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Running head: MUSIC ON MOOD IN THE CLASSROOM

Background Music in the Classroom:
How Does It Affect Student Mood and Learning?

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Abstract

This paper explores numerous articles discussing the various uses of background music in many different contexts from the classroom, to the shopping mall, to athletic events. The articles offer numerous findings on the subconscious effects of background music on behavior. This study seeks to further research on background music used in educational settings. Using questionnaires and observations during multiple instances of background music, information was gathered on what types of music might be best for use in a classroom. As was supported by previous research, slower, quieter music is preferable to faster, louder music if maximizing student focus and classroom productivity are the key goals.

Keywords: background music, mood management/regulation, the Mozart Effect

“Music is a more potent instrument than any other for education and children should be taught music before anything else.” –Plato

INTRODUCTION:

Though research on the subject has been less than definitive, results show that exposure to music, whether music instruction or simply music listening, might have cognitive and/or academic benefits. One study that has gained prominence, and also given birth to what has been termed the Mozart Effect, resulted in participants scoring higher on tests of spatial ability after listening to the music of Mozart. This led to the belief that simply listening to music could increase cognition. Some subsequent studies have succeeded at reproducing the results, while others have not. More recently, the theory of the Mozart Effect has been reworked to suggest that music listening can have specific effects upon the listener’s mood and state of mind, not cognition. Consequently, an altered state of mind is more likely the explanation for the Mozart Effect.

Research on background music may be new to the field of education, but has long been a subject of research in the marketing field. From retail shopping to television advertising to dining experiences, marketing research has long sought to understand the role background music can play in creating mood and consequently affecting consumers’ habits. Such research might provide clues as to how music can be helpful in a school setting.

Bearing in mind the upsurge of AD/HD-type labels for students in recent years, coupled with seemingly dwindling attention spans due to the influx of technological gadgets within the past 10 years, the job of being a teacher has become increasingly difficult. Being able to maintain the students’ attention is imperative. In my own experience in public schools, students frequently demonstrate an inability to concentrate for a productive duration of time, a desire to find pleasure now that results in procrastination, and a general lack of interest in school-related topics. Using the

Mozart Effect as a starting point, I seek to discover whether it is possible to affect students' awareness, enthusiasm, mood, and other affective domains through the use of classroom background music. From this starting point other questions arise. If there is a measurable effect, what kind of music works best? What is the best way to implement the use of music? What are the drawbacks? How do students feel about it?

Using recent research on the topic coupled with my own research, I intend to find out whether music can affect a positive influence in the classroom.

REVIEW OF RELEVANT LITERATURE:

There have been numerous studies pertaining to the affective and psychological effects music can have on humans. The studies illuminate music's potential to affect creativity and cognitive capacities by altering persons' moods. Though not all studies pertain specifically to the educational field, their implications can sometimes be superimposed onto the classroom environment. With such a wealth of knowledge concerning the effects of music on the human psyche, it is imperative that we explore its uses in schools.

Husain, Thompson, and Schellenberg (2002) and Schellenberg et al. (2007) employ the *arousal-mood hypothesis*, whereas "mood refers to an emotion, specifically one that lasts for an ample amount of time, and arousal typically refers to the intensity of the emotion" (p. 153). "According to the arousal-mood hypothesis, listening to music affects arousal and mood, which then influence performance on various cognitive skills" (p. 153). The results of Husain et al.'s study indicate that music played in major keys at a faster tempo improves scores on tests of spatial reasoning, as opposed to music played in minor keys at a slower tempo (p. 159). Indeed, this is what is referred to as the Mozart Effect. In a related study, Gomez and Danuser (2004) note the relationship between tempo and arousal, finding that faster tempo results in higher levels of arousal and more positive emotions (pp. 100-101). A study by Cassity et al. (2007) suggests that participants scored higher on a video game while listening to music of their own choice, which supports the notion that the Mozart Effect is caused by heightened arousal and not any kind of specific music.

Gavin (2006) found that the context, the volume, and the style of background music can all have a negative effect on the listener's mood (pp. 560-561). Louder volume usually elicits a negative response from the listener, whereas style can affect the listener positively or negatively,

depending upon whether the listener likes a given style or not. Gavin writes that in retail settings, “A very close link is indicated between the music, the product, and the desire to buy it” (p. 561).

Chebat, Chebat, and Vaillant (2001) list two theories about music and its cognitive effects: (1) music creates mood, with mood being “a moderating variable of the memory process,” and (2) “the most important characteristic of music is its ability to attract attention onto itself” (p. 116). According to the former theory, music evokes memories and sets of emotions that we associate with those memories—nostalgia. The authors also note the importance of music fit or the appropriateness of a given song for a given setting. They argue that “Music fit is certainly as important a research area in atmospherics as music pleasure or as music arousal” (p. 122). Thus, choosing the right music for the right scenario might be tricky.

The field of retail marketing has conducted extensive research on background music. Bruner (1990) sought to “examine the behavioral effects of music, with special emphasis on music’s emotional expressionism and role as a mood influencer” (p. 94). Bruner found that music written in the major mode and music with faster tempos evokes happier moods in the listener, but found that “sad music produced the highest purchase intentions” (98). Bruner explains that the study indicates slow music seems to slow in-store traffic, which consequently increases sales. Bruner cautions that music might not have an effect in every retail setting: “Music is likely to have its greatest effect when consumers have high affective and/or low cognitive involvement with the product... Music would tend to have less effect when consumers experience high cognitive involvement, such as when buying cars, appliances, PCs, cameras, and insurance” (p. 101). Other studies indicate that consumers’ rating of their shopping experience highly depends on atmospherics such as background music (Dubé and Morin, 2001; Kellaris et al., 1993; Cassidy and MacDonald, 2007).

Caldwell and Hibbert (2002) contend that research has consistently hinted that highly arousing music (e.g., faster tempo, loud, unpredictable) causes individuals to move faster and

complete activities more quickly (p. 898). In their study, they noted that individuals in a restaurant setting spend more money when slow music is being played (p. 912). The study also found that the degree to which the music is liked by the patrons has a large influence on spending (p. 912). In a related study, Eroglu, Machleit, and Chabet (2005) found that shoppers are happiest in scenarios when slow music is being played and there is low shopper density, or when fast music is being played and there is high density (p. 585). “The findings indicate that at least one quality of music, tempo, together with shopper density, can affect shoppers’ cognitive and behavioral responses to the retail environment” (p. 586).

Herrington and Capella (1996) conducted research on the effects of music in a grocery store. One of their main findings is that “In certain shopping situations the atmosphere may be more influential than the product itself in the purchase decision” (p. 27). While this study failed to draw a connection between spending and the volume or tempo of the background music, it did find that shoppers’ preference for background music affected shopping time and spending (pp. 35-36). The greater the preference, the more time and money spent shopping. This highlights the fact that, if music is intended to create a specific effect, knowing what type of music to play in any given setting is crucial. Yalch and Spangenberg (2000) found that music can affect real and perceived shopping time. Their study found that shoppers incorrectly perceived time to pass more quickly when listening to familiar music, and actually spent more time shopping when listening to unfamiliar music (p. 146). Yalch and Spangenberg also found that arousal negatively affected product evaluations (p. 145), indicating softer, slower music should be played in such settings.

Studies suggest that music is frequently used in personal settings as a tool to trigger an emotional reaction. Wells and Hakanen (1991) report that adolescents listen to music for the sake of mood and/or emotion management. “Mood management theory eloquently addresses the psychological choices of music for the regulation and management of emotional states” (p. 448).

Despite slight differences between the sexes, both male and female adolescents frequently use music for this purpose (p. 454). Saarikallio and Erkkilä (2007) discuss the same idea, though they refer to it as *mood regulation*, and declare this to be “among the most important reasons for music consumption” (p. 90). However, Saarikallio and Erkkilä note that in order for adolescents’ emotional needs to be satisfied by music, the act of listening had to be voluntary and the music had to satisfy the needs of the individual’s current mood state and energy level (pp. 93-94). This finding is discouraging for researchers hoping to find uses for music in a classroom, where music listening might not be completely voluntary and may not meet the emotional needs of all students at any given time. Findings in this article suggest that adolescents have a good sense of what kind of music they need to achieve mood regulation.

Adaman and Blaney (1995) studied musical mood’s effect on creativity, finding that both depressing and elated music were helpful in creating a psychological setting in participants’ minds for creativity. They note that “the intensity of emotions experienced during the creative process” might be one explanation for the results; each “may mediate increased creativity, but for different reasons” (p. 105). Elation may “increase motivation, persistence, and risk-taking behavior. In contrast, depression may encourage creativity as a means of mood repair” (p. 106). DiEdwardo (2005) approaches the topic from a similar angle by arguing that using music in the classroom can improve writing skills by stimulating the more creative right side of the brain.

Hui, Dube, and Chebat (1997) found that music “may ameliorate service evaluation” (p. 101) in instances where costumers have to wait for a service, although it did not reduce perceived wait time. Thus, it seems that the duration of time spent waiting is less important than the “emotional response to the wait” (p. 101), and consequently music can play an emotional role in customer satisfaction when waiting is an unavoidable necessity.

In a 2001 article, Scherer and Zentner discuss the emotional effects of music, at one point going so far as to create a specific formula to describe the listener's experienced emotion. According to the authors, the listener's experienced emotion is the product of structural features, performance features, listener features, and contextual features (p. 365). They also provide three manners in which music generates emotion, including (1) the appraisal process (includes external standards such as cultural norms and values coupled with internal standards such as personal values), (2) memory/recall, and (3) empathy (pp. 368-369). Another useful observation provided by Scherer and Zentner is that music has historically been created to affect specific behaviors in the listener: e.g., lullaby to put children to sleep, marches to maintain troop morale during battle, and waltzes to dance (p. 377). Finally, in a study on music in the workplace, Lesiuk (2005) found that listening to music increased positive feelings among workers, which in turn increased performance.

Kellaris, Cox, and Cox (1993) note that background music in advertising is affected by two music properties: "attention-gaining value and music-message congruency" (p. 114). Is it possible that music in a classroom setting is most effective when the song is related to the topic or subject of the class? Hahn and Hwang (1999) conducted a related study, finding that faster background music in television advertising made it more difficult to process the message of the advertisement. They write that "familiarity of a product affects a consumer in processing the product information. Similarly, familiarity of music is likely to affect processing of the music as well as advertising messages" (p. 660). They claim that music played at 90 beat per minute (BPM) is an optimal level for message recall (p. 669).

It is common practice for many athletes, from high school to the elite ranks of professional sports, to use music "as a preperformance strategy" (Bishop et al., 2007, p. 584). Conducting a study on the topic, Bishop et al. found that "participants consciously selected music to elicit various emotional states; frequently reported consequences of music listening included improved mood,

increased arousal, and visual and auditory imagery” (p. 584). The authors also noted that many listen to music during physical activity in order to reduce perceived physical exertion (p. 585). If music is effective in mediating the effects of physical exertion, what are its possible uses for mediating mental exertion?

Some studies have been performed to measure the potential benefits of music in a school setting. Giles (1991) notes the positive effect of calming background music in schools. She writes:

The most effective music for children is that which they like, but which does not overly excite them through jarring rhythms and loud dynamics. A good choice would be the moderately slow and soft music from the classical Baroque Period of 1600 to 1750, which includes Bach and Vivaldi...The music most universally appealing to children, however, are songs from Disney films. The songs can relax or stimulate, and nearly all have positive messages for children. (p. 44)

This confirms many of the other studies’ suggestion that soft, calming music and/or music with which the listener is familiar are best for background use. Giles contends that background music has a myriad of benefits, including helping students to relax, building their self-esteem, and helping them navigate difficult emotional problems (p. 43). Chalmers, Olson, and Zurkowski (1999) highlight biological findings that suggest our bodies are “rhythmic entities,” noting that our breathing, digestion, nervous system, brain, and even our individual cells appear to have rhythmicity. The authors write that our heart rate may align itself to the beat of music being played, and consequently “music played at 60 beats per minute (SB/M) has been shown to produce a state of relaxation in both children and adults” (p. 44). The authors chose to use a school lunch room as an area to research whether background music can decrease noise. The results of the study show that classical background music reduced noise 7%, while popular music reduced noise 12% (p. 44). Additionally, behavioral problems were greatly reduced from one per minute to one every three

minutes (p. 44). The authors provide suggestions for how to use music in the context of schools, including, among others, making sure the music is calming and enjoyable for students and also playing music consistently, both throughout the school day and throughout the school year (p. 45). Jackson and Joyce (2003) argue that music has a role to play in managing the classroom. They suggest that background music can improve the behavior of students by creating a more interesting learning environment and reducing stress (p. 6).

Towell (1999/2000) writes that music can play an important role in children learning good reading habits, as it might encourage children to become *engaged* with the text they are reading (p. 284). Music can have an obvious and immediate impact on the behavior of children, especially young children, as it can be calming or energizing, depending upon the activity or need of the teacher (pp. 285-286).

Using fifth-graders as subjects, Davidson and Powell (1986) found that “easy-listening” background music was effective in keeping children on task. The effect was especially significant in male students. The authors conclude: “it would seem that providing easy-listening background music in the classroom would be a plausible, yet inexpensive technique for increasing the amount of time in which students are actively engaged in learning” (p. 32). Cassidy and MacDonald (2007) also discuss the effects of background noise on task performance. Their study found both background noise and music to be detrimental to task performance. High arousal music (louder, faster beat) was significantly more detrimental than low arousal music (p. 530). Additionally, the “study has also highlighted the importance of the listeners’ individual differences, e.g. personality and preferences, on response” (p. 533). Ohlaver (1998) contends that “inherited differences in nervous system functioning require that extroverted individuals learn in a stimulating environment, while introverted persons prefer a quiet, calm environment with few distractions” (p. 32). Ohlaver concludes that “The music center of the brain, it seems, lies close to both the language center and

the spatial center and therefore has the capacity to train the brain for higher forms of thinking” (p. 32).

As Hallam, Price, and Katsarou (2002) put it, “There is strong evidence from a variety of sources that people respond differently to stimulative and sedative music. In the modern Western world, where music is readily available to everyone through radio, recordings, TV and videos and where recorded background music is routinely played in many public places, the need to understand the effects of music on our behavior and cognitive processing has become increasingly important” (p. 111). The authors conducted a study in which they measured the effects of calming music against aggressive/arousing music on primary school students. The findings suggest that calming music led students to complete more work and even demonstrate pro-social behavior, while aggressive music had the opposite effect (p. 119). Hallam et al. are unique to note “The findings may have even greater importance for the child’s life outside school. Parents need to be aware of the effects that music can have on behavior, particularly where they might be negative” (p. 120). Hallam and Price (1998) studied the effects of calming background music on children with emotional and behavioral problems. The results show that music had a positive effect across the board, though it was manifested in different ways. With hyperactive students, background music improved academic performance, while children known to have “deep-seated emotional problems” were more likely to be less hostile and more helpful towards peers after being exposed to calming music (p. 90).

James (2004) provides some unscientific observations about background music in a college course. He suggests using music to open and close class, providing a casual and comfortable environment for students as they enter and leave (p. 311). One of his more interesting observations is that background music during group work lessens the interference between groups as they talk, which increases group dialogue: “Like all teachers, I have always dreaded the awkward, mind-

numbing silence that echoes through a class after I have put students into groups and provided a discussion assignment. Any student who talks speaks to the entire class” (p. 312). He notes the energy with which students respond to music by “singing, dancing, tapping their feet, talking to each other” (p. 312).

The purpose of the following study is to further previous research pertaining to the use of background music in the educational setting. Similar to previous studies, it aims to establish a link between background music and student behavior in the classroom. Apart from previous research, this study seeks to measure what genres of music are best suited for classroom use. It will also examine any difference between students’ perceived effects of music and the effects observed by the teacher.

RESEARCH METHOD

Research Questions

The purpose of this study is to measure the possible effects background music might have on student behavior and performance. The study seeks to answer the following questions:

- Does background music have an effect in a secondary school classroom? How is this effect manifested?
- What effect does music have on task performance?
- What kind of music has the most positive academic/mood enhancing effect?
- What are the students’ opinions of background music? Can they perceive an effect?
- What activities or times of class are best suited for the constructive use of background music?

Participants

Participants include 7th graders from one middle school and 8th graders from another middle school in Southeast Ohio, USA. All data from the 7th graders was collected during the 2009-2010 academic year in a class composed of at-risk students who may not score proficient on the Ohio Academic Assessment. Data collected from 8th graders was taken during the 2008-2009 academic year. The 8th grade students consisted of Talented and Gifted, Honors, and Regular English students who were split into six different class periods throughout the day and were invited to participate. All six of the 8th grade classes completed a Music Preference Questionnaire, but only two participated in actually listening to background music and completing a Background Music Questionnaire.

Instrumentation

The study consisted of two separate questionnaires: one introductory Music Preference Questionnaire given to each participant once, and another Background Music Questionnaire given to each student after background music was played each instance. Both can be seen in the Appendix.

The Music Preference Questionnaire is intended to gain a general understanding of what kinds of music the students listen to, when they typically listen to music, and why they listen to music (or what effect they hope the music will have on them). Assembling an understanding of how students use music during their time away from school might provide insight into how best to utilize music in schools.

The Background Music Questionnaire asks direct questions about whether the students liked the style of music being played and how the students perceived the music to affect their classroom behavior.

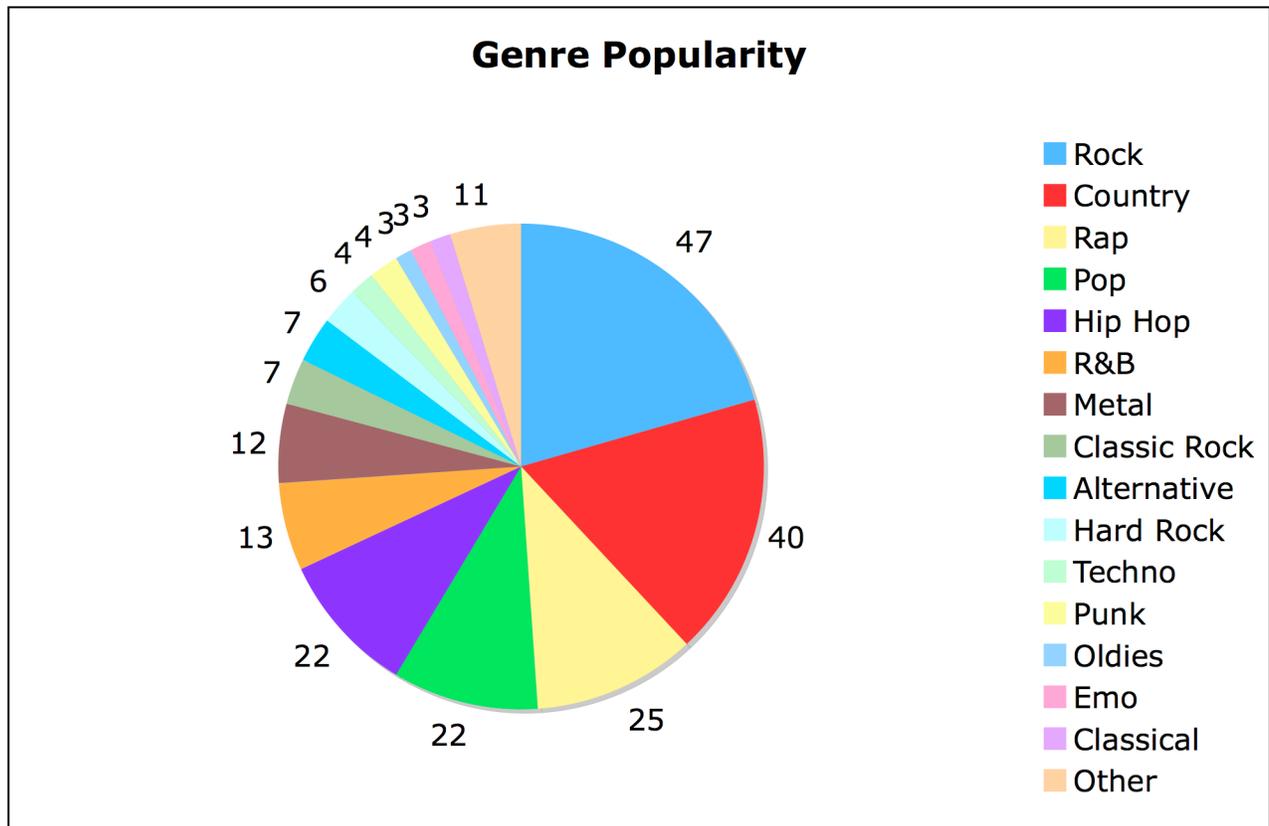
The researcher of this study was also the teacher of both groups of students during the time that data was collected. The researcher observed the class behavior during instances in which background music was played.

Procedures

Each data collection began with the researcher starting the class with music, which would play from roughly 25-40 minutes through class. Different genres of music were played, but only one genre was played on a given day. Classes concluded with students filling out Music Preference Questionnaires. The majority of the 8th grade students who participated during the 2008-2009 academic year completed a Music Preference Questionnaire but did not get to participate in completing a Background Music Questionnaire due to time constraints at the end of the school year. Instead, some classes repeated the Background Music Questionnaire on multiple occasions, while other classes only contributed data to the Music Preference Questionnaire.

RESULTS: MUSIC PREFERENCE QUESTIONNAIRE

A total of 113 students completed a Music Preference Questionnaire. Responses were as diverse as might be expected from an age group that is beginning to discover music as an integral part of their social and personal lives. In sum, 22 genres were listed by participants. The chart below shows the frequency with which each genre was listed.



Listed below are some of the more insightful responses provided by students as to why they listen to music. What's interesting is that each response pertains in some way to using music as a way to regulate mood.

Calming Effect

- "Calming; makes you think"
- "It gets my mind off of what im (sic) thinking about"

- “sometimes puts me to sleep”

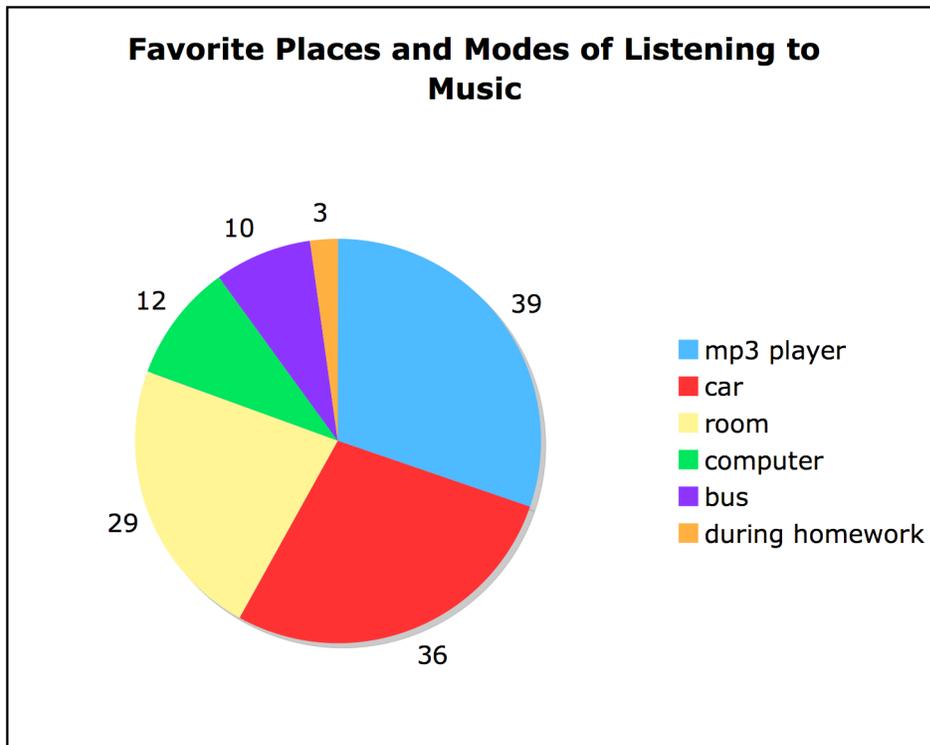
Music as an Energizing Force

- “energizes me and makes the world go round!”
- “I like how it energizes you, and I was raised on 80’s (sic) style music.”
- “It gets me pumped.”
- “This kind of music is awesome because it reminds me of the good times I have had. It also energizes me to do things.”
- “...like to dance around to it...”
- “It makes me feel good and its (sic) cool.”
- “Jazz energizes me and relaxes my nerves.”

“Different mood. Different music.”

- “sometimes you can relate to what their (sic) singing about.”
- “I just always feel like I’m learning more about the person. I like it because it’s happy and sad.”
- “There’s music for every occasion—dance/party music when I’m in a good mood, sad & depressing when I’m upset, something with a fast beat and screeching lyrics when I’m angry.”
- “I listen to different types of music depending on my mood.”
- “Different mood. Different music.”
- “It’s just my personality on the inside. So, whatever music I listen to, that’s usually how I’m feeling at that time. It helps me express myself.”
- “It is motivating and powerfull (sic)”

Students' responses regarding when/where/how they typically listen to music varied as well, yet most students admitted to listening to music at every chance. Listening to music with an mp3 player was, not surprisingly, the most popular answer. The six most popular answers to question 3 of the Music Preference Questionnaire are shown in the graph below.

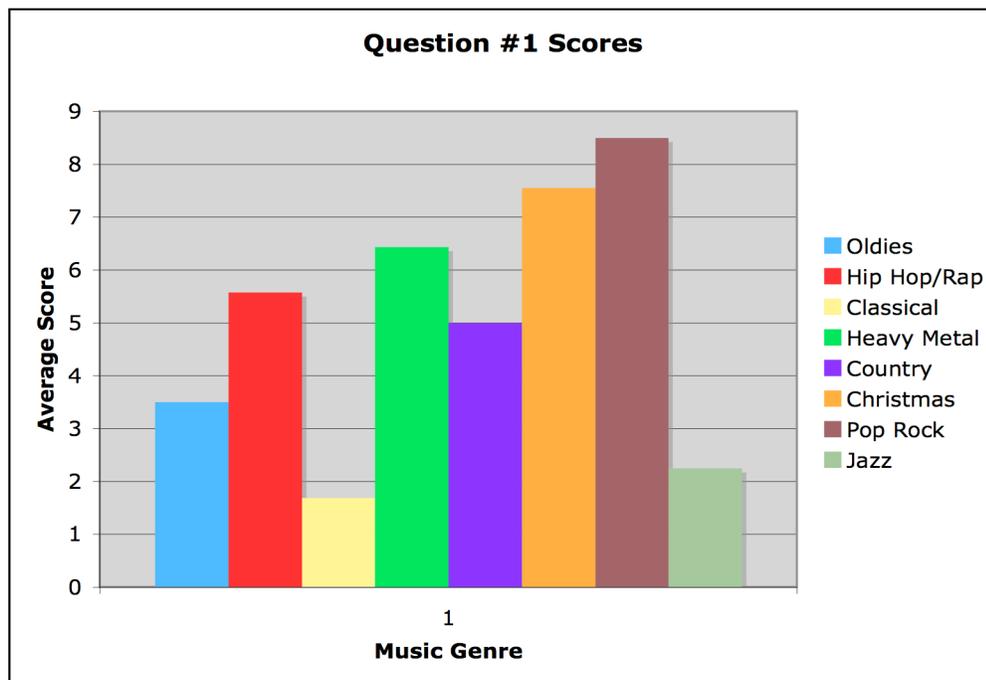


Other interesting answers included:

- “On my iPod, before a game...”
- “I also listen to music before I compete in a sporting event.”
- “Before I run, when I run, when I clean...”

RESULTS: BACKGROUND MUSIC QUESTIONNAIRE

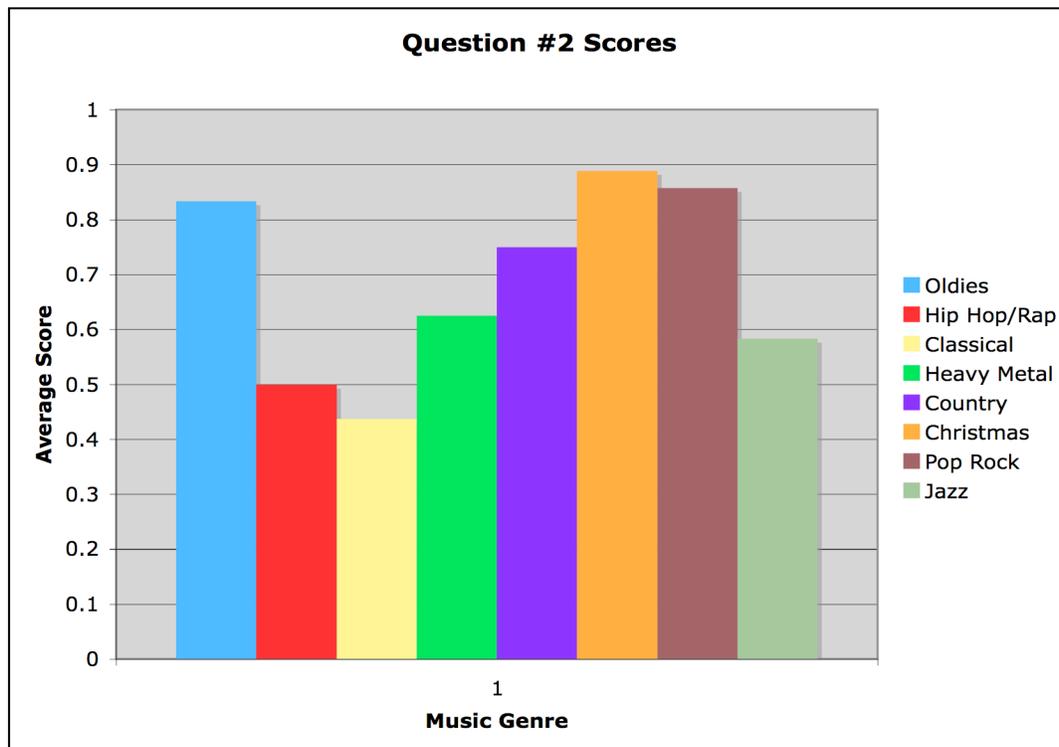
A total of 111 Background Music Questionnaires were collected over the course of eight sessions. During each instance of data collection a different style of music was played, including the following: classical, jazz, hip-hop/rap, heavy metal, country, oldies, pop rock, and Christmas. The number of respondents on a given genre depended on the size of the class being used and the number of students that attended on that particular day. Some instances of data collection yielded more responses than others. Although it would have been preferable to play each genre in every class, some classes only listened to one or two genre types. Other classes only filled out a Music Preference Questionnaire and did not participate in listening to background music in class. On each Background Music Questionnaire the participants were asked to rate the music on a scale of 1-10, with 10 being the highest. This score relies entirely on the student's personal preference towards that music. To score how much the students liked a given genre, I took an average of their ratings. The scores are shown in the graph shown below.



The pop rock genre scored the highest with an 8.5 average score. Christmas music followed closely behind with an average of 7.55. These were followed in descending order by heavy metal (6.43), hip hop/rap (5.57), country (5), oldies (3.5), jazz (2.25), and finally classical (1.69).

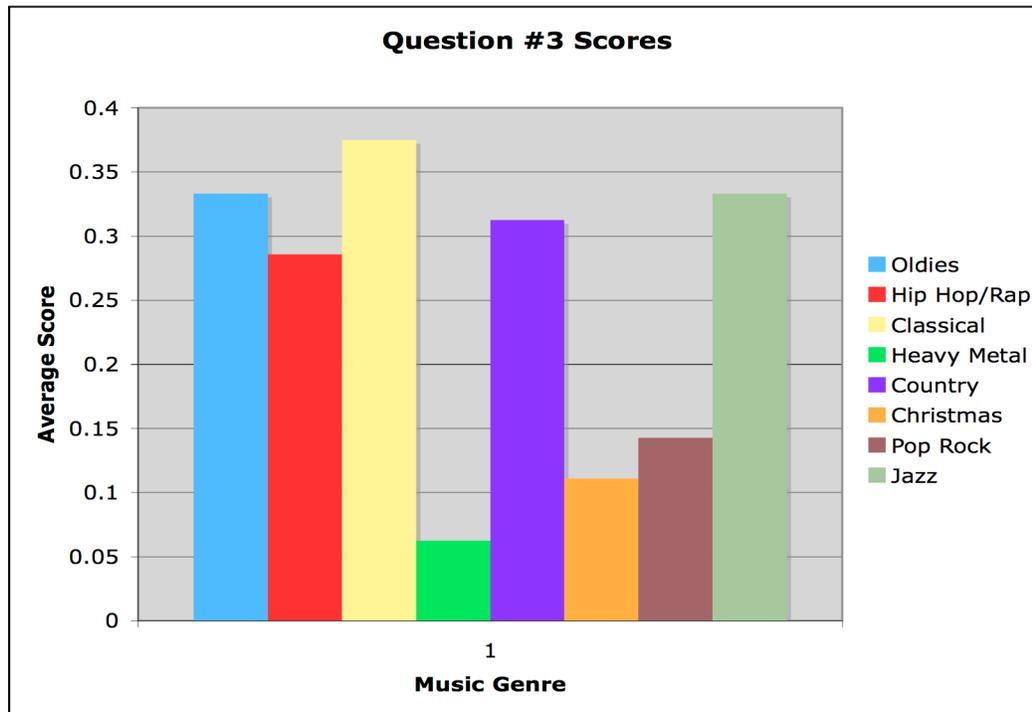
Questions 2-7 on the Background Music Questionnaire sought to glean from the students what effect they perceived the music to have on them. In order to measure this section of the Background Music Questionnaire, I gave each “yes” response to these questions a score of 1, and each “no” response a score of 0. I then averaged the responses to each question. Thus, the highest possible average score would be 1 (if all participants responded with a “yes” answer) and the lowest possible score would be 0 (if all participants responded with a “no” answer).

Question 2 asked whether the music was noticeable or whether it blended into the background. If the music was noticeable to a participant it was scored a 1; if it was not noticeable it was scored a 0. Average responses to question 2 are shown in the graph below.



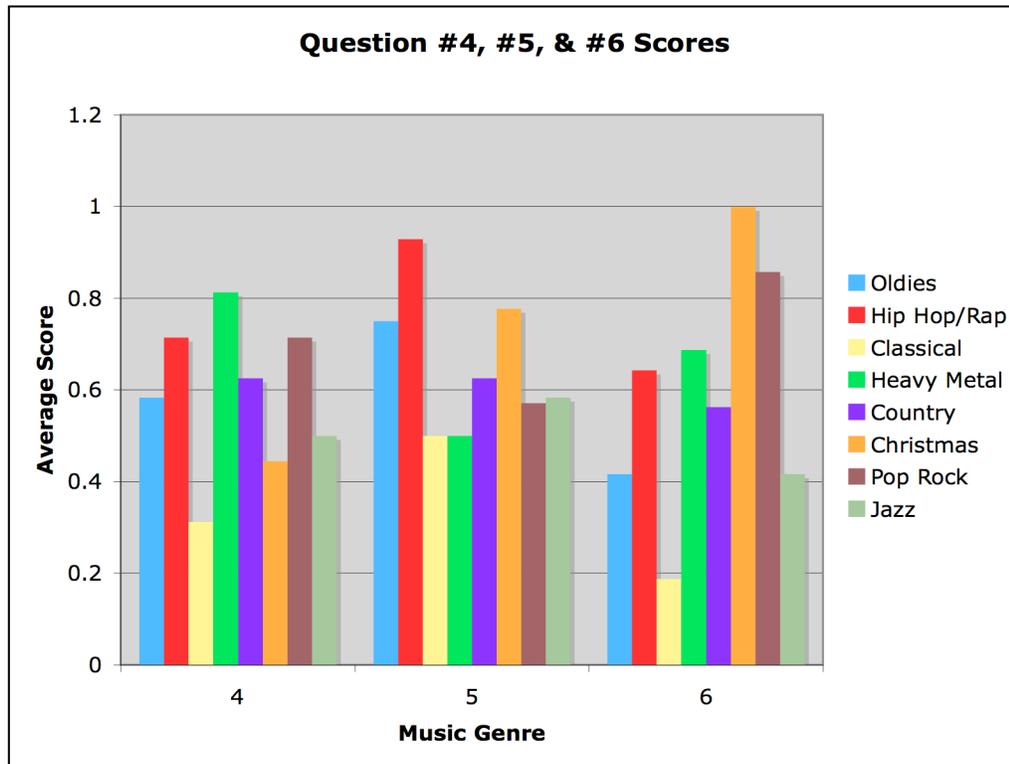
Christmas music scored the highest on question 2, with an average of 0.89. Pop Rock was second highest with an average of 0.85, followed by oldies (0.83), country (0.75), heavy metal (0.63), jazz (0.58), Hip Hop/Rap (0.5), and classical (0.44).

Question 3 asked if the music was distracting. If the music was distracting it was scored a 1; if not it was scored a 0. Average responses to question 3 are shown in the graph below.



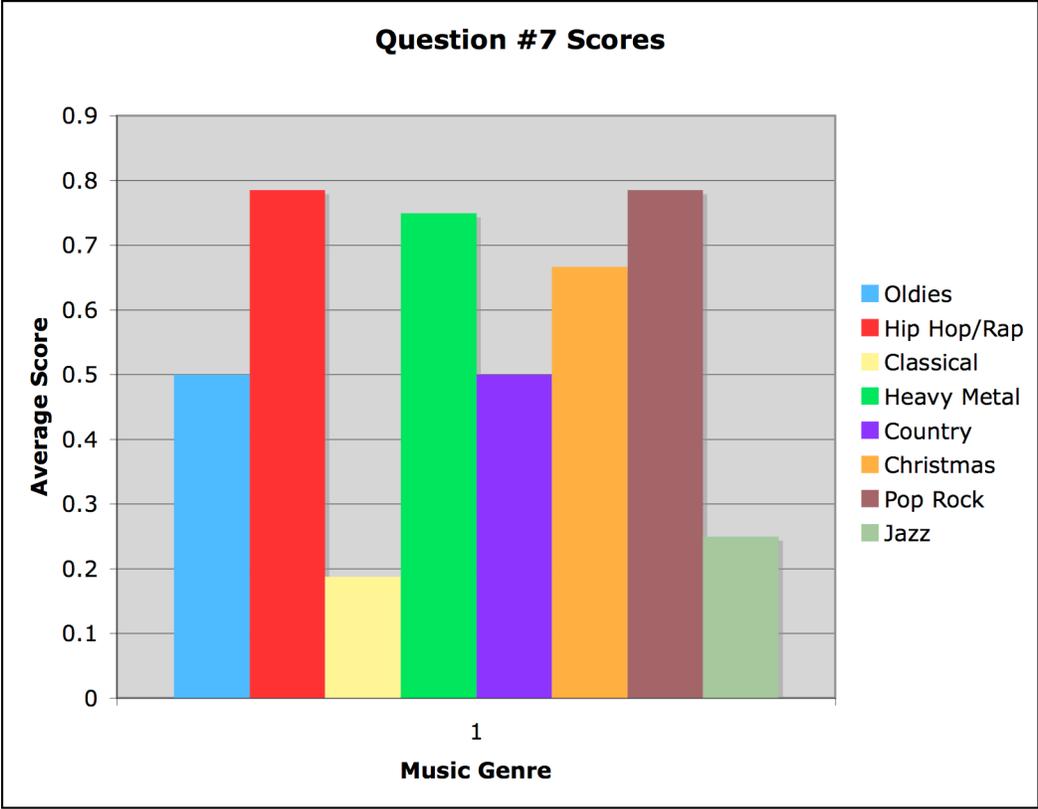
According to the surveys, the most distracting music was classical (0.38), followed by oldies and jazz (both scored 0.33), country (0.31), hip hop/rap (0.29), pop rock (0.14), Christmas (0.11) and heavy metal (0.06).

Questions 4, 5, and 6 asked if the music helped the student focus, changed the mood in the room, and whether or not it made the students feel more comfortable. As with previous questions, a “yes” answer was given a value of 1, and a “no” answer a value of 0. These questions all pertain to affective results of music, and are shown together in the graph below.



The music most likely to help students focus according to the questionnaires was heavy metal (0.81), followed by pop rock and hip hop/rap (both scored 0.71), country (0.63), oldies (0.58), jazz (0.5), Christmas (0.44), and classical (0.31). The music that had the greatest effect on changing the mood in the class was hip hop/rap (0.93), followed by Christmas (0.78), oldies (0.75), country (0.63), jazz (0.58), pop rock (0.57), and classical and heavy metal (both scored 0.5). The music most conducive to heightened levels of comfort was Christmas (1), followed by pop rock (0.86), heavy metal (0.69), hip hop/rap (0.64), country (0.56), oldies and jazz (both scored 0.42), and finally classical (0.19).

Finally, question 7 asked if the students would prefer to have a given genre of music playing in the background on a regular basis. Once again, a “yes” resulted in a scoring of 1, a “no” resulted in a scoring of 0. Responses are shown in the graph below.



Hip hop/rap and pop rock tied (0.79) as music students would most like to hear in the background on a regular basis. They were followed by heavy metal (0.75), Christmas (0.67), oldies and country (both scored 0.5), jazz (0.25) and classical (0.19).

DISCUSSION AND CONCLUSIONS:

Even by the early teenage years, children are acutely aware of the emotional effects that music can produce. Students' answers support Wells and Hakanen's (1991) notion that "adolescents listen to music for the sake of mood and/or emotion management." Students' responses also strongly supported the idea advocated by Bishop et al. (2007) that music is used as a "preperformance strategy" by athletes.

Music has been used by the respondents as a way to relax, get energized, and even laugh. By the time students are this age, it is clear that they have a well-developed sense of music, such that they know which genres they enjoy listening to and why. The participants' responses were precise and keen to note the many effects music can have on mood. The sheer diversity of genres listed is evidence that students have had sufficient exposure to music by this age. The popularity of mp3 players is also evidence that music has an important, everyday role in the lives of teenagers.

Not surprisingly, students did not like music genres that might be considered non-contemporary. The three lowest scoring genres according to average scores on questions 1 and 7 of the Background Music Questionnaire were classical, jazz, and oldies. On the days these genres were played, students were not shy about expressing their dislike of the music. Pop rock, Christmas music (which was played during the Christmas season), heavy metal, country, and hip hop/rap all scored significantly higher.

The most noticeable music also seemed to be some of the more liked music. Aside from the anomalies of oldies and hip hop/rap, there is a correlation between "noticeability" and how much the students liked the music. Classical and jazz music were among the least noticeable, while Christmas and pop rock were among the most noticeable. In light of this, it seems students of this age like to notice music and not have it blend into the background.

What is interesting is the students' perceived response to the music. Looking at the graphs, there is a strong correlation between whether or not the students liked the music and whether they perceived themselves to gain positive benefits from the music. Interestingly, students perceived classical and jazz music to have a negative effect on their ability to do well in class. Conversely, they perceived themselves to have better focus and be less distracted when listening to pop rock or heavy metal, for example. This calls into question the validity of the students' answers. Heavy metal was considered significantly less distracting than classical and jazz. It is likely that students did not remove personal bias from their answers.

As the observer in the room at the time of the study, I can attest that the students' perceived response to the various background music genres is drastically skewed. The music that they liked more (e.g., hip hop/rap, heavy metal) was typically louder with a faster tempo than the music they disliked (e.g., classical, jazz). As Caldwell and Hibbert (2002) argue, highly arousing music is likely to cause listeners to be more energetic, moving faster and completing activities faster. In the case of 7th and 8th grade students, this sometimes meant not spending adequate time on class work. Because the students likely felt more comfortable in the classroom with music they enjoyed hearing, they were more likely to talk with one another, move around the classroom in a manner that is disruptive to learning, disregard the teacher's instructions, and neglect their work.

Behavior was much worse during the instances of hip hop/rap and heavy metal. The students are easily excited by louder, faster music. During the instances of jazz and classical music, students complained about how boring and "uncool" the music was. But, despite their responses on the Background Music Questionnaires, they were much more focused, much quieter, and less likely to be out of their chairs and moving around the room. The mood change that background music exerted was striking. Some of the effect might be attributed to the excitability of the age group used in the study, but much of it might also be attributed to the power of music. When classical and jazz

music were played, the students' moods were somewhat depressed and it was evident on their faces. With loud, fast music, student moods were equally accessible on their faces: excited and hyper.

Saarikallio and Erkkilä (2007) stated that the majority of adolescent music consumption is to meet a specific emotional need. It is likely that high energy 7th graders are emotionally drawn to music that provides a release for energy, and thus prefer louder, faster music. When the music was not voluntarily chosen and was not what they preferred at that time, the students disliked the music very much. In a classroom setting, meeting the students' emotional needs might take a backseat to completing academic goals.

Due to limitations in the curriculum of the classes used, the study is unable to conclude what activities or times of class are best suited for certain types of background music. Future studies along these lines would be beneficial.

Throughout this study, students were very vocal about their desire to have background music playing. Because of mp3 players, computers, even CD players and car stereos, the rate of music consumption is at an all-time high. Many students listen to music throughout the day at every possible chance, and accordingly want to have background music playing every day, even after data gathering concluded.

One of the biggest limitations of this study revolves around the age of the participants. Unlike adults, 12- and 13-year-old students are less likely to remove personal bias from the questionnaires used in this study. The students clearly preferred louder, faster music, but their behavioral response to quieter, slower music was more desirable for an academic setting. If this same test were carried out on an adult group, answers to the questionnaires would likely differ. Many of the answers on the questionnaires were limited and lacked depth. Part of this problem is caused by the questions themselves, as they did not probe enough to force the participants to provide details as to why or why not they responded in a certain way to the background music. The

questionnaires will be revised for future studies based on the feedback from this study. Part of the problem might be attributed to the participants, as some rushed to answer “yes” to all of the questions if they liked the music.

Future studies should focus on the volume and tempo of the music being played, as student behavior appears to be most affected by these two elements. Future research should also include an analysis of the classroom without classroom music, as it might be beneficial to compare the behavior of a class in the lack of background music to the same class with loud, fast music and quiet, slow music. A well-done, comprehensive study might also include the following:

- a wide swathe of age groups such that results can be compared across all ages;
- an examination of the effect that listener choice of music genre has on mood;
- music with lyrics vs. music without lyrics;
- a closer look at the context and setting of when the music is played (e.g., time of day, school or home, likeability of the activity being done while listening, etc.);
- an examination of the social effects of music (e.g., does certain music lead to pro-social or anti-social behavior?).

Another related area that could be researched is the effect of emotions on productivity. Gomez and Danuser (2004) found that fast music is more likely to cause arousal and positive emotions. Is it possible then that negative emotions are preferable in the classroom? Does a slightly depressed mood, similar to that experienced during classical and jazz music, offer a heightened ability to focus?

IMPLICATIONS FOR PRACTICE

The results of this study suggest that quieter, slower-paced music is best for classroom use if the intended result is to have a focused, academic working environment. Classical and jazz music

were most likely to produce this effect. If students of this age group are allowed to choose background music they will typically choose music that hinders their ability to focus on working in a traditional classroom setting. Instead, they might choose music that satisfies the regulation of a specific mood that they have; mood regulation does not equate with classroom productivity.

Conversely, this study supports James' (2004) conclusions, that music can be used in settings where students might be too shy and quiet to support a good classroom dialogue. In this case, loud, fast music may be preferred to quiet, slow music.

The results of this study support previous research findings from Davidson and Powell (1986), Giles (1991), Hallam and Price (1998), Hallam, Price, and Katsarou (2002), and Cassidy and MacDonald (2007) that quieter, slower, "easy-listening" background music has a positive effect on both student behavior and performance. Loud, aggressive, fast-tempo music is likely to cause hyperactivity and an inability to focus.

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Appendix

Background Music Questionnaire

1. Did you like the background music played today? Rate it on a scale from 0-10, with 0 meaning you didn't like it at all, and 10 meaning you liked it a lot.

1 2 3 4 5 6 7 8 9 10

2. Did you notice the music, or did it mostly blend into the background?
3. Was the music distracting?
4. Did the music help you focus on your work?
5. Do you think the music changed the mood in the classroom?
6. Did you feel more comfortable while the music was playing?
7. Would you prefer to have this kind of music playing in class on a regular basis? Why or why not?

