The Powerful Impact of Music on Human Emotion

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Music has been an integral part of human culture and society for thousands of years, and is used for a wide range of activities, including entertainment, religious or spiritual practices, and as a form of communication. It has the ability to evoke strong emotions, memories, and feelings in listeners, and has numerous physical and mental health benefits. Apart from day-to-day life, music has a plethora of applications in clinical work. Listening to music could have effects like reducing stress and anxiety levels, lowering blood pressure and heart rate, and aiding in mental alertness and memory.

This paper aims to discuss a study conducted by Bethel College Summer Science Institute students. The aim of the study was to find correlation between bird songs and varying human emotions.

How the study was conducted:

For the study, a new instrument for measuring aesthetic emotions, the Aesthetic Emotions Scale (AESTHEMOS), was implemented. AETHEMOS is used for identifying the broad range of emotions that occur in aesthetic experiences. AETHEMOS consists of 42 scales and 21 subscales which cover prototypical aesthetic emotions (e.g., the feeling of beauty, being moved, fascination, and awe), epistemic emotions (e.g., interest and insight), and emotions indicative of amusement (humor and joy). In addition, the AESTHEMOS subscales capture both the activating (energy and vitality) and the calming (relaxation) effects of aesthetic experiences, as well as negative emotions that may contribute to aesthetic displeasure (e.g., the feeling of ugliness, boredom, and confusion).

In this study, 32 healthy Bethel College volunteer students between the ages of 18 and 21 years old, and 23 Bethel College Summer Science Institute students were asked to listen to 13 birdongs. These individuals each listened to less than 20 seconds of their respective songs and rated each of the songs using 42 rating scales. After listening and rating their songs, participants were asked to rest for at least one minute in order to avoid fatigue and confusion. The following bird species were used in the study:

1. Bachman's Sparrow
2. Canyon Wren

3. Common Chaffinch
4. Common Firecrest
5. Field Sparrow
6. Lazuli Bunting
7. Noisy Scrub-bird
8. Red Fox-Sparrow
9. Scrubtit
10. Striated Fieldwren
11. White-Crowned Sparrow
12. Wilson's Snipe
13. Winter Wren

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##      Song min   Q1 median   Q3 max    mean        sd  n missing
## 1       A   2 4.00     6.0 8.00   10 6.15625 2.370645 32       0
## 2       B   2 4.00     5.0 6.25   10 5.03125 2.071066 32       0
## 3       C   2 5.00     6.0 7.00   10 6.06250 2.093577 32       0
## 4       D   2 2.00     5.5 7.00    9 5.00000 2.488684 32       0
## 5       E   2 4.00     5.0 6.25    9 5.50000 1.934408 32       0
## 6       F   2 6.00     7.0 8.00   10 6.96875 2.101986 32       0
## 7       G   2 4.00     6.0 8.00   10 6.00000 2.327951 32       0
## 8       H   3 6.00     7.5 9.25   10 7.31250 2.220687 32       0
## 9       I   3 5.75     8.0 8.00   10 7.09375 2.037699 32       0
## 10      J   2 4.00     7.0 8.25   10 6.34375 2.522280 32       0
## 11      K   2 6.00     8.0 8.25   10 7.03125 2.055431 32       0
## 12      L   2 2.00     3.0 5.00    9 3.71875 2.173660 32       0
## 13      M   2 6.75     8.0 9.00   10 7.46875 1.999748 32       0
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FIGURE 1: Descriptive statistics for the 13 birdsongs on the scores for Feeling of Beauty/Liking rated by Bethel College students and Bethel College Summer Science Institute. Abbreviations: min = minimum, Q1 = lower quartile or 25th percentile, Q3 = upper quartile or 75th percentile, sd = standard deviation.

The scores for individual participants varied widely, occupying the full possible range from a minimum of 2 to a maximum of 10 for some songs. 32 participants completed the rating for all songs.

Correlates of the Feeling of Beauty (Birdsong)

In this study, the relationships between the "Feeling of Beauty" and other emotions in the categories were measured by the AETHEMOS. Those relationships are shown on the scatterplots based on the mean ratings across 32 participants. Overall, the data shows that the "Feeling of Beauty" had a strong, positive correlation with all the prototypical aesthetic emotions. From weakest to strongest, the correlations between prototypical aesthetic emotions and the "Feeling of Beauty" as the response variable were the following values: nostalgia(0.57), joy(0.99), sadness(-0.38), anger(-0.94).

Predictor	Correlation
nostalgia	0.57
joy	0.99
sadness	0.38
anger	-0.94

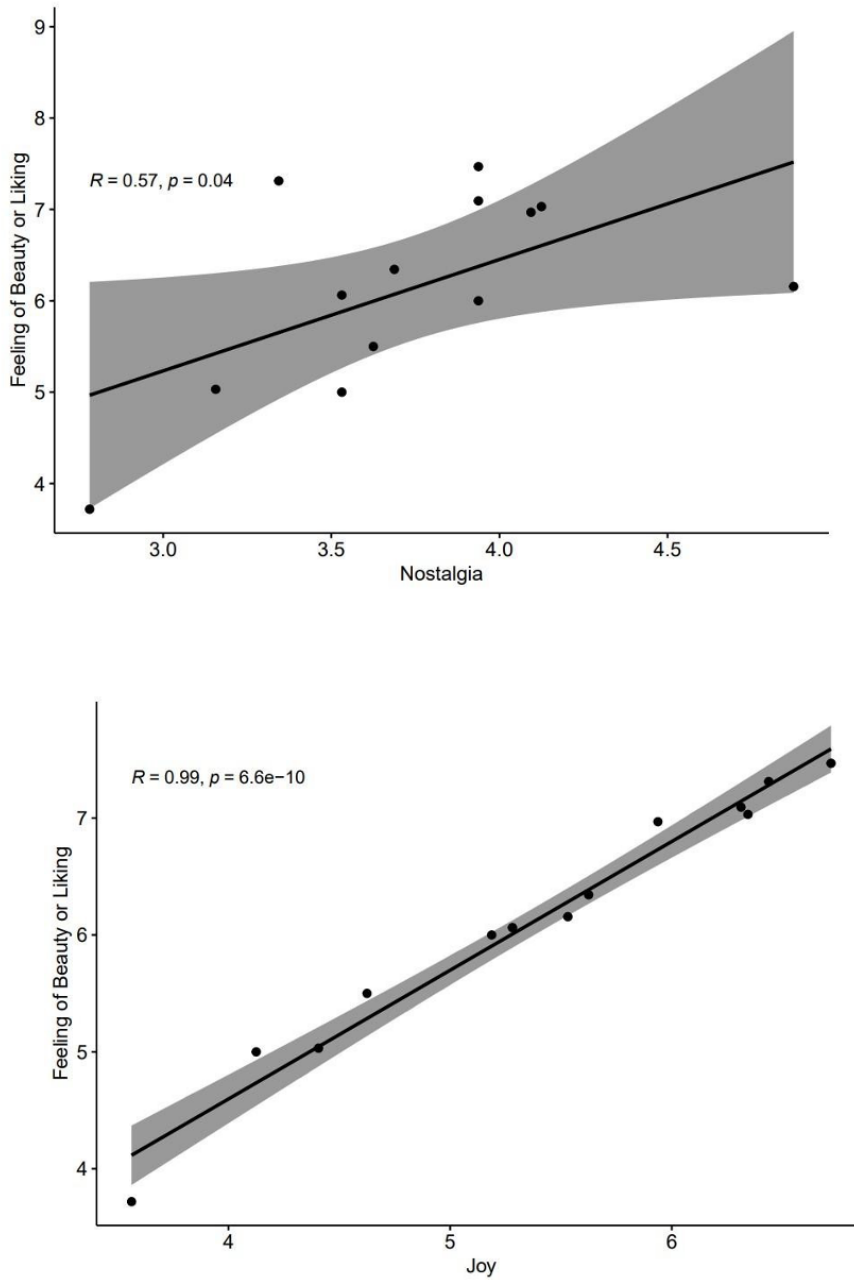FIGURE 2: Table of Correlation between Aesthetic Emotions and The Feeling of Beauty.

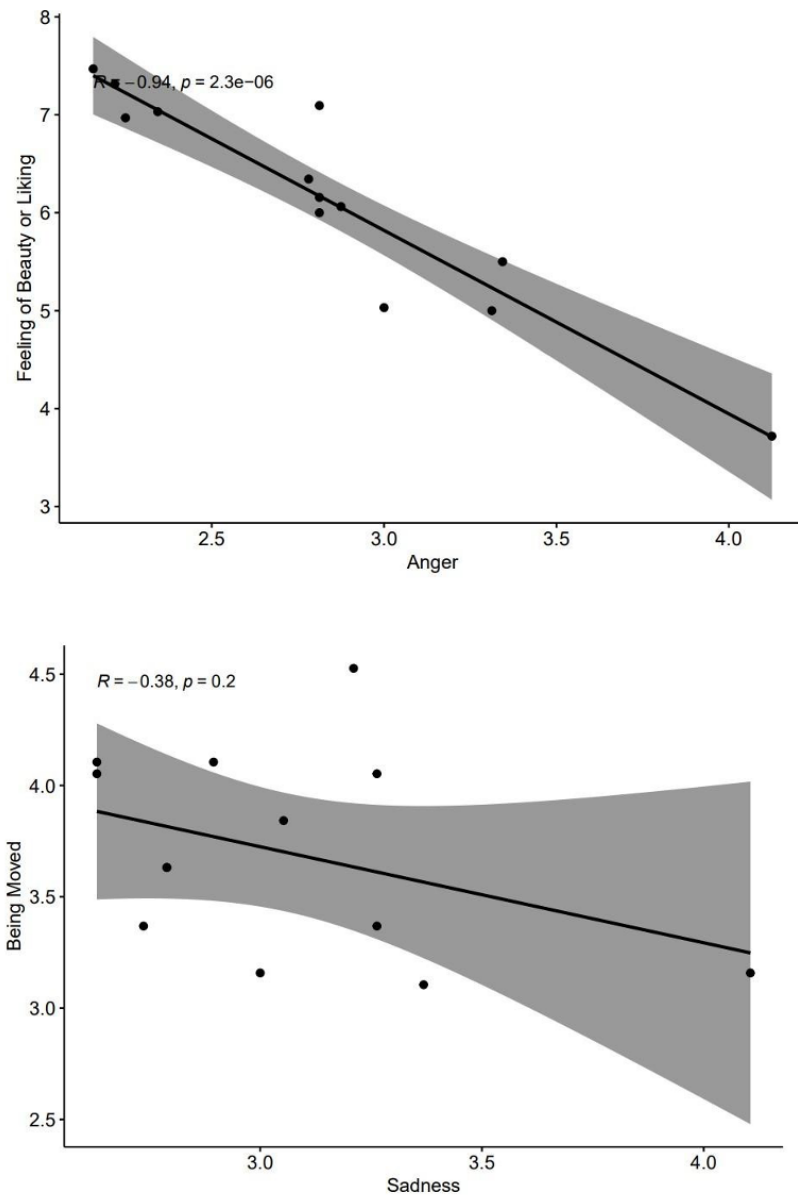FIGURE 3: Nostalgia and joy emotions respectively graphed with their correlations to the "Feeling of Beauty or Liking."

FIGURE 4: Anger and sadness emotions respectively graphed with their correlations to the "Feeling of Beauty or Liking" and "Being Moved."

The study found that the "Feeling of Beauty" had variable correlations with some being positively correlated and some being negatively correlated. It is important to note that the positive emotions, such as nostalgia and joy had a correlation with the "Feeling of Beauty" that attained the conventional statistical significance level of a p-value less than 0.05, while anger and sadness had a very weak relationship with the "Feeling of Beauty."

The "Feeling of Beauty" was negatively correlated with most of the negative emotions. For anger, the correlation was -0.94, and in sadness, the correlation was -0.38. This finding indicates that the negative emotions evoked by birdsong can be associated with a diminishing "Feeling of Beauty," but the positive emotions can be associated with an increase in this same "Feeling of Beauty." Joy had a strong and positive correlation of 0.99 with the "Feeling of Beauty." The correlation between nostalgia and the "Feeling of Beauty" at 0.57 was less than the correlation between joy and the "Feeling of Beauty," but still was positive.

However, this study found that the correlation with sadness and the "Feeling of Beauty" was strong in human music with a correlation of 0.71, however, in birdsong the correlation was weaker and negative at -0.38.
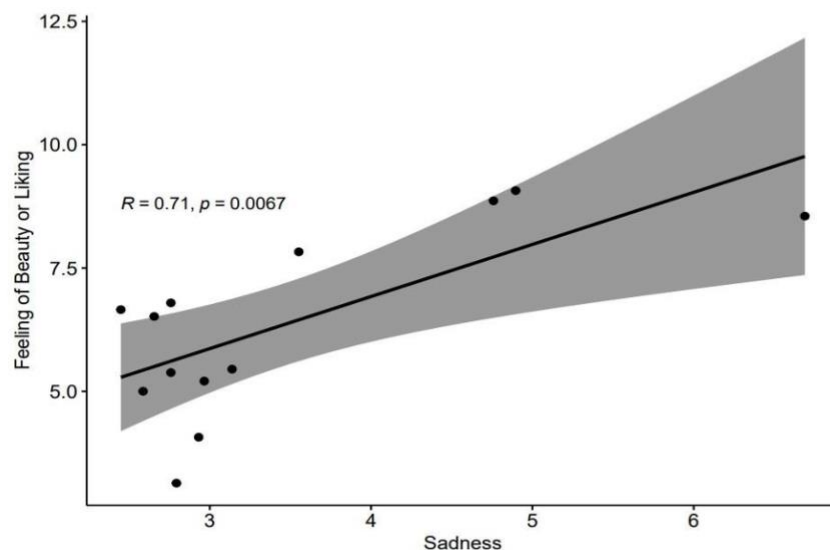

FIGURE 5: A graphical representation of the correlation between sadness and the "Feeling of Beauty" for human music.
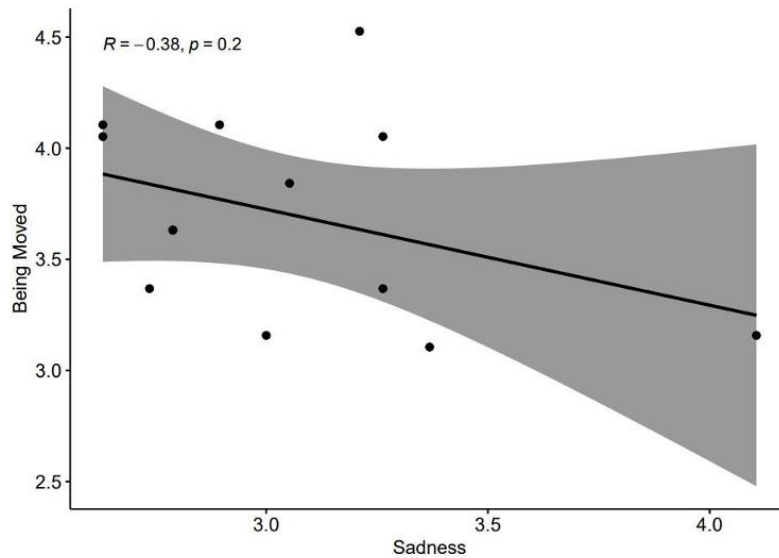
FIGURE 5: A graphical representation of the correlation between sadness and the "Feeling of Beauty" for birdsongs.

Discussion

The study elicited a broad range of emotional responses that displayed a complex pattern on correlationships. Correlations between the "Feeling of Beauty" and each of the other aesthetic emotions were studied.

This study found that the "Feeling of Beauty" was strongly correlated with other emotions. A strong positive association has been observed between positive emotions and the "Feeling of Beauty" and a negative association between negative emotions and the "Feeling of Beauty." Additionally, the study found an interesting association between feeling of sadness and "Feeling of Beauty" in human music and birdsong. This study shows how the wide array of emotions that accompany aesthetic judgments may be combined in the experience of beauty in music. These findings suggest the possibility of similar relationships, not only in other music, but also in other aesthetic experiences, such as the appreciation of visual artworks or the beauty of nature, could be studied in future research.

References

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