

Clarifying the link between music and social bonding by measuring prosociality in context

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Abstract

To corroborate the music and social bonding hypothesis, we propose that future investigations isolate specific components of social bonding and consider the influence of context. We deconstruct and operationalize social bonding through the lens of social psychology and provide examples of specific measures that can be used to assess how the link between music and sociality varies by context.

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Savage et al. (2020) present cross-disciplinary evidence that the evolutionary origins of musicality stem primarily from its ability to foster social bonding. Although the authors provide predictions for potential investigations that could corroborate this, we suggest future human research would benefit from combining two complementary approaches: (1) specifying which features of musicality (synchronization, learning, and listening) relate to which building blocks of social bonding (identity fusion and coalition formation) and (2) characterizing how context modulates the relationship.

Music has the ability to influence the *process* of forming affiliative connections and the downstream *effects* of forming those bonds. These separable components of social bonding are often conflated in Savage et al. (2020), which can muddle the predicted associations with different musical experiences. In an attempt to clarify, one avenue in which music can initiate the process of bonding is through *identity fusion* – the feeling of oneness with others through alignment of actions, affect, and/or preferences (Swann, Jetten, Gómez, Whitehouse, & Bastian, 2012). Playing music together can synchronize movement (drumming and dancing), voice (singing; Mogan, Fischer, and Bulbulia, 2017), and/or emotional states and such experiences can lead to increases in perceived identity fusion (Lawendowski & Besta, 2020; Páez, Rimé, Basabe, Włodarczyk, & Zumeta, 2015; Swann, Gómez, Seyle, Morales, & Huici, 2009). Non-synchronized musical experiences, such as simply liking the same music, may also lead to a shared sense of identity (Boer et al., 2012), although the extent of the feelings of fusion have yet to be fully explored. *Coalition formation* – which involves combining efforts to achieve a common goal – is another way in which social bonds can be formed through music. Playing music together, whether exactly synchronized or not, is a collective experience that involves shared intentionality (Tomasello, Carpenter, Call, Behne, & Moll, 2005). People perceive that musicians playing in time together are more likely to help each other than musicians playing out of time (Hagen & Bryant, 2003).

Playing music together can also influence the downstream effects of forming bonds, such as increasing trusting and cooperative behaviors. In lab settings, this can be measured with economic games, where people decide how to allocate money. After a joint singing task, for example, students were more willing to contribute money to the group during a public-goods game (Wiltermuth & Heath, 2009), than those who sang asynchronously or did not sing at all. Effects of forming social bonds can also be assessed with out-of-lab measures of *emotional prosociality*, in which, after an experimental manipulation, participants are asked by a confederate for help (Lefevor, Fowers, Ahn, Lang, & Cohen, 2017). Joint music-making has

also been shown to increase subsequent helping behaviors, relative to non-musical, non-synchronized tasks (Kirschner & Tomasello, 2010; Reddish, Tong, Jong, Lanman, & Whitehouse, 2016).

The influence of musical experiences that do not involve movement synchronization, such as listening to music together or learning musical sequences from others, on the process of forming social bonding is less clear. Although it may be that listening to music together leads to forming bonds because of the aural or emotional synchronization, the framework provided in Savage et al. (2020) does not explicitly state the process by which different features of non-synchronized musical experiences play a role in forming bonds and their subsequent effects.

To systematically characterize the links between musicality and various social bonding processes, future research should pair an isolated feature of musicality (e.g., playing, learning, dancing, or listening together) with measures of identity fusion or coalition formation. By fully mapping this space, research can more precisely assess the subsequent effects of each pairing. Imagine a study in which participants collectively listen to music (compared to a non-musical stimulus) and are subsequently asked to report feelings of perceived identity fusion. This can be compared to the effects of social bonding processes, as measured by the types of decisions made in the public-goods game and helping behaviors outside of the lab. Providing evidence of this link between self-report and actual behavior would establish the effect of musicality on components of social bonding.

It is also important to consider *how* social context modulates the relationship between features of musicality and social bonding (Tamir & Hughes, 2018). Situational constraints can impact the degree to which a person desires or seeks out social (FeldmanHall, Raio, Kubota, Seiler, & Phelps, 2015) or musical rewards (Sachs, Damasio, & Habibi, 2020; Thielmann, Spadaro, & Balliet, 2020). The number of people around, the degree of closeness one feels toward them, and the degree of certainty that they will behave prosocially within the group can swiftly shift the tensions embedded in the social dynamic (FeldmanHall & Shenhav, 2019). Research reveals that these factors influence emotional engagement when listening to music and willingness to synchronize with another (Miles, Griffiths, Richardson, & Macrae, 2009). In short, music's ability to foster social bonds is likely determined by the social context.

Use the Registered Report (Savage et al., 2020) as a practical example of how context can be incorporated into empirical investigations; it is predicted that cooperation would increase in groups performing a joint vocalization task with an accompanying beat. Should a null

finding be observed between groups who experience a beat compared to those who do not, the authors suggest this can be taken as evidence that musical synchronization does not facilitate cooperation any more so than basic language synchronization. However, a null finding may alternatively reflect the modulatory effect of context. Synchronizing to a beat with strangers might prove to be more uncomfortable compared to synchronizing to a beat with loved ones. Including additional conditions in which participants perform the task in dyads versus groups or with close others versus strangers would help drill down on how social context modulates the relationship between musicality and social bonding.

Here, we offer two points to sharpen the hypotheses laid out in Savage et al. (2020). Considering both the types of processes that lead to social bonding and the context in which they arise can clarify the evolutionary significance of musicality as a unique source of social bonding. We hope this framework will inform and inspire future empirical research aiming to test the theory that music is unique in its capacity to foster affiliative connections at a larger scale.

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Conflict of interest

None.

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