The Effects of Music on the Induction of Emotional States Over Time

Abstract

Music has been a subject explored rigorously throughout the sciences because of its apparent influences on the human mind and body. By taking an embodied perspective towards cognition, and more specifically towards an agent's interaction with music, great progress can be made in understanding the interaction in depth. This paper is concerned with capturing both the intrinsic and extrinsic affects of music on *sad* and *happy* emotional states, the various ways scientists have gone about recording these states, and the implications that come from these studies.

Introduction

While there are several theories of mind that hold positions on music and the expression of human emotion, the embodied cognitive perspective offers one of the most promising frameworks for understanding how music effects emotional states. Embodied cognition is not constrained by behavior being mediated by internal processes, but rather allows for our perceptual access to the world and the environment as central resources alongside internal representations (Wilson & Golonka, 2013). By embracing this perspective, much work has been done to better understand the interaction between music and one's emotional states. Many of the great accomplishments within the field of Music Embodied Cognition can be found in work by pioneers in the field such as Arnie Cox, Lawrence Shapiro, and many others. In Arnie Cox's book, *Music and Embodied Cognition: Listening, Moving, Feeling, and Thinking*, he lists the eight avenues of musical affect, which are not meant to be a full explanation of how music affects emotions, moods, desires, and other extrasensory experiences, but are meant to show that these

eight avenues are always relevant and integral to one's emotional experience with music. Many modern-day scientific studies attempt to account for many of these avenues and have been able to accurately measure the induction of several emotional states.

While there are many emotional states that have been recorded, *happy* and *sad* states are the most commonly verifiable. These states can be verified through a combination of measurement tactics such as skin conductance levels, heartrate levels, and valence/arousal self-report. These methods have been used in many recent studies including *Emotional induction through music: Measuring cardiac and electrodermal responses of emotional states and their persistence* (Ribeiro, et al. , 2019), *Role of tempo entrainment in psychophysiological differentiation of happy and sad music?*(Khalfa, et al., 2008), and many others. While there are great insights made from these studies, there are many critiques and limitations as well. These insights, critiques, and limitations will all be addressed later on within this paper, and an argument will be made that the Embodied Cognitive Perspective can help make better sense of these critiques and limitations.

Overview of Cognitivism and Embodied Cognition

Use the *Embodied Cognition is not what you think it is* article, and the various other secondary sources to describe the history of both of these movements. Describe the research methods of embodied research described in the article.

Overview of Music Embodied Cognition

Use Arnie Cox's book, other secondary sources. Lay the groundwork for the next two sections and discuss briefly the 8 affects of Music.

The Intrinsic Properties of Music

Discuss the parts of music that deal with its structure. Tempo, pitch, rhythm, major/minor, etc.

The Extrinsic Properties of Music

Discuss the parts of music that deal with its association with a person's prior experiences, the environment, etc.

Recording Emotional States within a Study

Discuss the self-report method, skin conductance rate, heartrate, etc. when pertaining to methods of capturing the induction of emotional states.

How Does Music Induce Emotional States?

State the main results of the studies in your primary sources here. Effective sad/happy states induced, sad states affected more, longer lasting.

Differences in Emotional States

Explain the difference between the emotional states that are recorded, the differences with happy/sad states, and why sadness has stronger/various effects.

Criticisms

I will put criticisms/limitations of both embodied cognition and specific studies. I will also list the limitations of this paper.

Conclusion

The conclusion of the paper will be done in this section.

References

Wilson, A. D., & Golonka, S. (2013). Embodied Cognition is not what you think it is. *Frontiers in Psychology*, *4*. https://doi.org/10.3389/fpsyg.2013.00058

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Khalfa, S., Roy, M., Rainville, P., Dalla Bella, S., & Peretz, I. (2008). Role of tempo entrainment in psychophysiological differentiation of happy and sad music? International Journal of Psychophysiology, 68(1), 17–26. https://doi.org/10.1016/j.ijpsycho.2007.12.001