

## **Irritability Through Music Genres<sup>1</sup>**

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Music and the ways it can affect people has been an interest in the mental health field for decades. For example, Mozart's music is believed by some to improve spatial skills of infants and rap has been blamed for school shootings and gang activities. What has not been well researched is how musical preference relates to irritability when listening to non-preferred genres. This study examined how mood relates to listening of preferred and non-preferred genres. College students (N= 157) solved Sudoku puzzles and completed Anderson's State Hostility Test while listening to music. The goal was to determine whether students presented with a music genre that mismatched their preference would score more irritably compared with students who listened to a preferred musical genre.

### **Introduction**

With the birth of new instruments, new genres, and sub-genres in music, the study of music in social psychology always has room to be studied more. Irritability and hostility through different music genres may be based on personal preference rather than the music itself. Many conclusions have been made on the effects of different genres and moods causing genres to be stereotyped. For example, it has been proposed that classical music increases brain growth in infants (Hetland, 2000).

Due to heavy metal's lyrics and intense instrumentals, heavy metal music artists have been a target of hostility and anger. People who listened to music with violent lyrics had high hostility scores on the State Hostility Test (Anderson, Carnagey, & Eubanks, 2003). They used two songs by the metal band Tool, one song, Jerk Off, with lyrics that had violent undertones and another song, Four Degrees, with not so violent lyrics (Anderson, et al., 2003). The participants who listened to the music with violent lyrics scored higher on hostility than those who heard the non-violent song (Anderson, et al., 2003).

There have also been studies showing physical effects of heavy metal music. Becknell and colleagues (2008), observed eighteen Caucasian female college students between the ages of 18 and 20. After taking a Likert scale test of different music genres, the women that were picked were woman who did not enjoy heavy metal (Becknell, et al.). Becknell, et al. measured body temperature, Electro-epidermal activity (skin movement to

measure expressions), and heart-rate while participants listened to different heavy metal songs (picked by a focus group) in increments along with periods of silence. They found that during the playing of heavy metal music there was an increase in activity in the frontalis muscles (the muscles that run vertically on the forehead) and the masseters muscles (a muscle near the cheekbones). The other physiological measures (heart-rate and body temperature) did not show any major trends. They concluded that physiological differences occur while listening to heavy metal music. Becknell et al. (2008) suggested that the reason why women were more susceptible to the fluctuation of the heavy metal music and silence is because females are more likely to have bruxism and temporomandibular dysfunction. The participants were women who did not like heavy metal, so if Becknell, et al. had chosen people who liked heavy metal music, the results might have been different.

Much like heavy metal music, rap has been accused of raising hostility and has been blamed for many violent acts such as school shootings and gang activities (Reyna, Brandt, & Viki, 2009). Reyna, et al.'s findings suggest that white Americans, based off of rap music, blamed economic crises on black Americans believing they are lazy. Rap music to black Americans felt the lyrics relayed a more positive message (Reyna, et al., 2009). In the past, rap music has been associated with sexism; making women who were not interested in the genre feel unsafe and insecure (Barongan, & Nagayama, 1995). Reyna's et al. discovered that rap music had a different effect on

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different races, challenging previous beliefs on rap music.

Another belief related to music is the Mozart Effect. The Mozart Effect is the idea that listening to classical music, mainly Mozart, improves spatial skills (the ability to locate objects in a three dimensional world using the sense of sight and touch) (Waterhouse, 2006). This idea became popular due to a study done by Rauscher (1993). The study was done on college students, who listened to a Mozart piano sonata for ten minutes. After listening to the piece they were given a test that measured different levels of IQ. These students scored high on spatial IQ (Waterhouse, 2006). The same test was administered to the same group of people that Rauscher (1993) studied in 1995; the participants improved their ability to figure out abstract figures (Waterhouse, 2006).

Pietschnig, Voracek, and Formann (2010) questioned the validity of the Mozart Effect due to the unusual difficulty in replicating the conditions. There are conflicting results to the test (Pietschnig, Voracek, & Formann, 2010). Looking closer at Rauscher's results, Pietschnig et al. (2010) found that improvement was so small that it was insignificant. There is also reason to believe their results were tampered with to make her study more favorable (Pietschnig, et al., 2010).

A study conducted by Stack and Gundlach (1992) found that people who listen to country music have a high suicide rate due to the lyrics that sing about marital problems, alcohol abuse, and isolation at jobs. They observed 49 metropolitan areas. They measured exposure to country based off of how much air time on the radio. They got their data of the number of people who committed suicide in each given area from mortality tapes (Stack, & Gundlach, 1992). They found a correlation between Caucasian suicides and country music. There was no correlation between suicides of black people and country music (Stack, & Gundlach, 1992). They did mention however, that their results may be out of date due to the reinvention of pop country that is now more upbeat than older country songs (Stack, & Gundlach, 1992).

The present study examined the relationship between music genres and measures of hostility and irritability. Based off of the findings of Renya,

et al. (2009) it was predicted that music preference would show different individual results. This was expected because Renya, et al. concluded that there was a different attitude towards rap music through the different races. The present study examined four current popular music genres: Rock, electronic/techno, country, and rap.

## Method

### Participants

The participants were 112 student volunteers (43 males, 65 females, and 4 that did not specify their gender) in a classroom setting at a small private college. These students were full-time or part-time students with different majors; ages ranging from 18-45.

### Design

This was a 2 x 4 design. The present study examined the independent variable of music genre which had four levels: Rock, electronica/techno, rap, and country. The dependent variable was the participants' score on the State Hostility Test.

### Materials

I used a computer and speakers provided in the classroom with Pandora Internet Radio ([www.pandora.com](http://www.pandora.com)) playing in the background. I prepared a sheet filled with four different Sudoku puzzles provided by [theteacherscorner.net](http://theteacherscorner.net), as well as Anderson's State Hostility Test with a four question survey printed on the back. The design of the music preference question had the students rate the genres being studied based on a Likert scale.

The State Hostility Test uses a Likert Scale ranging from 1 to 5. One being strongly disagree and five being strongly agree. It has a list of 35 different statements about how the participants are feeling. On the line next to the statement the participants are to put a number that represents how much they agree or disagree with it.

### Procedure

In a classroom setting, I passed out the Sudoku sheet face down on each participant's desk. After I introduced myself, I instructed the participants to turn off cell phones and to not speak during the duration of the study, and to turn over the puzzle when I started the music. I turned up the equipment

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volume control and played music via Pandora Radio. After five minutes of listening to the assigned music genre, I passed out a sheet with printing on both sides. One side had my four question survey, while the other side had Anderson's State Hostility Test. While music was still playing I told them to stop doing the puzzle and start doing the survey. I left the music on until the last person was done with their survey.

### Results

Table 1 contains a summary of results by music genre. A significant correlation was found between whether or not the students enjoyed what was being played for them and their scores on the State Hostility Test,  $r = -0.26$ ,  $p = 0.02$  ( $t = -2.45$ ). The more the participants enjoyed what was played for them, the lower the hostility score. Out of all the genres Rock showed the only significant result,  $r(23) = -0.51$ ,  $t = -2.83$ ,  $p < 0.01$ . Though there was significance in the music that was played during the study, the participants' music preference did not show any significance in their State Hostility Score,  $r(86) = -0.16$ ,  $p = 0.14$  ( $t = -1.47$ ).

**Table 1.** Correlations between listening conditions and scores on the State Hostility Test

Music Condition	Correlation	t-score	p
ROCK	$r(23) = -0.508$	-2.83	0.00
RAP	$r(24) = -0.209$	-1.05	0.31
COUNTRY	$r(20) = -0.099$	-0.44	0.66
ELECTRIC	$r(13) = 0.119$	0.43	0.67

### Discussion

In the discovery of my findings, it seemed that the more joy the participants got out of the music that was presented to them, the less irritable they were. As stated in the results, Rock music gave the best results. I can only speculate, based on the data collected, that rock seems to get a more emotional response out of people. I was personally surprised that the music preference did not show more of an effect. Perhaps if there was more time given for the subjects to listen to music, giving the radio more opportunity to play different songs, with a more diverse artist selection, the outcomes would have been more pronounced. Due to resources, time constraints, and also cases of participants not filling out the survey in its entirety, I did not have

the amount of people I desired. I think the study can be furthered if there were more people and perhaps a screening process where the participants were assigned to groups based on their music preference.

There was also animosity regarding my choice of puzzle. Many of the participants who were asked to be a part of the study were reluctant to do the Sudoku puzzle for they did not understand the rules. A more familiar puzzle, like a word search or a crossword puzzle, would possibly have better results.

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