer "No," the next page of the survey will state "Thank you for your participation," and the survey will conclude. I will exclude any general music teachers who choose not to participate in the research and those who do not give the consent for the study, or withdrew in the middle of the survey.

c) Study Timelines

The survey requires no more than 10 minutes of the subject's time. The participants will enroll in the study at the time they accept to complete the survey and submit it. There will not be extra time from the potential participants to give feedback for the survey. The timeline for the study will start once the IRB approval is attained. The initial email is targeted to be sent to the potential subjects on December 16th, 2013 (see Appendix B). The follow-up email is targeted to be sent to the potential subjects on December 23st, 2013(see Appendix C). The second follow-up email is targeted to be sent to the potential subjects on December 30th, 2013. On January 6st, 2014 the survey link will be closed. Completion of final report is targeted for March 6, 2014.

d) Study Procedures and Data Analysis

I will design an online survey, powered by SurveyMonkey®, to collect research data on general music teachers' practice and attitudes towards the use of multimodal pedagogy. Survey results will be downloaded and prepared for data analysis (Creswell, 2003).

The research survey is brief and requires no more than 10 minutes of time from the respondents. Questions are organized into four categories. In the first category on participant's demographic information, they respond either through writing or choosing the best answer that reflects their choices. The second category, School Resources and Professional Development, is divided into two sections. In the first section, participants choose their answer by checking from the boxes and add more information if necessary. In the second section, participants answer using either "Yes" or "No". The third section focuses on participants' use of modalities. The participant will provide answers using a 5-point Likert scale ranging from "Always" to "Never". The final category focuses on participants' attitudes towards the use of multimodal pedagogy. They will answer using a 5-point Likert scale ranging from "Strongly Disagree" to "Strongly Agree."

Survey face and content validity has been determined by a panel of experts using a rating form (see Appendix A). The panel included four doctorate students in music education from Temple University, three Temple University music education faculty members, and one general music teacher who is employed by the School District of Philadelphia. Based on the panel member feedback, the researcher made necessary changes to the survey. Once the final survey questions are determined, the online version will be developed.

After Temple University Institutional Review Board approval is attained, I will send each participant an email, which will include an invitation letter and a description for the research purpose. The email also will include the link for the survey (See Appendix B). First and second weeks after the initial email invitation, the researcher will send emails reminding potential respondents about the study (See Appendix C). Three weeks after the initial survey, the data will be downloaded from SurveyMonkey® to complete the data analysis processes.

Data Analysis

Data will be analyzed using descriptive statistics and inferential statistics. I will use descriptive statistics to examine to what extent general music teachers rely on aural, visual, and kinesthetic modalities, or a combination of various modalities while teaching music. I will measure the central tendency (mean, median, and mode) and the distribution (range and standard deviation) accompanied with the graphic for each category (aural, visual, kinesthetic modalities, or a combination of various modalities).

Inferential statistic measures includes: factor analysis, ANOVA, and multiple regressions. A factor analysis will be used to verify music teacher pedagogical choices for their teaching. Four multiple regression models, each of one pedagogical choice (aural, visual, kinesthetic, multimodal) will be used to examine how the available school resources and professional development programs influence general music teacher's pedagogical choices. The predictors of the four models are the available school resources and the professional development program.

A 2x 3x4 factorial ANOVA will be used to explore to the extent to which music teacher characteristics of gender (male and female), years of teaching music (1-10 years, 11-20 years, and 21-30 years), and level of educational attainment (bachelor, master, doctorate, post doctorate) influence their pedagogical choices in their music classroom. A 2x3x4 factorial ANOVA and the multiple regressions will examine the interaction between the music teacher's characteristics of gender, level of educational degree and the years of teaching experience and their attitudes towards using aural, visual, and kinesthetic modalities, or a combination of various modalities.

e) Withdrawal of Subjects

Participation in this study is voluntary. Subjects may choose to withdraw from the study by exiting the online survey at any time. Any collected data will be removed from the study upon a subject's desire to withdraw. No consequence will occur if a participant chooses to withdraw from the research.

f) Privacy & Confidentiality

Each participant will have a unique survey code once enter the survey. SurveyMonkey® will automatically store the participant's contact information in a separate database to protect the participant's anonymity. Three years after storing the collected data, data will be destroyed.

9) Risks to Subjects

There are no reasonably predictable risks, discomforts, hazards, or inconveniences to the subjects that are related to a subject's participation in the research.

10) Multi-Site Human Research

This is not a multi-site human research study.

11) Potential Benefits to Subjects

There are no directed benefits for the participants in the study. After taking the survey, the participants may consider using multimodal pedagogy during their teaching and this may enrich their teaching experience.

12) Costs to Subjects

There is no cost to the subjects.

13) Informed Consent

The consent form is included on the first page of the online survey. Participants will read instructions describing the purpose and the nature of the study and they will consent by entering the survey (see Appendix B). The written consent form can be waived because the participants will informed that by proceeding to the survey link they are giving consent. The research involves no procedures for which written consent is normally required outside of the research context. Participants will respond to the survey individually and without recognizing other participants, so there will not be any coercion from other participants. Subjects may exit the online survey and withdraw from the study at any time they wish.

14) Vulnerable Populations

Indicate whether you will include any of the following populations:

Individuals who are not yet adults (infants, children, teenagers)

None

Pregnant women

None

Prisoners

None

Adults unable to consent

None

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APPENDIX B

IRB PROTOCOL APPENDICES

IRB APPENDIX A

SURVEY ASSESSMENT FORM

Thank you for your time in reviewing this survey. I am interested to know your thoughts concerning content and face validity. I will use your suggestions to revise this instrument for use in my dissertation project entitled, general music teachers' practices and attitudes towards the use of multimodal means in music instruction. After you have had a chance to take the survey, will you please complete this form?

Answer using *Yes* or *No*. If an answer needs further information, please feel free to add additional details in the Comments section.

1) Participants are told that the survey will take no longer than 10 minutes to complete. Do you feel that this is enough time to adequately complete the survey?

☐ Yes

☐ No

Comments:

2) Are the survey questions related to the research purpose?

☐ Yes

☐ No

Comments:

3) Do any of the survey items need clarification?

☐ Yes

☐ No

Comments:

4) Is the order of the survey sections appropriate?

☐ Yes

☐ No

Comments:

5) Is the question order within each section appropriate?

☐ Yes

☐ No

Comments:

6) Overall, does the survey look good or could it be modified in some way to present a better visual for the participant?

☐ Yes

☐ No

Comments:

- If you have other comments about the survey, please write them here.

IRB APPENDIX B

EMAIL INVITATION FOR DISSERTATION STUDY

Dear Music teacher

My name is Mahmoud Elwakeel; I am a PhD Candidate in Music Education at the Boyer College of Music and Dance at Temple University (Philadelphia, PA). I am working as a student investigator under the supervision of principal investigator, Deborah Confredo, Professor of Music Education in the Boyer College of Music and Dance at Temple University. The purpose of this study is to examine general music teachers' practices and attitudes towards the use of multimodal pedagogy. Multimodality in education settings refers to a combination of two or more modes of learning, including: visual, audio, gestural (kinesthetic), representation-linguistic (written words), and spatial design. We know you are very busy; this survey should take a maximum of 10 minutes to complete. Your responses will remain completely anonymous. SurveyMonkey® software is designed to protect your anonymity.

The study procedures consist of an online survey. There are no reasonably foreseeable risks or discomforts and the primary benefit that you will obtain from this research is the knowledge that you have contributed to the understanding of this topic. The alternative to participating is not to participate. This research has been reviewed and approved by the Temple University Institutional Review Board. Please contact them at (215) 707-3390 or e-mail them at: irb@temple.edu for any of the following: questions, concerns, or complaints about the research; questions about your rights; to obtain information; or to offer input.

By continuing on to the survey, you are giving your consent and acknowledge you understand that this is a research study, data will be collected and your information will remain anonymous.

If you would like to receive the results of this survey once it is complete, please send an email request to Mahmoud.elwakeel@temple.edu.

To participant in this study, simply click on the link below:

<INSERT WEB LINK>

Thank you again for your participation.

Sincerely,

Mahmoud Elwakeel, Ph. D. Candidate, Music Education
Boyer College of Music and Dance
Temple University, 2001 N. 13th Street, Philadelphia, PA 19122
Contact Information: 267-357-8529 email Mahmoud.elwakeel@temple.edu

Dr. Deborah Confredo, Professor of Music Education
Boyer College of Music and Dance
Temple University, 2001 N. 13th Street, Philadelphia, PA 19122
Contact Information: 215. 204. 8649 email: DebConfredo@temple.edu

IRB APPENDIX C

FOLLOW- UP EMAIL INVITATION FOR DISSERTATION STUDY

This is a reminder that I am conducting a study to examine general music teachers' practices and attitudes towards the use of multimodal pedagogy. Multimodality in education settings refers to a combination of two or more modes of learning, including: visual, audio, gestural (kinesthetic), representation-linguistic (written words), and spatial design. If you complete the survey, I want to thank you for your participation in the research study. If you have not completed the survey, please consider taking it before the link closes on <DATE>. To participant in this study, simply into the first page of the survey:

<INSERT WEB LINK>

The survey takes no more than 10 minutes. This research has been reviewed and approved by the Temple University Institutional Review Board. Please contact them at (215) 707-3390 or e-mail them at: irb@temple.edu for any of the following: questions, concerns, or complaints about the research; questions about your rights; to obtain information; or to offer input. By continuing on to the survey, you are giving your consent and acknowledge you understand that your information will remain anonymous.

If you would like to receive the results of this survey once it is complete, please send an email request to Mahmoud.elwakeel@temple.edu or DebConfredo@temple.edu.

Thank you for your participation in this study.

Sincerely,

Mahmoud Elwakeel, Ph. D. Candidate, Music Education
Boyer College of Music and Dance
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IRB APPENDIX D

SURVEY OF GENERAL MUSIC TEACHERS' PRACTICES AND ATTITUDES TOWARDS THE USE OF MULTIMODAL PEDAGOGY

Introduction

My name is Mahmoud Elwakeel; I am a PhD Candidate in Music Education at the Boyer College of Music and Dance at Temple University (Philadelphia, PA). I am working as a student investigator under the supervision of principal investigator, Deborah Confredo, Professor of Music Education in the Boyer College of Music and Dance at Temple University. The purpose of this study is to examine general music teachers' practices and attitudes towards the use of multimodal pedagogy. Multimodality in education settings refers to a combination of two or more modes of learning, including: visual, audio, gestural (kinesthetic), representation-linguistic (written words), and spatial design. We know you are very busy; this survey should take a maximum of 10 minutes to complete. Your responses will remain completely anonymous. SurveyMonkey® software is designed to protect your anonymity.

The study procedures consist of an online survey. There are no reasonably foreseeable risks or discomforts and the primary benefit that you will obtain from this research is the knowledge that you have contributed to the understanding of this topic. The alternative to participating is not to participate. This research has been reviewed and approved by the Temple University Institutional Review Board. Please contact them at (215) 707-3390 or e-mail them at: irb@temple.edu for any of the following: questions, concerns, or complaints about the research; questions about your rights; to obtain information; or to offer input.

By continuing on to the survey, you are giving your consent and acknowledge you understand that this is a research study, data will be collected and your information will remain anonymous. If you would like to receive the results of this survey once it is complete, please send an email request to Mahmoud.elwakeel@temple.edu

Thank you again for your participation.

Part I: Participant Demographic Information

1) Does your teaching include general music instruction (as your primary teaching position or in combination with other types of music instruction)?
   - ☐ Yes
   - ☐ No

If respondent answers NO, the next page in the survey will indicate:

Thank you for your participation!

2) How many complete years have you taught music as a fulltime, contracted educator?

3) What is your gender?
   - ☐ Male
   - ☐ Female

4) What is the highest professional degree that you have received?
   - ☐ Bachelors
   - ☐ Masters
   - ☐ Doctorate
   - ☐ Post Doctorate

5) Please indicate the number of schools where you teach each week.

PART II: School Demographic Information
Answer by checking the appropriate boxes

1) Most of the time I teach in a: (check only one)

   ☐ Regular classroom
   Classroom used for teaching any subject

   ☐ Music classroom
   Dedicated music classroom

2) What resources do you have in your music classroom? (check all that apply)
   - ☐ Keyboard(s)
   - ☐ Orff instruments
   - ☐ CD player(s)
   - ☐ Mp3 player/iPod
   - ☐ Movement materials (rhythm sticks, egg shakers, scarves, and bean bags)
   - ☐ Guitars
   - ☐ Percussion instruments (drum, hand drums, tambourines, triangles, maracas, etc)
   - ☐ Computers
   - ☐ Music software (Finale, Sibelius, GarageBand)
   - ☐ iPad or Tablet
   - ☐ Other (please specify)

Answer using *Yes* or *No*.

1) Does your school district require you to combine different modalities (aural, visual, and kinesthetic) during your teaching?
   - ☐ Yes
   - ☐ No

2) Does your school district require you to attend professional development sessions regarding using multimodal pedagogy during your teaching?
   - ☐ Yes
   - ☐ No

If yes, please specify the professional development session(s) you have attended:

3) Have you ever taken a course as part of your undergraduate or graduate school work that focused on combining different modalities in music instruction?
   - ☐ Yes
   - ☐ No

   If yes, please check the type of course in which combining different modalities in music instruction was a focus:

   - ☐ General Music Methods
   - ☐ Vocal/Choral Music Methods
   - ☐ Instrumental Music Methods
   - ☐ Vocal Pedagogy/Techniques
   - ☐ Instrumental Pedagogy/Techniques
   - ☐ Introduction to Music Education
   - ☐ Other

4) In your undergraduate and, when applicable, graduate course work, which best describes the learning experience in your major music education method courses?
   - ☐ Aural
   - ☐ Visual
   - ☐ Kinesthetic
   - ☐ Multimodal

5) Indicate whether you have had professional training in any of these methods by checking the corresponding boxes.
   - ☐ Music Learning Theory
   - ☐ Zòltan Kokály
   - ☐ Emile Jacques Dalcroze
   - ☐ Carl Orff
   - ☐ Shinichi Suzuki
   - ☐ Phyllis Weikart- Education Through Movement
   - ☐ Other

PART III: Answer using *Always, Very Often, Sometimes, Rarely*, or *Never*.

		Always	Very Often	Sometimes	Rarely	Never
1	When I **plan** a lesson, I take into account the use of aural presentation (vocal explanation, discussion, questions) during the lesson.	☐	☐	☐	☐	☐
2	When I **plan** a lesson, I take into account the use of visual presentation (posters, images, cartoons, diagrams) during the lesson.	☐	☐	☐	☐	☐
3	When I **plan** a lesson, I take into account the use of movement (Curwen hand signs, hand levels, moving to the beat) during the lesson.	☐	☐	☐	☐	☐
4	When I **plan** a lesson, I take into account the combinations of aural presentations, visual presentations, and movement during the lesson.	☐	☐	☐	☐	☐
5	When I **teach** a lesson, I use aural presentation (vocal explanation, discussion, questions).	☐	☐	☐	☐	☐
6	When I **teach** a lesson, I use visual presentation (posters, images, cartoons, diagrams).	☐	☐	☐	☐	☐
7	When I **teach** a lesson, I use movement (dance, stepping swaying, clapping, Curwen hand signs, hand levels, moving to the beat, etc).	☐	☐	☐	☐	☐
8	When I **teach** a lesson, I use a combination of aural presentation, posters, and movement.	☐	☐	☐	☐	☐
9	When I **assess** student achievement and understanding, I use aural methods (signing, chanting, asking questions about the music that students heard).	☐	☐	☐	☐	☐
10	When I **assess** student achievement and understanding, I use visual methods (notate the pitch patterns, notate the rhythm patterns, or draw the melody motions).	☐	☐	☐	☐	☐
11	When I **assess** student achievement and understanding, I use kinesthetic methods (walk the song pulse, pat or clap the rhythms, or locomotor movements (gallop- skip- run)).	☐	☐	☐	☐	☐
12	When I **assess** student achievement and understanding, I use simultaneous or serial combinations of aural, visual, and kinesthetic methods.	☐	☐	☐	☐	☐

PART IV: Answer using *SA (Strongly Agree), A (Agree), N (Neither Agree nor Disagree), D (Disagree),* or *SD (Strongly Disagree).*

		SA	A	N	D	SD
1	I believe that multimodal pedagogy plays an important role in teaching music.	☐	☐	☐	☐	☐
2	I believe that using a combination of modalities while **planning** a lesson helps me to think about how my student's best learn.	☐	☐	☐	☐	☐
3	I feel comfortable when I use a combination of modalities **while teaching**.	☐	☐	☐	☐	☐
4	I feel that using a combination of modalities **while teaching** is a challenge for me**.**	☐	☐	☐	☐	☐
5	I feel that **assessing** students using a combination of different modalities is a challenge for me.	☐	☐	☐	☐	☐
6	I believe that using a combination of modalities will accommodate all students with different learning styles.	☐	☐	☐	☐	☐
7	I believe that using aural presentation will accommodate all students with different learning styles.	☐	☐	☐	☐	☐
8	I believe that using visual mode will accommodate all students with different learning styles.	☐	☐	☐	☐	☐
9	I believe that using kinesthetic mode will accommodate all students with different learning styles.	☐	☐	☐	☐	☐
10	I believe that students learn best when through combination of modalities.	☐	☐	☐	☐	☐
11	I believe that teaching using multimodal pedagogy is a fad and using an individual modality (Aural, Visual, and Kinesthetic) is the best approach for teaching my students.	☐	☐	☐	☐	☐
12	I believe that considering combining modalities (Aural, Visual, and Kinesthetic) while **planning** a lesson would be a waste of time and will not improve individual students' learning.	☐	☐	☐	☐	☐
13	I feel awkward when I use a combination of modalities **while teaching**.	☐	☐	☐	☐	☐

- If you feel that you incorporate multimodal pedagogy in your teaching, discuss how you use it and how it benefits your students?

IRB PROTOCOL APPENDIX D

Survey of General Music Teachers' Practices and Attitudes

Towards the Use of Multimodal Pedagogy

General Music Teachers' Practices and Attitudes Towards the Use of Multimodal Pedagogy

Part I: Teacher Demographic Information

The purpose of this study is to examine general music teachers' practices and attitudes regarding the use of multimodal pedagogy in music instruction. Multimodality in education settings refers to a combination of two or more modes of learning, including: visual, audio, gestural, representation-linguistic (written words),and spatial design. I know you are very busy; this survey should take a maximum of 10 minutes to complete. Your responses will remain completely anonymous. SurveyMonkey® software is designed to protect your anonymity. This research has been reviewed and approved by the Temple University Institutional Review Board. Please contact them at (215) 707-3390 or e-mail them at: irb@temple.edu for any of the following: questions, concerns, or complaints about the research; questions about your rights; to obtain information; or to offer input. By continuing on to the survey, you are giving your consent and acknowledge you understand that this is a research study, data will be collected and your information will remain anonymous.

Thank you again for your participation.

***1. Does your teaching include general music instruction (as your primary teaching position or in combination with other types of music instruction)?**

- Yes
- No

Next

[SURVEY PREVIEW MODE] General Music Teachers' Practices and Attitudes Towards the Use of Multimodal Pedagogy Survey - Google Chrome

SurveyMonkey, Inc [US] https://www.surveymonkey.com/s.aspx?PREVIEW_MODE=DO_NOT_USE_THIS_LINK_FOR_COLLECTION&sm=WjGf8FkdlI5avep0A2KmTaN%2fv4RXF5dzap2

General Music Teachers' Practices and Attitudes Towards the Use of Multimodal Pedagogy

Part I: Teacher Demographic Information

***1. How many complete years have you taught music as a full time, contracted educator?**

Years teaching

***2. What is your gender?**

- Female
- Male

***3. What is the highest professional degree that you have received?**

- Bachelors
- Masters
- Doctorate
- Post Doctorate

***4. Please indicate the number of schools where you teach each week.**

Prev Next

[SURVEY PREVIEW MODE] General Music Teachers' Practices and Attitudes Towards the Use of Multimodal Pedagogy Survey - Google Chrome

SurveyMonkey, Inc [US] https://www.surveymonkey.com/s.aspx?PREVIEW_MODE=DO_NOT_USE_THIS_LINK_FOR_COLLECTION&sm=WjGf8FkdlI5avep0A2KmTaN%2fv4RXF5dzap2

General Music Teachers' Practices and Attitudes Towards the Use of Multimodal Pedagogy

Part II: School Demographic Information

***1. Most of the time I teach in a:**

- ○ Regular classroom (Classroom used for teaching any subject)
- ○ Music classroom (Dedicated music classroom)

***2. What resources do you have in your music classroom? (check all that apply)**

- ☐ Keyboard(s)
- ☐ Orff instruments
- ☐ CD player(s)
- ☐ Mp3 player/iPod
- ☐ Movement materials (rhythm sticks, egg shakers, scarves, and bean bags)
- ☐ Guitars
- ☐ Percussion instruments (drum, hand drums, tambourines, triangles, maracas, etc)
- ☐ Computer
- ☐ Music software (Finale, Sibelius, GarageBand)
- ☐ iPad or Tablet
- ☐ Other (please specify)

Prev Next

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[SURVEY PREVIEW MODE] General Music Teachers' Practices and Attitudes Towards the Use of Multimodal Pedagogy Survey - Google Chrome

SurveyMonkey, Inc [US] https://www.surveymonkey.com/s.aspx?PREVIEW_MODE=DO_NOT_USE_THIS_LINK_FOR_COLLECTION&sm=WjGf8FkdlI5avep0A2KmTaN%2fv4RXF5dzap2

General Music Teachers' Practices and Attitudes Towards the Use of Multimodal Pedagogy

Part II: School Demographic Information

Answer using Yes or No. If an answer needs further information, complete that portion as well.

***1. Does your school district require you to combine different modalities (aural, visual, and kinesthetic) during your teaching?**

- ○ Yes
- ○ No

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Monday, October 21, 2013

[SURVEY PREVIEW MODE] General Music Teachers' Practices and Attitudes Towards the Use of Multimodal Pedagogy Survey - Google Chrome

SurveyMonkey, Inc [US] https://www.surveymonkey.com/s.aspx?PREVIEW_MODE=DO_NOT_USE_THIS_LINK_FOR_COLLECTION&sm=WjGf8FkdlI5avep0A2KmTaN%2fv4RXF5dzap2

General Music Teachers' Practices and Attitudes Towards the Use of Multimodal Pedagogy

1. Please specify the professional development session(s) you have attended.

***2. Does your school district require you to attend professional development sessions regarding using multimodal pedagogy during your teaching?**

- Yes
- No

***3. Have you ever taken a course as part of your undergraduate or graduate school work that focused on combining different modalities in music instruction?**

- Yes
- No

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General Music Teachers' Practices and Attitudes Towards the Use of Multimodal Pedagogy

***1. Please check the type of course in which combining different modalities in music instruction was a focus:**

- General Music Methods
- Vocal/Choral Music Methods
- Instrumental Music Methods
- Vocal Pedagogy/Techniques
- Instrumental Pedagogy/Techniques
- Introduction to Music Education
- Other (please specify)

***2. In your undergraduate and, when applicable, graduate course work, which best describes the learning experience in your major music education method courses?**

- Aural
- Visual
- Kinesthetic
- Multimodal

***3. Indicate whether you have had professional training in any of these methods by checking the corresponding boxes.**

- Music Learning Theory
- Zöltan Kokály
- Emile Jacques Dalcroze
- Carl Orff
- Shinichi Suzuki
- Phyllis Weikart- Education Through Movement
- Other (please specify)

Prev Next

General Music Teachers' Practices and Attitudes Towards the Use of Multimodal Pedagogy

General music teacher attitude toward the use of multimodal pedagogy

Answer using Strongly Agree, Agree, Neither Agree nor Disagree, Disagree, Strongly Disagree.

***1. I believe that multimodal pedagogy plays an important role in teaching music.**

○ Strongly Agree ○ Agree ○ Neither Agree nor Disagree ○ Disagree ○ Strongly Disagree

***2. I believe that using a combination of modalities while planning a lesson helps me to think about how my student's best learn.**

○ Strongly Agree ○ Agree ○ Neither Agree nor Disagree ○ Disagree ○ Strongly Disagree

***3. I feel comfortable when I use a combination of modalities while teaching.**

○ Strongly Agree ○ Agree ○ Neither Agree nor Disagree ○ Disagree ○ Strongly Disagree

***4. I feel that using a combination of modalities while teaching is a challenge for me.**

○ Strongly Agree ○ Agree ○ Neither Agree nor Disagree ○ Disagree ○ Strongly Disagree

***5. I feel that assessing students using a combination of different modalities is a challenge for me.**

○ Strongly Agree ○ Agree ○ Neither Agree nor Disagree ○ Disagree ○ Strongly Disagree

***6. I believe that using a combination of modalities will accommodate all students with different learning styles.**

○ Strongly Agree ○ Agree ○ Neither Agree nor Disagree ○ Disagree ○ Strongly Disagree

***7. I believe that using aural presentation will accommodate all students with different learning styles.**

○ Strongly Agree ○ Agree ○ Neither Agree nor Disagree ○ Disagree ○ Strongly Disagree

***8. I believe that using visual mode will accommodate all students with different learning styles.**

○ Strongly Agree ○ Agree ○ Neither Agree nor Disagree ○ Disagree ○ Strongly Disagree

***9. I believe that using kinesthetic mode will accommodate all students with different learning styles.**

○ Strongly Agree ○ Agree ○ Neither Agree nor Disagree ○ Disagree ○ Strongly Disagree

***10. I believe that students learn best when through combination of modalities.**

○ Strongly Disagree ○ Agree ○ Neither Agree nor Disagree ○ Disagree ○ Strongly Disagree

***11. I believe that teaching using multimodal pedagogy is a fad and using an individual modality (Aural, Visual, and Kinesthetic) is the best approach for teaching my students.**

○ Strongly Agree ○ Agree ○ Neither Agree nor Disagree ○ Disagree ○ Strongly Disagree

***12. I believe that considering combining modalities (Aural, Visual, and Kinesthetic) while planning a lesson would be a waste of time and will not improve individual students' learning.**

○ Strongly Agree ○ Agree ○ Neither Agree nor Disagree ○ Disagree ○ Strongly Disagree

***13. I feel awkward when I use a combination of modalities while teaching.**

○ Strongly Agree ○ Agree ○ Neither Agree nor Disagree ○ Disagree ○ Strongly Disagree

14. If you feel that you incorporate multimodal pedagogy in your teaching, discuss how you use it and how it benefits your students?

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General Music Teachers' Practices and Attitudes Towards the Use of Multimodal Pedagogy

Thank you for your participation!

If you would like to receive the results of this survey once it is complete, please send an email request to Mahmoud.elwakeel@temple.edu

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APPENDIX C

IRB APPROVAL

TEMPLE UNIVERSITY®

Office for Human Subjects Protections
Institutional Review Board
Medical Intervention Committees A1 & A2
Social and Behavioral Committee B
Unanticipated Problems Committee

Student Faculty Conference Center
3340 N Broad Street - Suite 304
Philadelphia, Pennsylvania 19140
Phone: (215) 707-3390
Fax: (215) 707-9100
e-mail: irb@temple.edu

Certification of Approval for a Project Involving Human Subjects

Protocol Number:	21801
PI:	SHELDON, DEBORAH
Review Type:	EXEMPT
Approved On:	12-Dec-2013
Approved From:	
Approved To:	
Committee:	B BEHAVIORAL AND SOCIAL SCIENCES
School/College:	BOYER COLLEGE OF MUSIC & DANCE (2200)
Department:	MUSIC:EDUCATION (22060)
Sponsor:	No External Sponsor
Project Title:	General Music Teachers Practices and Attitudes Towards the Use Of Multimodal Means in Music Instruction

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The IRB approved the protocol 21801.

If the study was approved under expedited or full board review, the approval period can be found above. Otherwise, the study was deemed exempt and does not have an IRB approval period.

Before an approval period ends, you must submit the Continuing Review form via the eRA module. Please note that though an item is submitted in eRA, it is not received in the IRB office until the principal investigator approves it. Consequently, please submit the Continuing Review form via the eRA module at least 60 days, and preferably 90 days, before the study's expiration date.
Note that all applicable Institutional approvals must also be secured before study implementation. These approvals include, but are not limited to, Medical Radiation Committee ("MRC"); Radiation Safety Committee ("RSC"); Institutional Biosafety Committee ("IBC"); and Temple University Survey Coordinating Committee ("TUSCC"). Please visit these Committees' websites for further information.

Finally, in conducting this research, you are obligated to submit modification requests for all changes to any study; reportable new information using the Reportable New Information form; and renewal and closure forms. For the complete list of investigator responsibilities, please see the Policies and Procedures, the Investigator Manual, and other requirements found on the Temple University IRB website: http://www.temple.edu/research/regaffairs/irb/index.html

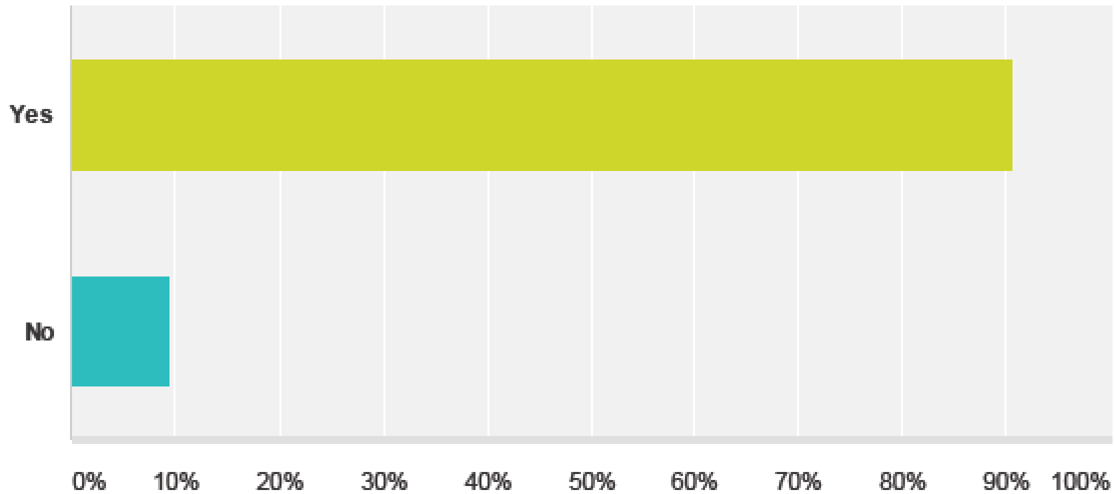
Please contact the IRB at (215) 707-3390 if you have any questions

APPENDIX D

SPSS & SURVEYMONKEY OUTPUT

Part I: Participant Demographic Information

1) Does your teaching include general music instruction (as your primary teaching position or in combination with other types of music instruction)?



Answer Choices	Responses	
Yes	90.59%	154
No	9.41%	16
Total		170

2) HOW MANY COMPLETE YEARS HAVE YOU TAUGHT MUSIC AS A FULL TIME, CONTRACTED EDUCATOR?

N	Valid	127
	Missing	0
Mean		13.8504
Median		12.0000
Mode		3.00[a]
Std. Deviation		9.62642

How_many_complete_years_have_you_taught_music_as_a_full_time_co

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	2	1.6	1.6	1.6
	1.00	6	4.7	4.7	6.3
	2.00	4	3.1	3.1	9.4
	3.00	8	6.3	6.3	15.7
	4.00	5	3.9	3.9	19.7
	5.00	7	5.5	5.5	25.2
	6.00	6	4.7	4.7	29.9
	7.00	4	3.1	3.1	33.1
	8.00	3	2.4	2.4	35.4
	9.00	3	2.4	2.4	37.8
	10.00	5	3.9	3.9	41.7
	11.00	8	6.3	6.3	48.0
	12.00	6	4.7	4.7	52.8
	13.00	3	2.4	2.4	55.1
	14.00	8	6.3	6.3	61.4
	15.00	2	1.6	1.6	63.0
	16.00	3	2.4	2.4	65.4
	17.00	2	1.6	1.6	66.9
	18.00	3	2.4	2.4	69.3
	19.00	1	.8	.8	70.1
	20.00	3	2.4	2.4	72.4

21.00	3	2.4	2.4	74.8
22.00	3	2.4	2.4	77.2
23.00	1	.8	.8	78.0
24.00	1	.8	.8	78.7
25.00	5	3.9	3.9	82.7
26.00	5	3.9	3.9	86.6
27.00	5	3.9	3.9	90.6
28.00	2	1.6	1.6	92.1
29.00	1	.8	.8	92.9
30.00	3	2.4	2.4	95.3
31.00	1	.8	.8	96.1
32.00	1	.8	.8	96.9
33.00	1	.8	.8	97.6
35.00	2	1.6	1.6	99.2
38.00	1	.8	.8	100.0
Total	127	100.0	100.0	

3) What is your gender?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	81	63.8	63.8	63.8
	Male	46	36.2	36.2	100.0
	Total	127	100.0	100.0	

4) What is the highest professional degree that you have received?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bachelors	29	22.8	22.8	22.8
	Doctorate	2	1.6	1.6	24.4
	Masters	96	75.6	75.6	100.0
	Total	127	100.0	100.0	

5) Please indicate the number of schools where you teach each week.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	96	75.6	75.6	75.6
	2.00	24	18.9	18.9	94.5
	3.00	6	4.7	4.7	99.2
	5.00	1	.8	.8	100.0
	Total	127	100.0	100.0	

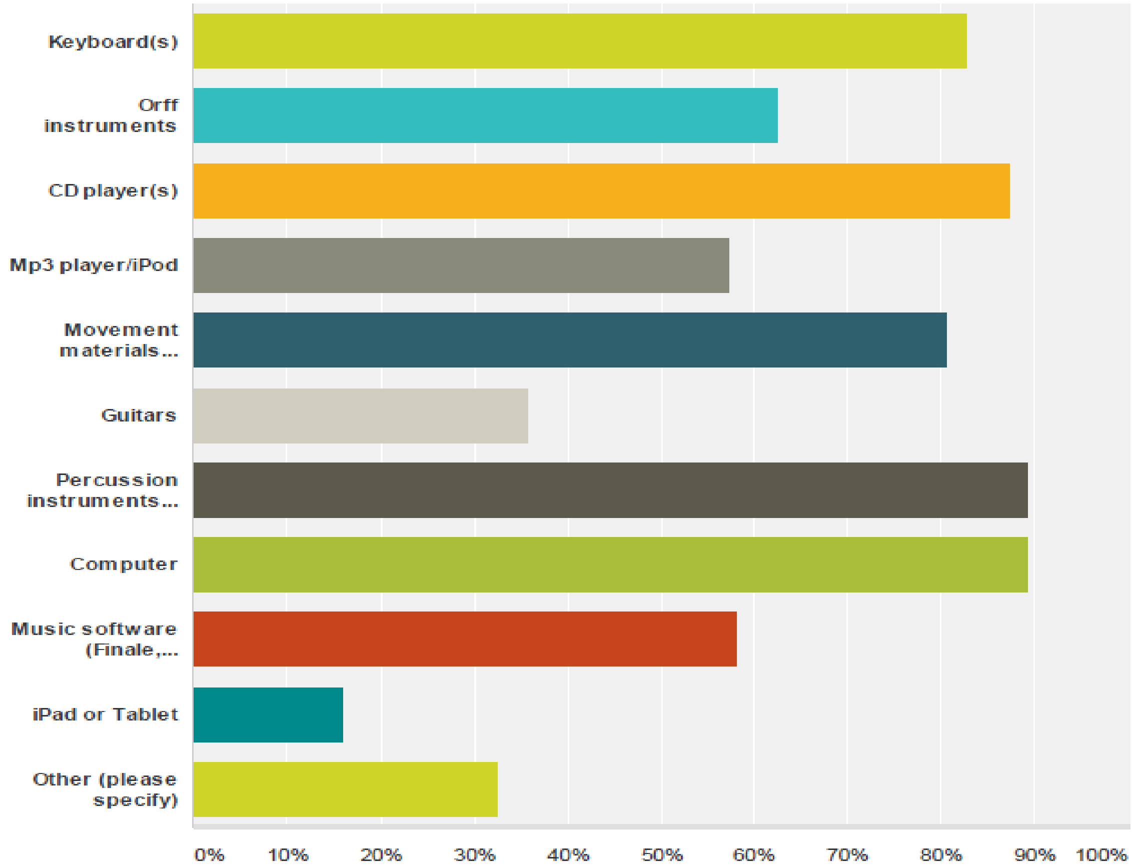
PART II: School Demographic Information

Answer by checking the appropriate boxes

6) Most of the time I teach in a:

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Regular classroom	12	9.4	9.4	9.4
	Music Classroom	115	90.6	90.6	100.0
	Total	127	100.0	100.0	

7) **What resources do you have in your music classroom? (check all that apply)**



Answer using *Yes* or *No*.

8) **Does your school district require you to combine different modalities (aural, visual, and kinesthetic) during your teaching?**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NO	71	55.9	55.9	55.9
	YES	56	44.1	44.1	100.0
	Total	127	100.0	100.0	

9) Please specify the professional development session(s) you have attended.

Few are offered within my district. Occasionally, we present lessons to or have a reading session with colleagues. Occasional summer professional development in form of coursework and choral reading sessions.
Orff, Kodaly, Dalacroze
I have attended MANY, MANY professional development sessions over the past 11 years. Many of which dealt with engaging students using many modalities- either directly or indirectly. Please be more specific with your question and I can me specific with my answer.
Dalcroze at Carnegie Mellon Orff initially during early teaching from West Chester Many Kodaly, and ear training sessions AP Music Theory curriculum writing
The Gendered Brain
All kinds too numerous to list: Orff certification, Kodaly certification, Dalcroze experience, Alexander technique experience.
PSEA workshops.
Promethean workshops, Kodaly certification, Orff Certification, O Passo workshops, etc
Danielson Framework for Teaching, Professional Learning Communities.
Music educator conferences in state.
Differentiated Instruction
Grad classes and in-service trainings that focused on learning styles, multiple intelligences, differentiated instruction, etc.
Most sessions have to do with testing procedures and curricular changes in the regular classroom.
MENC and PMEA based in-services.
PMEA State Conference - Yearly PMEA District 12 Annual Conference – yearly
Differentiation in the music classroom Guitar for music educators Standards in the music room TOO MANY OTHERS TO LIST OVER THE YEAR.
Most recently we attended Teaching Music to Special Needs Students, a full-day session involving the entire K-12 music department
In-services usually consist of curriculum development, purchasing suppies, sharing of ideas. This is between myself and the other music teachers.
PMEA Workshops School funded Improve workshops Differentiated learning workshops.

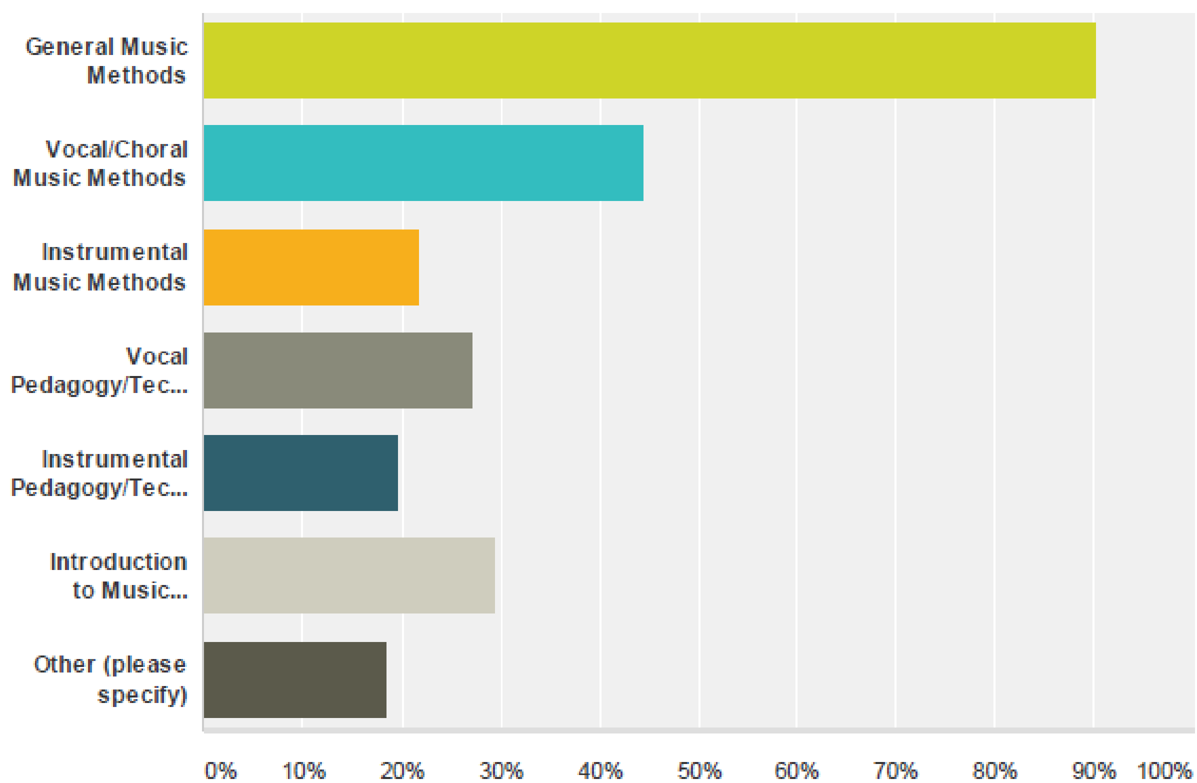
10) Does your school district require you to attend professional development sessions regarding using multimodal pedagogy during your teaching?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	107	84.3	84.3	84.3
	Yes	20	15.7	15.7	100.0
	Total	127	100.0	100.0	

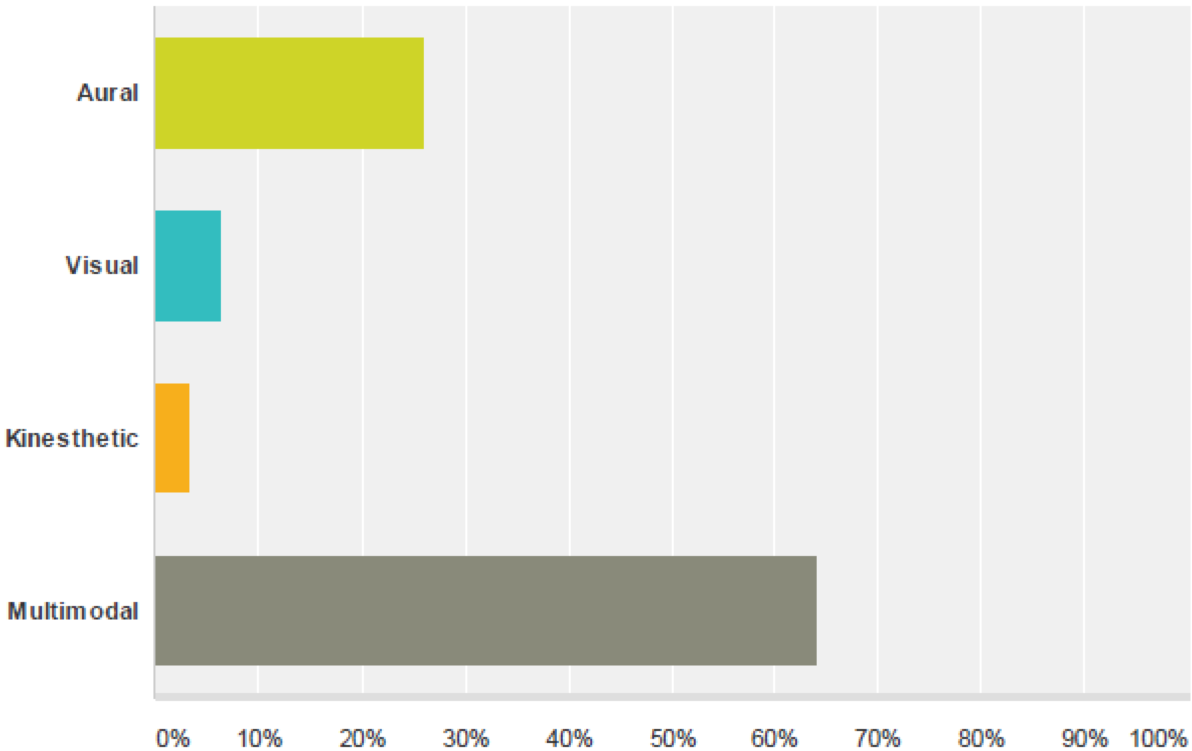
11) Have you ever taken a course as part of your undergraduate or graduate school work that focused on combining different modalities in music instruction?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	44	34.6	34.6	34.6
	Yes	83	65.4	65.4	100.0
	Total	127	100.0	100.0	

12) Please check the type of course in which combining different modalities in music instruction was a focus:

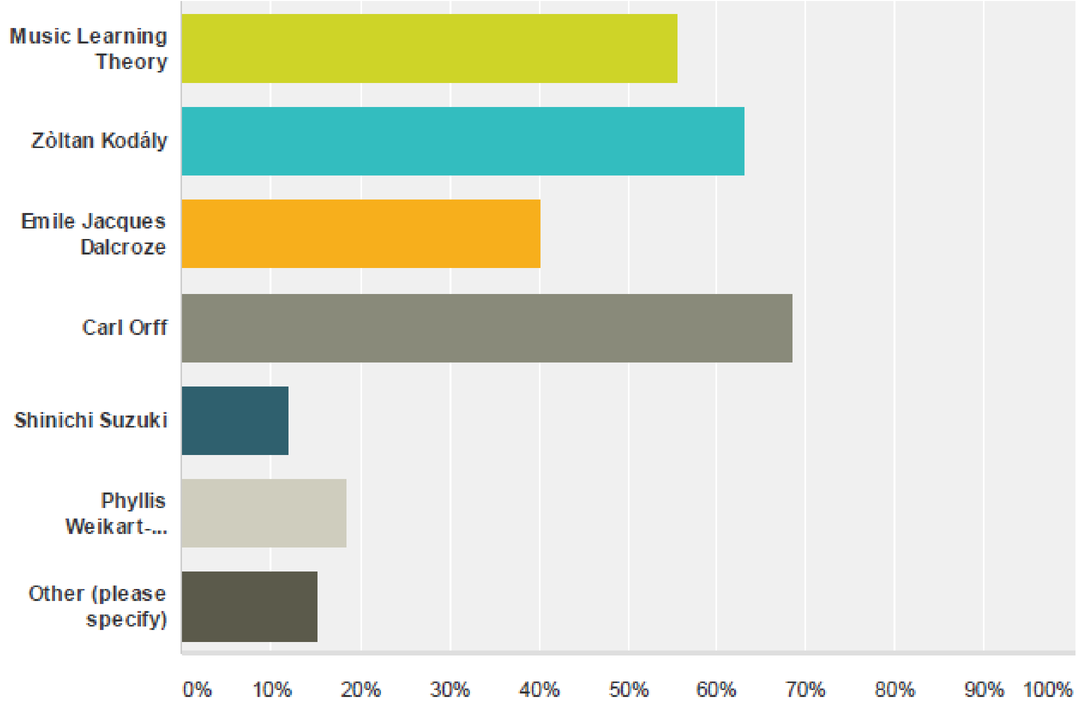


13) **In your undergraduate and, when applicable, graduate course work, which best describes the learning experience in your major music education method courses?**



Answer Choices	Responses	
Aural	**26.09%**	24
Visual	**6.52%**	6
Kinesthetic	**3.26%**	3
Multimodal	**64.13%**	59
Total		92

14) Indicate whether you have had professional training in any of these methods by checking the corresponding boxes.



Answer Choices	Responses	
Music Learning Theory	55.43%	51
Zòltan Kodály	63.04%	58
Emile Jacques Dalcroze	40.22%	37
Carl Orff	68.48%	63
Shinichi Suzuki	11.96%	11
Phyllis Weikart- Education Through Movement	18.48%	17
Other (please specify) Responses	15.22%	14

PART III: Answer using Always, Very Often, Sometimes, Rarely, or Never.

15) When I plan a lesson, I take into account the use of aural presentation (vocal explanation, discussion, questions) during the lesson.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Always	72	56.7	56.7	56.7
	Sometimes	10	7.9	7.9	64.6
	Very Often	45	35.4	35.4	100.0
	Total	127	100.0	100.0	

16) When I plan a lesson, I take into account the use of visual presentation (posters, images, cartoons, diagrams) during the lesson.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Always	72	56.7	56.7	56.7
	Sometimes	7	5.5	5.5	62.2
	Very Often	48	37.8	37.8	100.0
	Total	127	100.0	100.0	

17) When I plan a lesson, I take into account the use of movement (Curwen hand signs, hand levels, moving to the beat) during the lesson.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Always	45	35.4	35.4	35.4
	Never	1	.8	.8	36.2
	Rarely	7	5.5	5.5	41.7
	Sometimes	19	15.0	15.0	56.7
	Very Often	55	43.3	43.3	100.0
	Total	127	100.0	100.0	

18) When I plan a lesson, I take into account the combinations of aural presentations, visual presentations, and movement during the lesson.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Always	50	39.4	39.4	39.4
	Rarely	6	4.7	4.7	44.1
	Sometimes	11	8.7	8.7	52.8
	Very Often	60	47.2	47.2	100.0
	Total	127	100.0	100.0	

19) When I teach a lesson, I use aural presentation (vocal explanation, discussion, questions).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Always	72	56.7	56.7	56.7
	Sometimes	7	5.5	5.5	62.2
	Very Often	48	37.8	37.8	100.0
	Total	127	100.0	100.0	

20) When I teach a lesson, I use visual presentation (posters, images, cartoons, diagrams).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Always	40	31.5	31.5	31.5
	Rarely	2	1.6	1.6	33.1
	Sometimes	17	13.4	13.4	46.5
	Very Often	68	53.5	53.5	100.0
	Total	127	100.0	100.0	

21) When I teach a lesson, I use movement (dance, stepping swaying, clapping, Curwen hand signs, hand levels, moving to the beat, etc).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Always	30	23.6	23.6	23.6
	Rarely	5	3.9	3.9	27.6
	Sometimes	30	23.6	23.6	51.2
	Very Often	62	48.8	48.8	100.0
	Total	127	100.0	100.0	

22) When I teach a lesson, I use a combination of aural presentation, posters, and movement.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Always	30	23.6	23.6	23.6
	Rarely	5	3.9	3.9	27.6
	Sometimes	21	16.5	16.5	44.1
	Very Often	71	55.9	55.9	100.0
	Total	127	100.0	100.0	

23) When I assess student achievement and understanding, I use aural methods (signing, chanting, asking questions about the music that students heard).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Always	26	20.5	20.5	20.5
	Sometimes	25	19.7	19.7	40.2
	Very Often	76	59.8	59.8	100.0
	Total	127	100.0	100.0	

24) When I assess student achievement and understanding, I use visual methods (notate the pitch patterns, notate the rhythm patterns, or draw the melody motions).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Always	11	8.7	8.7	8.7
	Rarely	10	7.9	7.9	16.5
	Sometimes	47	37.0	37.0	53.5
	Very Often	59	46.5	46.5	100.0
	Total	127	100.0	100.0	

25) When I assess student achievement and understanding, I use kinesthetic methods (walk the song pulse, pat or clap the rhythms, or locomotor movements (gallop- skip- run)).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Always	14	11.0	11.0	11.0
	Never	2	1.6	1.6	12.6
	Rarely	17	13.4	13.4	26.0
	Sometimes	34	26.8	26.8	52.8
	Very Often	60	47.2	47.2	100.0
	Total	127	100.0	100.0	

26) When I assess student achievement and understanding, I use simultaneous or serial combinations of aural, visual, and kinesthetic methods.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Always	16	12.6	12.6	12.6
	Rarely	14	11.0	11.0	23.6
	Sometimes	33	26.0	26.0	49.6
	Very Often	64	50.4	50.4	100.0
	Total	127	100.0	100.0	

27) I believe that multimodal pedagogy plays an important role in teaching music.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	41	32.3	32.3	32.3
	Neither Agree nor Disagree	5	3.9	3.9	36.2
	Strongly Agree	81	63.8	63.8	100.0
	Total	127	100.0	100.0	

28) I believe that using a combination of modalities while planning a lesson helps me to think about how my student's best learn.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	4	3.1	3.1	3.1
	4	51	40.2	40.2	43.3
	5	72	56.7	56.7	100.0
	Total	127	100.0	100.0	

29) I feel comfortable when I use a combination of modalities while teaching.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	2	1.6	1.6	1.6
	3	8	6.3	6.3	7.9
	4	51	40.2	40.2	48.0
	5	66	52.0	52.0	100.0
	Total	127	100.0	100.0	

30) I feel that using a combination of modalities while teaching is a challenge for me.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	6	4.7	4.7	4.7
	2	15	11.8	11.8	16.5
	3	26	20.5	20.5	37.0
	4	65	51.2	51.2	88.2
	5	15	11.8	11.8	100.0
	Total	127	100.0	100.0	

31) I feel that assessing students using a combination of different modalities is a challenge for me.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	4	3.1	3.1	3.1
	2	30	23.6	23.6	26.8
	3	33	26.0	26.0	52.8
	4	52	40.9	40.9	93.7
	5	8	6.3	6.3	100.0
	Total	127	100.0	100.0	

32) I believe that using a combination of modalities will accommodate all students with different learning styles.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	2	1.6	1.6	1.6
	3	11	8.7	8.7	10.2
	4	51	40.2	40.2	50.4
	5	63	49.6	49.6	100.0
	Total	127	100.0	100.0	

33) I believe that using aural presentation will accommodate all students with different learning styles.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	8	6.3	6.3	6.3
	2	28	22.0	22.0	28.3
	3	23	18.1	18.1	46.5
	4	59	46.5	46.5	92.9
	5	9	7.1	7.1	100.0
	Total	127	100.0	100.0	

34) I believe that using visual mode will accommodate all students with different learning styles.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	8	6.3	6.3	6.3
	2	27	21.3	21.3	27.6
	3	24	18.9	18.9	46.5
	4	59	46.5	46.5	92.9
	5	9	7.1	7.1	100.0
	Total	127	100.0	100.0	

35) **I believe that using kinesthetic mode will accommodate all students with different learning styles.**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	8	6.3	6.3	6.3
	2	29	22.8	22.8	29.1
	3	24	18.9	18.9	48.0
	4	58	45.7	45.7	93.7
	5	8	6.3	6.3	100.0
	Total	127	100.0	100.0	

36) I believe that students learn best when through combination of modalities.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	8	6.3	6.3	6.3
	4	53	41.7	41.7	48.0
	5	66	52.0	52.0	100.0
	Total	127	100.0	100.0	

37) I believe that teaching using multimodal pedagogy is a fad and using an individual modality (Aural, Visual, and Kinesthetic) is the best approach for teaching my students.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1	.8	.8	.8
	2	9	7.1	7.1	7.9
	3	11	8.7	8.7	16.5
	4	44	34.6	34.6	51.2
	5	62	48.8	48.8	100.0
	Total	127	100.0	100.0	

38) I believe that considering combining modalities (Aural, Visual, and Kinesthetic) while planning a lesson would be a waste of time and will not improve individual students' learning.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	4	3.1	3.1	3.1
	3	5	3.9	3.9	7.1
	4	53	41.7	41.7	48.8
	5	65	51.2	51.2	100.0
	Total	127	100.0	100.0	

39) I feel awkward when I use a combination of modalities while teaching.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	6	4.7	4.7	4.7
	3	12	9.4	9.4	14.2
	4	63	49.6	49.6	63.8
	5	46	36.2	36.2	100.0
	Total	127	100.0	100.0	

40) If you feel that you incorporate multimodal pedagogy in your teaching, discuss how you use it and how it benefits your students?

My classroom is a combination of modalities because I have a keyboard lab and it's a hands-on environment. I use Aural and Visual to instruct and review concepts and the student learning is multimodal - Visual to identify pitch & rhythm notation and Kinesthetic - to practice and perform on the key boards.
While I may begin with an aural/oral presentation of material, I will almost always incorporate movement (to the beat, or expressive, continuous flow) in songs, chants, rhymes, even pattern instruction. I teach a music literacy curriculum, so the instruction progresses eventually to visual presentation. I do also use Curwen hand symbols with tonal pattern instruction. While students may not receive visual notation immediately, I do believe that when it is introduced it reinforces previous aural learning, and may help things "click" for visual learners who may have struggled with the aural/oral steps in a unit.
In my K-2 classes, movement is essential to the success of the lesson. The students enjoy the dances, movement, games that we play to reinforce steady beat, rhythmic elements, and melodic expression. The older students (grades 3-5) enjoy movement, but I incorporate it less than in the lower grades.
Music concepts are practiced/learned through body percussion, visuals drawn on board, call/response, game playing, and student choice. This stimulates all students to find their way to understanding the concept and opens students' minds to seeing a concept in a different way.
Music is not a strictly aural, visual, or kinesthetic art. In its very nature, all of the elements are combined. Logic leads to a pedagogy that allows students to hear, feel, and see the music. This allows students to experience music in many ways.
Multimodal pedagogy ensures students are engaged with all learning tasks. Through this method students see, hear and experience musical concepts. A mutlimodal pedagogy combined with the use of creativity and composition in the classroom ensures students have an opportunity to experience and demonstrate their learning.
Some react to understanding rhythm through dance or use of arms- kinestethic matters, others react to visual or only aural- but when students have combinations of these- they are much more connected to making ART with music- because it is all sensory.
I always consider how to utilize each method and while every lesson may not be presented each way, I do utilize all three approaches the majority of the time. This is

probably the main thing that I focus on while lesson planning to make sure that I am including all learners.
Use of smart-board materials, movement games, dances, playing instruments
Research on how the brain learns supports the use of multimodal pedagogy in all subjects. It is easy and fun to include it in music classes.
I like to get my students up and moving, and often incorporate Dalcroze methods and Orff movement activities into lessons that also are based in Kodaly methodology (procedure, singing, hand signs)
I often incorporate multimodal pedagogy because I believe it fits in with the universal design concept. Good teaching practices are good teaching practices for any subject. Part of that includes consistently and constantly hitting the different modes of student learning. Some students learn better aurally, visually, or kinesthetically. It would be unwise to just pick one to focus on. If you use all three, all students in the class will have the opportunity to learn the material in the best way for them.
When students learn new songs, I often sing or play the song for them (aural). As they are listening to the song, I usually have a presentation on the SMART Board that contains lyrics and pictures to help them learn the song better. Many songs have actions or movement games that go along with the words, too. I teach musical concepts the same way. There is usually some aural component to the concept (ex.- a song that shows Rondo form), a visual component (ex.- shapes that correctly show Rondo form along with music notating the themes of each different section), and a movement component as well (ex.- "Give me something simple that we could do with our bodies to show the A, B, and C sections of a Rondo").
Students practice and prepare every concept visually, aurally and physically.
Differentiated Instruction, Multiple Intelligence - because music is an aural art form, that component be there first and foremost. I supplement those experiences with visual and often kinesthetic experiences. For example: demonstrating the onset of a project is done both visually and aurally, rhythm patterns are read and counted while moving to a beat, tonic, dominant and SD tonal patterns are learned aurally and sung while looking at a Venn diagram, music listening and history lessons are done with a keynote presentation.
I use a visual, aural and physical example in each lesson because kids learn differently.

I use multimodal pedagogy in every one of my lessons. It covers most students' learning styles, and ensures that students experience singing, movement, and problem-solving in every music class.
I believe that a combination of modalities helps to reach students at whichever their strength.
Mainly, saying and fingering notes and rhythms for instrumentalists. Having kids say what they are doing helps me assess if they know what they are doing. A lot kids can do things well, but they don’t understand WHAT they are doing, so it can be applied elsewhere.
As an elementary music teacher, I use movement activities, singing, playing instruments, and listening every class period. It's not just that students enjoy different activities, but because their understanding of musical concepts are demonstrated through the different actions they perform. I use music books with the older students for many songs so they have the opportunity to read and follow along when we listen to and learn new music. With the younger students, I have large poster books to illustrate the concepts I am teaching. In all my classes, we walk the beat, or do patterned dances to reinforce steady beat skills, and understanding of rhythm, dynamics, and tempo. My students enjoy the different activities they perform each class period, and sometimes don't even realize that they are learning!
By having visual, aural and kinesthetic teaching, all students should be able to learn. I have videos, teaching cards, listening lessons, hands on playing of rhythm and melodic instruments to teach all degrees of students.
Know the individual student, their learning challenges (IEP, 504, etc.) and their learning styles and plan lessons accordingly.
I feel that it benefits my students in that it allows students to experience the concepts and skills that are being practiced in a number of ways, allowing for stronger connections to be made for recalling the information later.
My general music classes have a wide spectrum of abilities, as well as students with different learning styles. Incorporating a multimodal approach to instruction and student activity enables me to reach every student regardless of their individual learning style. More significantly, for most of the students, receiving input through several modalities helps to generalize and reinforce the concept for each individual student.
Many current music curriculums focus on reading and writing music. When some students struggle to read words even when they have reading class daily, it is

unrealistic to believe that all students can learn to read music when they have music class but once a week. Planning for different modalities gives students the opportunity to be musical, even if they struggle to read music.
I use it especially in relationship to the rhythm unit, during which we march or dance to particular meters and conduct using beat patterns, preparatory beats, cues, and cutoffs.
All students learn differently. In coming to music they need to be presented with a different structure that still honors academic growth. Movement, Singing, listening, repetition (ostinato) and creating are all applications of their understanding of music and can help them apply their other subjects as well.
It helps keep them engaged and helps illuminate content that might otherwise be misunderstood by some students.
I am always trying to teach content through a variety of activites, using different modes. The most challenging to incorporate is kinesthetic, especially as the students get older. With the younger ones I use lots of movement. Students benefit because they experience the content in a variety of ways. At least one mode should tap into their particular strength. Most kids find them all helpful.
I always take into consideration how much time I spend on any one area of the lesson. I find the students, especially the younger they are, benefit from varied activities, such as singing and/or playing while moving and/or being stationary. Using a variety of techniques also helps the students learn and understand the content.
During each lesson I have the students explore the concept through movement, visualization, and discussion.
In order to address the various learning styles of my diverse student population, I constantly employ written, oral, aural, kinesthetic, and visual stimulation
Seeing, hearing and doing. Do all three, and it's success for me! (Me being the learner, of course!
Bottom line: Different students learn differently
I teach Kindergarten. First I usually introduce a song with the pure rote process (aural). I usually add a picture to go with some of the movements (visual), and finally I introduce the song using body movements to help with pitches (Kinesthetic)
My students perform Music - EVERY day...making Music is multi-modal whether you call it that or not. It benefits them because they are using so much of their whole brain

to learn. Learning and performing Music benefits the whole child on so many levels!! :)
When teaching guitar chords students need to see the fingering on the guitar and on chord charts and then work on strumming to the actual chord to see how it sounds and achieve the right tonality.
An example of multimodal pedagogy to teach musical FORM would be: Introducing a song while students read the music and words from a score; discussing where sections occurred aurally and how each section was the SAME or DIFFERENT; using specific dance movements for each section; putting it all together and labeling sections with letters to show patterns in the music (showing visually through letter/shape patterns). I believe that using multimodality helps all students to comprehend and allows each student's strengths to be heightened and their weaknesses to get stronger. You can see the "lightbulb" go on at different times during the lesson for different students. It's very exciting!
I believe that learning to do music and about music is more effective if students can experience it and understand it through a variety of learning styles. Plus being active and using audio/visual comes naturally for most children.
General music - clapping patterns, chanting using MLT, drum sticks, visual projections of any worksheets, listening to examples and famous recordings, etc. I teach in a highly diverse and inclusive classroom with students of varying ages and abilities. If I didn't use multiple methods of instruction and assessment I would not be able to secure musical results for my students.
All of the ways listed in your questions, one example being listen to this melody, then discuss what was heard. Here is how we notate that (and why) and then display. Move to melodic contour and discuss how the movement matches the sound and the visual.
Some students understand new notes and rhythm patterns as soon as you describe them. Others will understand better once they've heard and seen the notes and patterns. Almost all will understand once they have heard, seen and performed the patterns in some way.
The various methods reinforce one another and allow major students to acheive success instead of just the ones that use one learning style
Besides the benefits to students of different learning styles, a teacher's use of mult-modal instruction is even more important when teaching students with special needs.

Multimodal ped. engages students, reaches a multitude of learners and creates an exciting atmosphere in the music classroom. Wouldn't do without it.
Students move their bodies to melodies and rhythms, see them written and hear them. I believe this reaches all of the students on different levels and helps them understand the content of the lesson.
Multimodal pedagogy allows me to informally assess each student by giving them opportunities to show me what they know in a way that they feel comfortable.
I teach every student in the school. Sometimes I may have 15 students in a class with an IEP or other learning issue. Teaching and assessing in a variety of ways and differentiating my instruction helps me meet the needs of all students. Not all students are musically gifted/talented or capable. I can find different ways to present information as well as helping students meet goals.