

From I to WE: How Music Trigger Human Social Identity

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Abstract: From the perspective of evolutionary psychology, the social function of music is widely recognized. To explore the background, condition, and causes in the process of music triggering individual social identity, based on the review of previous literature, this paper proposes three main mechanisms: emotional resonance, physiological activation, and interactive exchange. Three paths respectively: first, music makes people share common emotions, and then feel a sense of belonging in a specific social group; second, people perceive music can bring a consistent physiological response and reach group synchronization; third, people's participation in a music work that to be completed is like a hypothetical N-person switching system, and can build social bonds with others. In general, this paper argues that music can trigger social identity through the above three interactive mechanisms, and provide more clues about the connection between social identity's foundation and the music field, expanding to larger impacts, results, and possible use.

Keywords: Music, social identity, evolutionary psychology, mechanism

1. Introduction

Music has been a part of human life for a long time. In the process of human development, infants form a kinship with their mothers through the lullabies they sing [1-2] and, children can acquire prosocial skills through music training [3]. As individuals move towards the collective, music also acts as a social bond, enhancing people's cohesion [4-5]. How did music evolve? Three views on the evolution of music stand out: the by-product view- like the "auditory cheesecake" theory [6]- and the two adaptionist views: music and social bonding (MSB) hypothesis [5] (which proposes music as a co-evolutionary system of social bonding) and signaling hypothesis [7] (which suggests that music plays a role as a trusted signal in alliance interactions and infant care). In the hypotheses mentioned above, there is more or less a connection between music and society.

Like most mammals, humans are "highly social animals" [8]. In the socialization process, individuals classify themselves as members of a specific social group and acquire corresponding emotions and values in that group [9], that is, social identity. Meanwhile, self-classification theory [10] suggests that identification with social groups may be a key component of individual decision-making and that social identification shapes perception and action. For example, a positive social identity can promote cohesion between groups. In addition, Different types of music can reinforce

different identities, so strengthening the sense of identity and community is one of the functions of music [11].

There is a lot of literature on the connection between music and social identity, but few attempts to link music and social identity within the framework of evolutionary psychology. Overall, both the observation of various phenomena and the study of the origins of music or social identity show that music seems to run through social connections. This inspires us to research the interactive mechanism of social identity triggered by music, hoping to provide a breakthrough point for solving the problem of group construction in reality from the perspective of causes.

2. Three paths of influence

This paper aims to integrate the interactive relationship between music and social identity, and as shown in Figure 1, tries to explain how music strengthens people's social identity in three aspects: emotional activation, neural connection, and exchange principle.

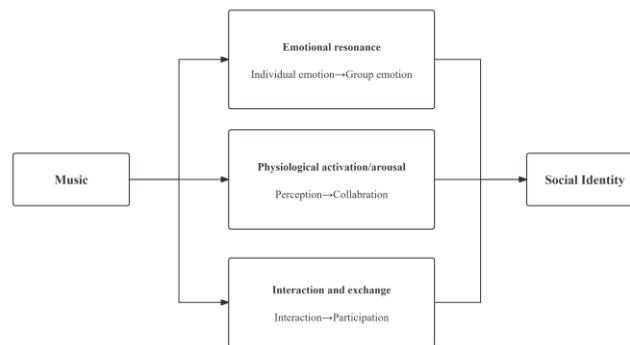


Figure 1: Three mechanisms between music and social identity

2.1. Hypothesis

How can Music trigger social identity? This paper proposes three hypotheses of mechanism: 1) emotional resonance; 2) physiological activation; 3) interactive exchange. On the whole, music, as a big abstract concept, is defined from different perspectives and often has different explanations. In this paper, we do not involve the evaluation of the definition of different dimensions of music but just try to find out the intermediate mechanism when people enhance their social identity through music. Meanwhile, we claim that these three mechanisms are based on the interaction between people and music. In addition, since music performance and listening are the most basic pieces of human's music experience, this paper will discuss these two aspects. Furthermore, the "social" here refers to the target group that participates in the same musical activity and directly experiences the music. It means that they can trigger the social identification of the corresponding musical group through the following three assumed mechanisms.

2.2. Emotional resonance

Music can convey emotions, which are called musical emotions, and are perceived by listeners [12], and people often have a similar understanding of the emotions expressed by music [13]. At the same time, people's emotions will also be stimulated during the process of listening to music: for example, a study by [14] shows that the physiological responses of people when listening to music with different emotional characteristics are very similar to the physiological changes of emotions produced in other occasions. So how does music start by triggering individual emotions and enhancing social identity between groups? In the emotional resonance mechanism, we propose the following

hypothesis: those who listen to music together, can stimulate their respective emotions through the change of music [14], and due to the infectious characteristics of emotion [15], this emotion is then continuously expanded in the group environment composed of listeners [16], bringing the stimulation of group similar emotions, that is, in-group emotions [17]. When people feel their own emotions, they are also more able to empathize with others, for empathy is linked to identity. In addition, music can generate positive emotion [18], and positive in-group emotions are generally believed to enhance cohesiveness and interpersonal closeness in the group and trigger social identity [17].

2.3. Physiological activation

According to neuroscience research, when people listen to music, a series of changes in the brain will activate different brain areas [19]. The physiological activation mechanism refers to the consistent physiological response within groups when people perceive music, which eventually leads to social identification. When listening to music, individuals often spontaneously follow the rhythm of the music [20]. During this time, people's musical instincts are stimulated [21], showing synchronization with the music, called entrainment [22], and this feature is also used in music therapy, such as the correction of gait problems in Parkinson's patients [23]. The same is true of groups, when people listen to music together, there will be synchronization, including the synchronization of brain responses, heart rate, etc. [24,25], which can become the basis for stimulating social identity through fostering group cooperation and cohesion [26]. At the same time, it has been mentioned in many studies that music with a strong sense of rhythm can stimulate the movement of groups, which shows the synchronicity of human periodic social behavior: the process of "social entrainment" [27] creates new social bonds [28]. At the same time, people will feel more similar to others, have a sense of dependence, and reduce the sense of distance [29]. People who show synchronization in music are more likely to feel that they are part of the group, and prosocial behavior will be promoted [30]. Through these processes above, social identity will be enhanced.

2.4. Interactive exchange

It is possible that people who play music together feel more connected to each other [4]. In it, everyone is an important part of the music, and it requires that no one has the behavior of free-riding, so the interaction not only happens between the individual and the music but also between the individual and the individual. Everyone needs to listen to each other and coordinate with each other to complete a complete music work. This simultaneously forms an N-person switching system: In this system, when everyone has similar tasks and is given the same expectations, communication will naturally occur and the system will function properly [31]. The whole music work to be completed, as an event that causes common and mutual reactions among participants, will trigger collective efforts while arousing group belonging and group belief [31]. Therefore, we can infer that one trigger of collective effort is based on the enhancement of social identity. The higher the level of collective effort, that is, the more active the musical interaction, the stronger the social identity.

3. Discussion

The above three mechanisms are not independent or mutually exclusive. In different situations, the triggering of music to social identity may go through different paths, or two or three may occur simultaneously. Because any music-related event has a complex process, especially for music performance activities, listening to music and interacting with music will occur. In addition, the mechanisms assumed in this paper do not take the activities related to music creation as the basis, because serious music creation activities are often carried out by individuals, while improvisational

music creation among multiple people is put under the interactive exchange mechanism in this paper, so the three mechanisms are mainly related to music listening and music performance.

While the social function of music is often discussed, the processes that occur during this influence have not been fully explored. Since music is the product of human activities and social identity is usually generated in human groups, this paper links the interaction mechanism of music and social identity, hoping to provide clues to the relationship between those two things. It must be admitted that this paper still has some limitations in this paper. First, due to the vast content of music, it is difficult to cover all aspects of music in this paper. Second, the mechanism of this paper is based on musical activities involving many people, but it does not rule out the possibility that social identity may be triggered when individuals listen to or play music, which needs further research. Third, this paper focuses on a directional analytical path of how music enhances social identity and does not provide the opposite way of influencing and the role that social identity plays in human groups. Therefore, this paper only provides a feasible logical framework, and the above conjecture can still be verified through empirical research and data collection in subsequent studies. And consider further explaining the actual role of social identity and how this interaction can be harnessed to solve practical problems.

4. Conclusion

This research concludes that engaging in music-related activities might strengthen an individual's sense of social identity, relying on the phenomena of music and social identity. On this basis, the objective of this work is to determine the unique link between music and social identity by summarizing past studies and supplementing research in this field. Emotional resonance, physiological activation, and interactive exchange are the three approaches. They view musical activity as the foundation needed for music ontology (such as rhythm and melody) to have an impact on people's social identities, and they distinguish musical activity from music ontology. What is told that music triggers a person's social identity is more obvious to us.

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References

- [1] Fancourt, D., & Perkins, R. (2018). The effects of mother–infant singing on emotional closeness, affect, anxiety, and stress hormones. *Music & Science*, 1, 205920431774574-. <https://doi.org/10.1177/2059204317745746>
- [2] Persico, G., Antolini, L., Vergani, P., Costantini, W., Nardi, M. T., & Bellotti, L. (2017). Maternal singing of lullabies during pregnancy and after birth: Effects on mother–infant bonding and on newborns' behaviour. *Concurrent Cohort Study. Women and Birth*, 30(4), e214–e220. <https://doi.org/10.1016/j.wombi.2017.01.007>
- [3] Schellenberg, E. G., Corrigall, K. A., Dys, S. P., & Malti, T. (2015). Group Music Training and Children's Prosocial Skills. *PloS One*, 10(10), e0141449–e0141449. <https://doi.org/10.1371/journal.pone.0141449>
- [4] Pearce, E., Launay, J., Machin, A., & Dunbar, R. I. M. (2016). Is Group Singing Special? Health, Well-Being and Social Bonds in Community-Based Adult Education Classes. *Journal of Community & Applied Social Psychology*, 26(6), 518–533. <https://doi.org/10.1002/casp.2278>
- [5] Savage, P. E., Loui, P., Tarr, B., Schachner, A., Glowacki, L., Mithen, S., & Fitch, W. T. (2021). Music as a coevolved system for social bonding. *The Behavioral and Brain Sciences*, 44, e59–e59. <https://doi.org/10.1017/S0140525X20000333>
- [6] Pinker, S. (1997). *How the mind works*. Penguin.
- [7] Mehr, S. A., Krasnow, M. M., Bryant, G. A., & Hagen, E. H. (2021). Origins of music in credible signaling. *Behavioral and Brain Sciences*, 44, e60.
- [8] Forgas, J. P., Haselton, M. G., & Von Hippel, W. (2011). *Evolution and the social mind : Evolutionary Psychology and Social Cognition*. In *Psychology Press eBooks* (pp. 179–194). <http://ci.nii.ac.jp/ncid/BA82704563>

- [9] Tajfel, H. (Ed.). (1978). *Differentiation between social groups: Studies in the social psychology of intergroup relations*. Academic Press.
- [10] Hogg, M. A., & Turner, J. C. (1987). Intergroup behaviour, self-stereotyping and the salience of social categories. *British Journal of Social Psychology*, 26(4), 325–340. <https://doi.org/10.1111/j.2044-8309.1987.tb00795.x>
- [11] Tekman, H. G., & Hortaçsu, N. (2002). Music and social identity: Stylistic identification as a response to musical style. *International Journal of Psychology*, 37(5), 277–285. <https://doi.org/10.1080/00207590244000043>
- [12] Juslin, P. N. (2013). What does music express? Basic emotions and beyond. *Frontiers in Psychology*, 4. <https://doi.org/10.3389/fpsyg.2013.00596>
- [13] Hevner, K. (1936). Experimental studies of the elements of expression in music. *The American Journal of Psychology*, 48(2), 246. <https://doi.org/10.2307/1415746>
- [14] Krumhansl, C. L. (1997). An exploratory study of musical emotions and psychophysiology. *Canadian Journal of Experimental Psychology/Revue Canadienne De Psychologie Expérimentale*, 51(4), 336–353. <https://doi.org/10.1037/1196-1961.51.4.3367>
- [15] Hatfield, E., Rapson, R. L., & Le, Y. L. (2009b). Emotional contagion and empathy. In *The MIT Press eBooks* (pp. 19–30). <https://doi.org/10.7551/mitpress/9780262012973.003.0003>
- [16] Garrido, S., Eerola, T., & McFerran, K. (2017). Group Rumination: Social Interactions Around Music in People with Depression. *Frontiers in Psychology*, 8. <https://doi.org/10.3389/fpsyg.2017.00490>
- [17] Mercer, J. (2014). Feeling like a state: social emotion and identity. *International Theory*, 6(3), 515–535. <https://doi.org/10.1017/s1752971914000244>
- [18] Sloboda, J. A., O'Neill, S. A., & Ivaldi, A. (2001). Functions of Music in Everyday Life: An exploratory study using the experience Sampling method. *Musicae Scientiae*, 5(1), 9–32. <https://doi.org/10.1177/102986490100500102>
- [19] Thaut, M. H., & Hodges, D. A. (2019). *The Oxford Handbook of Music and the Brain*. Oxford Library of Psychology.
- [20] Zentner, M., & Eerola, T. (2010). Rhythmic engagement with music in infancy. *Proceedings of the National Academy of Sciences*, 107(13), 5768–5773. <https://doi.org/10.1073/pnas.1000121107>
- [21] Hilton, C. B., Crowley, L., Yan, R., Martin, A., & Mehr, S. A. (2021). Children infer the behavioral contexts of unfamiliar foreign songs. *Journal of Experimental Psychology*. <https://doi.org/10.31234/osf.io/rz6qn>
- [22] Percival, H. (2021). *Can you hear the connection? A study on musical-social bonding* (Doctoral dissertation).
- [23] Hove, M. J., Suzuki, K., Uchitomi, H., Orimo, S., & Miyake, Y. (2011). Interactive rhythmic auditory stimulation reinstates natural 1/f timing in gait of Parkinson's patients. *Cognitive Science*, 33(33).
- [24] Abrams, D. A., Ryali, S., Chen, T., Chordia, P., Khouzam, A., Levitin, D. J., & Menon, V. (2013). Inter-subject synchronization of brain responses during natural music listening. *European Journal of Neuroscience*, 37(9), 1458–1469. <https://doi.org/10.1111/ejn.12173>
- [25] Tschacher, W., Greenwood, S., Ramakrishnan, S., Tröndle, M., Wald-Fuhrmann, M., Seibert, C., Weining, C., & Meier, D. (2023). Audience synchronies in live concerts illustrate the embodiment of music experience. *Scientific Reports*, 13(1). <https://doi.org/10.1038/s41598-023-41960-2>
- [26] Wiltermuth, S. S., & Heath, C. (2009). Synchrony and cooperation. *Psychological Science*, 20(1), 1–5. <https://doi.org/10.1111/j.1467-9280.2008.02253.x>
- [27] McGrath, J. E., & Kelly, J. R. (1986). *Time and human interaction: Toward a Social Psychology of Time*.
- [28] Vicaria, I. M., & Dickens, L. (2016). Meta-Analyses of the intra- and interpersonal outcomes of interpersonal coordination. *Journal of Nonverbal Behavior*, 40(4), 335–361. <https://doi.org/10.1007/s10919-016-0238-8>
- [29] Hove, M. J., & Risen, J. L. (2009). It's all in the timing: Interpersonal synchrony increases affiliation. *Social cognition*, 27(6), 949–960.
- [30] Kokal, I., Engel, A., Kirschner, S., & Keysers, C. (2011). Synchronized drumming enhances activity in the c audate and facilitates prosocial commitment - if the rhythm comes easily. *PLoS ONE*, 6(11), e27272. <https://doi.org/10.1371/journal.pone.0027272>
- [31] Tooby, J., Cosmides, L., & Price, M. E. (2006). Cognitive adaptations for n-person exchange: the evolutionary roots of organizational behavior. *Managerial and Decision Economics*, 27(2–3), 103–129. <https://doi.org/10.1002/mde.1287>