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# The Power of the Beat Impacting Human Emotion

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*The main objective of this study was to examine the effects that music would have on emotions when a song has lyrics and when it does not. It was hypothesized that if a song is played without lyrics then it will invoke a different emotion than if the exact same song with lyrics were played. There were a total of 70 participants who were recruited from the Human Subject Pool. After retrieving the data and observing the results, there was a correlation between emotions and songs played with lyrics and there was a different correlation of emotions with the songs played without lyrics. The conclusion was that songs with lyrics had a positive effect on human emotion.*

Many emotions can occur when listening to music. Some of the basic emotions include; happiness, sadness, love, rage and even inspiration. All of these different emotions can be invoked by music in different ways. Two ways are through either choosing to play a song with lyrics or without. Many different experiments were done involving music and emotion and the following information helped to give a better understanding of the research done involving both music and emotions.

In an experiment done by Laukka and Juslin (2007), they compared music performances and vocal expressions from emotions trying to recognize abilities from young and old adults. The researcher assessed the recognition of discrete emotions and emotion intensity. The emotions that the researchers measured: anger, disgust, fear, happiness and sadness. Some age-related differences were also evident in the listeners' ratings of emotional intensity. Laukka and Juslin found age-related differences in emotional recognition from vocal expressions and music

performances (Laukka & Juslin). The differences seem to been emotion-specific with older adults being less accurate than their younger counterparts in recognizing negative emotions but not in recognizing positive or neutral expressions.

A second article by Robinson (1994) is about the relationship of the expression and the arousal of emotions by music. The main goal of this study was to determine whether there was connection between music expression and arousal. According to some theories of musical expression, the basis of which individuals show expressive feelings to music have little to do with the arousal of emotion within the audience (Robinson). The study conducted by McCaffrey (2008) was made out of several individual studies in which music was proven to help various people in a struggling situation. First, she recognized that music was typically used in traditions and ceremonies. Next, she further studied the effects music had on patients in nursing homes or that were undergoing surgery. She then stated that "music gave the patients a feeling of comfort and peace while helping reduce stress and anxiety" (McCaffrey, 2008, p. 41). In one of the many studies, the researcher used classical music to help lower pain experienced by many older adults. The music significantly reduced the amount of pain experienced (McCaffrey).

Beebe's study (2009) was based on GIM (Guided Imagery and Music) Therapy. The GIM is an expanded state of consciousness for music imaging. Looking all the way back into the past hundred years, music was used to help those dealing with depression, insomnia, schizophrenia, and even Post Traumatic Stress Disorder (PTSD). Beebe decided to test the theory within her own study and had the patients listen to classical music for over a half hour. She then asked them to describe their thoughts and feelings. She chose a from a music selection based on who the patient was which had a major impact on the imagery episodes (Beebe).

In the article written by Bishop, Karageorghis and Kinrade (2009) the researchers observed how music could influence emotions on athletes' reaction time performances. Athletes volunteered for the study and were competitive on the incentive to win either first, second or third. The main focus of this study was to examine the behavioral consequences of listening to music during an athletic event (Bishop, et al.). The results showed that music listening may be a beneficial way for athletes to have a positive and aroused mental state with fast tempo and to maximize their performances.

A study that was done by Scherer (2004) researched the different emotions that may have been induced by music. Suggestions were made of new ways that can measure affective states that are caused by music (Scherer). The three major reaction components of emotion were observed which are: physiological arousal, motor expression and subjective feeling. The results had shown that many of the techniques of inducing music have shortcomings and inappropriate instruments can lead to missing essential data and prevent any comparability of results. (Scherer).

Katagiri (2009) did a study of music's effects on children with autism while they learned. Due to the children's impairments they often struggle with communication and social behaviors. She played specific music in the background while she taught the children hoping that the association would improve and speed up their learning process. Katagiri believed that music has a strong impact on emotions and will therefore help the autistic children learn emotions. She found that all of the students improved greatly in their understanding of the emotions when they listened to the background music.

The purpose of the present study was to help determine whether or not having the lyrics to a song affects the emotion people feel when listening to a particular song. A song played without lyrics would invoke a certain emotion, and a similar song by the same artist, with lyrics, would invoke a different emotion. Each song would be given either with the lyrics or without but not both to each participant. We hypothesized that the song played without giving the lyrics would invoke a different emotion than the song played that contained lyrics in the music.

## Method

### *Participants*

The participants in this study consisted of 70 university students, both male and female, attending Lindenwood University. The participants were recruited from the Human Subject Pool on the Lindenwood University campus. Each participant, if taking the appropriate classes, which were: PSY 100, PSY 101, SOC 100, SOC 214, and ANT 112. The people who were enrolled in the specified classes received extra credit points towards their courses. No other compensation was given in our study. There were a total of 70 participants, 19 were men and 51 were women. Of those 70 participants 20% were 18 years old, 39% were 19 years old, 20% were 20 years old, 7% were 21 years old, 6% were 22 years old, 4% were 23 years old, 1% was 26 years old, 1% was 28 years old and 1% was 29 years old. The mean age of the participants was 19.86 years old and the standard deviation was 2.122. Of the 70 participants, 20% chose hip-hop as their top genre and 19% each chose alternative or country as their top choice. For the participant's second favorite genre, 23% chose rock and 21% chose rap. As their third top choice, 19% of the participants chose pop music.

*Materials and Procedure*

The participants were asked to gather in a single room with tables and desks, where they were then given an informed consent form (see Appendix A) and demographic survey to fill out (see Appendix B). When the students entered the classroom specified, they were asked to sign the sign in sheet. Then they were given two informed consent forms to fill out; one for themselves and one for the experimenter. Then the participants were given their experiment ID number along with their demographic survey. In the classroom the experimenters placed a Hewlett Packard (HP) laptop on the table and inserted a Memorex Compact Disc that had specific songs on it that were used for the study. The two different songs chosen were: Strangers in the Night by Frank Sinatra (1966) and Standing on the Corner by Dean Martin (1964) either with lyrics or without. An emotional survey (see Appendix C) was provided which consisted of ten different emotional feelings directed towards the two different songs which were to be ranked based on emotion from the chosen two songs that were given; one with lyrics and the other without lyrics. After they were done filling out the emotional rating survey they handed them into the experimenter, who then gave them their participant receipt so that they could collect their bonus points.

The classroom setting was chosen so that the participant could have a quiet, isolated environment to listen to either Strangers in the Night or Standing on the Corner with or without lyrics through a pair of Apple headphones. As they left the classroom, the experimenter gave them a feedback letter (see Appendix D) and debriefed them on the purpose of the experiment. Also, participants were invited to leave their name and number if they were interested in obtaining results of the research. Participants were then dismissed. Once the surveys were

collected, the experimenters scored the surveys and analyzed the data through the SPSS that they collected.

## Results

The hypothesis was that a song played without lyrics would invoke a different emotion than the exact same song with lyrics was played. (See table A) The emotion that occurred the most as the top choice for song A, which was Strangers in the Night, with lyrics was love, 56% of the participants chose this answer. When the same song was played without lyrics 25% of the participants chose love, and another 25% chose compassion of the 34 participants. For the second ranked emotion, 36% participants chose compassion for the song with lyrics while 21% chose love for the song without lyrics, along with 17% who chose happiness. The third ranked emotion most commonly picked was happiness, 39% participants with lyrics and 32% ranked compassion for the song without lyrics. For song B, which was Standing on the Corner, 56% of the participants ranked happiness as the first emotion, and only 35% with lyrics chose happiness while 29% chose love. 28% ranked inspiration as the second ranked emotion invoked from the song without lyrics while 32% of the participants ranked love as the second highest emotion. For the third ranked emotion 29% of the participants both chose compassion most frequently for both with and without lyrics.

## Discussion

After reviewing all of the data it was found that there was still a common trend of the top three emotions invoked despite if the song was played with the lyrics or not. For both songs the top three emotions were Love, Compassion, and Happiness. These three emotions were ranked in the top three with the most frequently occurring choice: mode. Both of the songs were older

songs most of the participants were not familiar with because the experimenters did not want any personal memories of the songs to influence their decisions of the emotions. The songs were both slow paced relaxing and soothing. The study could have been improved if there were a larger number of participants. It also may have been dramatically changed if we had picked different songs or a completely different genre of music. It was found that these particular styles of music were linked to the emotions people associate with love and romance, however if songs from the rap genre were played perhaps different emotions would have been invoked. There may have been similarities because the songs were very similar sounding and perhaps after listening to one song with or without lyrics they may have felt the same way to the next song. Our limitations may have had an effect on our participant's choices because we already asked them to rank their favorite music on the demographic survey and maybe another two ranking questions was overwhelming.

Our results fit in with the previous research that we analyzed because we were interesting in finding a relationship with music and emotions. Our research was related to the study done by Laukka and Juslin (2007) because they were trying to recognize abilities of expressions from young and old adults. We were also interested in discovering what our emotions have to do with music. Our study also ties into the study done by Robinson (1994) quite well because they were searching for a relationship between expression and arousal of emotions by music. Their study was the most related to ours and we used their study to guide our research.

Limitations of our study were the fact that we used two songs that could not be given a clear genre and they were both very similar. This may have had an effect because participants may have been confused or unaware of the music. The songs were also listened to through

headphones. Since they listened to the music through headphones the volume may not have been constant and could have been too loud for them to clearly hear the words. Also, the volume could have had an effect on their emotional state because their heart rate may have changed due to loud music. Our sample may have been biased because we had a lot more women than men. This may have affected our results because the women could possibly feel different towards the genre of music than men would.

In the future we would change the emotions we chose because there was too many and most of them invoked a positive emotion rather than a more negative emotion. Next time we would also choose songs of different genres, ones that people may be more familiar with. Also for further research purposes we would test more participants and a broader range of participants. We would take our study further than Lindenwood University campus to get a larger more unbiased sample of individuals. If our study had different song genres and choices, different emotions and more participants our results may have been able to more significance in our study. If further research is going to be done we suggest that the above changes be made to ensure a more effective study related to human emotions and their effects from music.

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Author Note

There are many people we would like to thank us for helping us with our project and putting forth the time and effort that they did. First of all, we would like to give a special thank you to Dr. Nohara-LeClair for helping us polish up our paper and for providing any assistance we required. We would also like to thank the HSP office and our classmates for critiquing our work. Last of all, we would like to thank all the student's who participated in our study throughout the semester.

For further inquiry about the research we conducted please contact Kelsey Anderson (847) 912-3525 or Mandy Dion (636) 627-1260.

# Appendix A

## Informed Consent Form

I,_____(print name), understand that I will be taking part in a research project that requires me to complete one short questionnaire and listen to 6 genres of songs and circle the emotion I feel best describes the music best. I understand that I should be able to complete this project within 10 minutes. I am aware that my participation in this study is strictly voluntary and that I should not incur any penalty or prejudice because I cannot complete that study. I understand that the information obtained from my responses will be analyzed only as part of aggregate data and that all identifying information will be absent from the data in order to ensure anonymity. I am also aware that my responses will be kept confidential and that date obtained from this study will only be available for research and educational purposes. I understand that any questions I may have regarding this study shall be answered by the researcher(s) involved to my satisfaction. Finally, I verify that I am at least 18 years of age and am legally able to give consent or that I am under the age of 18 but have on file with the HSP office, a completed consent form that allows me to give consent as a minor.

_____ Date: _____

(Signature of Participant)

_____ Date: _____

(Signature of Researcher obtaining consent)

Student Researcher's Names and Numbers:

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# Appendix B

## Demographic Background Survey

Please fill out these questions.

Age (in years)_____

Sex: Female Male

Favorite genre of music? (rank, 1 being the best and 12 least favorite)

___Alternative
___Classical
___Country
___Heavy Metal
___Hip-Hop
___Indie
___Oldies
___Pop
___Rap
___RnB
___Rock
___Other:_____

Hearing impaired?

YES NO

If yes, do you need a hearing aid?

YES NO

# Appendix C

## Feedback Letter

Thank you for participating in our study. The songs were used to distinguish which emotion people link to a particular type of genre of music and to see if the lyrics influenced the participant's rankings. The researchers hypothesized that if a song was played without lyrics it would invoke a certain emotion, while a similar song by the same artist, with lyrics, would invoke a different emotion. The purpose of this study was to help determine whether or not people actually comprehend the words in a song and were touched emotionally by the words or if they simply listen to the beat of the music. We are interested in these findings because we find ourselves enjoying some music that may have lyrics that we do not particularly care about or that would make us feel the same about a specific song.

Please note that we are not interested in your individual results; rather, we are only interested in the results of a large group of people, of which you are now a part of. No identifying information about you will be associated with any of the findings.

If you have any questions or concerns regarding any portion of this study, please do not hesitate to bring them up now or in the future. Our contact information is found at the bottom of this letter. If you are interested in obtaining a summary of the findings of this study at a later date, please contact us and we will make it available to you at the completion of this project.

Thank you again for your valuable contribution to this study.

Sincerely,

Principal Investigators:
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Mandy Dion (636) 627-1260

Supervisor:
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## Appendix D

Rank the ten basic emotions: ID #_____

(One being the most applicable and ten being the least)

*Use each number only once per song.

| Song A(L); | Song B(N); |
|---|---|
| ___Compassion | ___Compassion |
| ___Disappointment | ___Disappointment |
| ___Emptiness | ___Emptiness |
| ___Frustration | ___Frustration |
| ___Happiness | ___Happiness |
| ___Inspiration | ___Inspiration |
| ___Loneliness | ___Loneliness |
| ___Love | ___Love |
| ___Rage | ___Rage |
| ___Sadness | ___Sadness |

## Appendix E

Rank the ten basic emotions: ID #_____

(One being the most applicable and ten being the least)

*Use each number only once per song.

| Song B(L); | Song A(N); |
|---|---|
| ___Compassion | ___Compassion |
| ___Disappointment | ___Disappointment |
| ___Emptiness | ___Emptiness |
| ___Frustration | ___Frustration |
| ___Happiness | ___Happiness |
| ___Inspiration | ___Inspiration |
| ___Loneliness | ___Loneliness |
| ___Love | ___Love |
| ___Rage | ___Rage |
| ___Sadness | ___Sadness |

# Appendix F

Rank the ten basic emotions: ID #_____

(One being the most applicable and ten being the least)

*Use each number only once per song.

| Song A(N); | Song B(L); |
|---|---|
| ___Compassion | ___Compassion |
| ___Disappointment | ___Disappointment |
| ___Emptiness | ___Emptiness |
| ___Frustration | ___Frustration |
| ___Happiness | ___Happiness |
| ___Inspiration | ___Inspiration |
| ___Loneliness | ___Loneliness |
| ___Love | ___Love |
| ___Rage | ___Rage |
| ___Sadness | ___Sadness |

## Appendix G

Rank the ten basic emotions: ID #_____

(One being the most applicable and ten being the least)

*Use each number only once per song.

| Song B(N); | Song A(L); |
|---|---|
| ___Compassion | ___Compassion |
| ___Disappointment | ___Disappointment |
| ___Emptiness | ___Emptiness |
| ___Frustration | ___Frustration |
| ___Happiness | ___Happiness |
| ___Inspiration | ___Inspiration |
| ___Loneliness | ___Loneliness |
| ___Love | ___Love |
| ___Rage | ___Rage |
| ___Sadness | ___Sadness |

Table A

| | Song A (Strangers in the Night) | | Song B (Standing on the Corner) | |
|---|---|---|---|---|
| Top emotion | With lyrics | Without lyrics | With lyrics | Without lyrics |
| First | Love= 20/36 (.555%) | Love=9/34 (.265%) Compassion=9/34 (.265%) | Happiness=12/34 (.353%) Love=10/34 (.294%) | Happiness=20/36 (.555%) |
| Second | Compassion=13/36 (.361%) | Love=7/34 (.206%) Happiness=6/34 (.176%) | Love=11/34 (.324%) | Inspiration=10/36 (.278%) |
| Third | Happiness=14/36 (.388%) | Compassion=11/34 (.324%) | Compassion=10/34 (.294%) | Compassion=10/36 (.278%) |