

which social groups have distinguished from each other throughout human history.

### Music Taste and Affiliation

Given well-documented difficulties in perceiving, remembering and producing the music of other cultures, it may not be surprising that music preferences vary among different ethnic groups. Music preferences tend to become further culture specific with age as the musical knowledge of one's own culture accumulates. In fact, focusing on rhythm in music, it has been shown that the preference for the musical structure of one's own culture is already evident around the age of 4 months. Music preferences also tend to vary to a considerable degree among different social groups within one culture.

Music taste is found to influence perception of others, and to play an important role in promoting affiliation among those who have similar music taste. Individuals tend to attribute more positive characteristics to fans of musical styles they themselves like, and shared music taste plays an important role in friendship formation, especially among adolescents.

In fact, music has shown to be one of the most frequently talked-about topics among individuals during their getting-acquainted period. Further, individuals can form correct impressions about others' personalities solely based on information regarding their music preferences. Other studies reveal that the inferences adults make about others based on their music tastes are not limited to personality characteristics but also include consistent inferences about others' political orientation, cognitive abilities, or social and ethnic characteristics.

### Conclusions

An individual, who relates to a certain style of music may affiliate with millions of other individuals who are also fans of that music style regardless of the languages they speak or their cultural or ethnic backgrounds. On the other hand, an individual, exhibiting knowledge of a traditional song from one culture instantly signals to another individual from that culture that he or she might have shared some social experiences in the past and thus might belong to the same cultural or social group, regardless of any preferences for that particular song. Thus, music can promote

affiliation among those who share similar musical experiences through diverse mechanisms, and the biological significance of music might be rooted in its social nature.

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**See Also:** Belonging; Cooperation; Cross-Cultural Communication; Cultural Identity; Dance; Lullabies; Music Culture; Social Bonding; Subcultures; Synchronization.

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## Audience

In the most straightforward sense, the audience for a musical performance consists of anyone listening to the music. Musicians typically want to

perform for a (preferably appreciative) audience, and professional musicians depend on revenue from audiences for their livelihood; for many musicians, audience feedback and their image of the audience (positive and negative) are central to how they conceive of what they do, and they consider audiences to be collaborators in their performance. But the range of types of audience across different genres and time periods is extremely wide. In fact, the clear distinction between performers and audience does not apply to all forms of music making. A great deal of music making throughout history and across regions of the world has been participatory, and the notion of “audience” does not capture the multiple roles of participants in communal rituals that involve music, for example, the roles of congregants singing along at a religious service or fans singing together at a sporting event.

The audience for music performed live is participating in a one-time-only event, in that a live performance will never be identical twice. In contrast, the audience for recorded music can experience a recording multiple times and in different places, and it can grow and extend into the future for as long as the recordings are available. How audience members can interact with each other varies across live performance situations in ways that alter the audience’s individual and collective experience, as well as the audience’s potential effects on performing musicians. The individual and collective experience of being an audience for recorded music has yet other dynamics, and these are changing as new forms of music distribution and sharing emerge.

Arguably, the body of social science and psychological research and claims about individual music perception and music listening can be seen as claims about audience, in that individual music listeners are all (solo) audiences. It is, however, unclear how what has been learned in studies of solo music perception and listening extends to how individuals experience music among others in a shared setting, or in the multiple hearings that audiences of recorded music experience and share.

### Forms and Nature of Audiences

The prototypical image of the audience for a live musical performance is of a group of people, all in the same physical space, sharing the experience

of intentionally listening to a designated musical performer or ensemble of performers at the same time. But the possible variations are enormous, and they blur the lines for what should be defined as an audience. An audience can range in size from just one listener in a face-to-face encounter with a performing musician to a massive stadium-full of listeners who can (more or less) see and hear each other to a globally distributed audience, not in the same physical space, simultaneously experiencing the music through broadcast media and thus aware that unseen and anonymous others are also listening—but with no evidence of others’ reactions. Audiences can form intentionally or spontaneously, with varying degrees of enthusiasm and intentionality for considering themselves an audience; consider the difference in intentionality between attending a sold-out concert with favorite performers after succeeding at securing tickets months in advance, listening to a sequence of acts at a jazz club where one did not know who the performers would be, temporarily joining others listening to a street performer in a crowded subway station, and happening to hear recorded background music in a department store among other shoppers.

Audiences can also vary in the anonymity of their composition, ranging from no members knowing each other to being comprised of one or more preexisting social groupings of which the members are aware, such that members who know each other may be able to predict others’ reactions. People can join an audience alone, or they can join with others whom they already know and are likely to interact with particularly (monitoring each other’s facial expressions, singing, clapping, conversing) during and after the performance. In all these cases, the listeners can be considered an audience, but their motivations, attention, premeditation, self-selection, and social engagement with other audience members are likely to vary.

The degrees of variation in how music can be individually and collectively experienced as an audience member increase exponentially with recorded music. People can listen to a recording alone or with others, and because multiple listenings are possible, they can have multiple audience experiences (alone or with others) with the same recording. Many different listeners can be



*Audience members light up during the song "The Price" at a Twisted Sister concert. During a performance of classical or otherwise "serious" music, appropriate conduct is silence, and feedback is limited to applause at the end of a piece. However, in other musical genres such as a rock club, a raucous audience is evidence of success.*

audiences for a recording at different times and in different places, including at the same time without knowing that others are also listening. The added complexity with new digital forms of music distribution is that listeners can be far more aware of others' reported experience and rankings of music, through social media sites that allow sharing and rating of recordings, than has ever been possible. This means that an audience can now be dispersed in space and time, never meeting each other in person or seeing each other, but interconnected in communicating about the music in new ways, such that the shared experience of "audience" for a piece of music can continually readjust and re-form over time. Again, this pushes the boundaries of what counts as an audience.

#### **Social Research on Audiences**

The body of research on copresent audiences for live music is far less developed than research on audiences for recorded nonmusical performance (for example, film and television audiences) or on listening and sales trends for broadcast music (radio or Internet) and music recordings. Work

carried out by market researchers has often been proprietary and thus unavailable to the public, as it has been designed for determining potential markets, measuring audience satisfaction in order to make informed concert scheduling decisions, or improving sales, rather than for scholarly purposes. While film and television studios have a long tradition of previewing video with live audiences and of collecting detailed feedback from audiences via surveys and focus groups that can inform marketers and even influence cinematic choices before a film or television show is released, the music industry does not have as systematic a tradition of preview research. More likely to be examined in music organizations (and sometimes publicly available) are sales statistics for concert attendance and music recordings as well as ratings for broadcast music, which give a useful view of audience tastes. Although such statistics do not give a detailed psychological or ethnographic view of (individual or collective) audience experience, they allow observation of trends in the music that audiences choose to patronize over time and can be segmented by region and audience demographics.



More detailed studies of collective experience and behavior in music audiences have been rarer, and the methods for studying musical audiences are not as well developed as they might be. Post-performance surveys of audience reaction are a tried-and-true method used by concert houses; such surveys have both the strengths and weaknesses inherent in retrospective self-reports, which do not allow as fine-grained measurement as concurrent self-report or behavioral measures can. More systematic observation of audience behavior, response, and even physiology in live music performances is becoming increasingly plausible, in specially designed concert facilities that allow physiological measurement of audience members through sensors at every seat, through high definition video capture that can enable systematic observation of audiences even in naturalistic dimmer lighting conditions, and through technologies that let audience members provide continuous ratings or reports of their reactions during a performance on mobile devices. Such measures vary in their intrusiveness and the extent to which they might distract audience members; for example, measuring arousal through galvanic skin response requires electrodes and wires to be affixed to an audience member, and asking audience members to enter ratings on a mobile device during a performance may well change their reaction compared to what it might have been without the measure.

*Audience behavior.* What exactly can be observed in audiences varies greatly across types of music, and it has varied in different periods in history as norms of audience behavior and feedback have changed. In a modern classical concert hall with a performance of “serious” music, absolute silence during the music tends to be expected of audience members, and a set of traditions about the kinds of feedback that are appropriate has evolved (e.g., no applause during or between movements of a multimovement piece; shouts of “bravo” or boos allowed during applause).

But in other genres of music making, and even in earlier eras of classical music making, absolute silence and full attentiveness to the music has not been the ideal. (In classical music, this norm seems to be a relatively recent development, advocated by composers and performers who wanted music to be given the serious attention

they believed it deserves; accounts from earlier eras suggest that audiences even of classical music engaged in applause concurrent with the music, and that they conversed and entered and left the hall much more freely during performances.) The range of audience response across genres can be quite large. In a jazz club, an appreciative audience claps and cheers during the music, particularly after well-received solos, and tapping, swaying, or dancing is not discouraged in the way it is in the typical classical concert hall; in a rock club, audience members may be expected to dance and scream, and a lack of enthusiastic movement is evidence (for other audience members, for the performers, and for the event producers) that the performance is not succeeding.

These differences in norms affects how audience members experience each other and how they can potentially influence each other. They also affect the cues about audience reaction available to performers.

Collective audience behavior can have systematic properties of contagion and periodicity akin to the kind of behavior observed in flocks of birds and schools of fish. Audio recordings of applause in theater and opera performances in Romania and Hungary demonstrate how periods of synchronized clapping emerge from nonrhythmic fast clapping with no evident structure; once some individuals begin clapping more slowly (doubling the period), others join in and can synchronize, but as the audience claps more loudly (presumably to express enthusiasm) the synchronization is destroyed, which leads to more cycles of nonsynchronized and then synchronized clapping. The mathematical dynamics of clapping seem to rely on social contagion from individuals who start and stop clapping; they are joined by others—not necessarily spatially nearby—who pick up on the starting and stopping, which can be characterized by surprisingly simple linear models based on how long the various individuals have clapped and how many others are still clapping. (These dynamics have clearly long been understood by “claqueurs” paid by performance promoters to rouse audience enthusiasm.)

Even less obviously voluntary behaviors like coughing during a musical performance can demonstrate properties of contagion. Coughing, which occurs particularly often in classical

concerts, increases in larger groups: audience members cough more per person when they are in a larger group. As anecdotes from classical concerts and systematic evidence from studies of classrooms show, people are more likely to cough when they are bored or confused by their experience, and their coughing increases the likelihood that others will cough. In fact, coughing seems to demonstrate spatial contagion: audience members are more likely to cough when someone near them coughs. To the extent that coughs reflect judgments that the performance is questionable, coughing can cascade into a public referendum that changes the audience's and performers' experience.

*Audience effects on performers.* Many questions remain unanswered about how and when audiences affect performers, the determinants of those effects in different genres of music and physical settings, and individual variability of performers in their sensitivity to or imperviousness to audiences. Performers who are deeply engaged in musical performance may not have the cognitive capacity to simultaneously monitor audience behaviors; moreover, too much awareness of one's audience is likely one element of debilitating performance anxiety, and a healthier mind-set may require mentally blocking out intrusive thoughts of audience reaction. At the same time, effective musical communication surely requires at least some attention to one's audience, much as effective linguistic communication requires at least some monitoring of one's partner in dialogue (although the elaborateness of these models, and the extent of individual variability, is actively contested among researchers on conversation).

The observable behaviors relevant for a performer's assessment of audience reaction will clearly vary across genres and require different cognitive capacities: noting the fans' appreciative silence or lack of coughing is different than noting their cheers and dancing.

### Changing Audiences

The massive changes in communication technologies and platforms of the current era, and ongoing changes in concert-going behavior and demographics, are challenging prototypical notions of audiences for musical performance.

The unprecedented access of listeners to more and more forms of recorded music, along with new ways of sharing opinions and creating communities with strangers, is changing the dynamics of how musical communities are created. Increased access to shared digital composition and mixing tools further blurs the lines between performers and audiences. It remains to be seen whether new looser, more spatially disaggregated and asynchronous communities will function in the same ways as physically colocated synchronous audiences, but it is likely that the experience of shared music listening that is the core of being an audience member is only expanding.

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**See Also:** Access; Aesthetic Response; Anxiety, Performance; Behavioral Measures; Brand Image; Fans; File Sharing; Music Journalism; Music Traditions, Continuing; Performance; Performativity; Social Bonding; Social Networking.

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## Auditory Cheesecake

Professor and popular writer Steven Pinker has long been a proponent of evolutionary psychology, an effort to apply principles of evolution by natural selection to explain complex social, behavioral and cognitive traits. Pinker has promulgated the view that music, unlike other universal features of human culture, does not provide evidence of being an evolutionary adaptation. He expresses the view that music more likely emerged in human evolution by indirect means, being the by-product of other processes, an accident of circumstance. In *How the Mind Works*, he writes the following:

As far as biological cause and effect are concerned, music is useless. It shows no signs of design for attaining a goal such as long life, grandchildren, or accurate perception and prediction of the world. Compared with language, vision, social reasoning, and physical know-how, music could vanish from our species and the rest of our lifestyle would be virtually unchanged. Music appears to be a pure pleasure technology, a cocktail of recreational drugs that we ingest through the ear to stimulate a mass of pleasure circuits as once.

The passage that gives title to this article can be seen a few pages following the quote above, where Pinker writes the following:

I suspect that music is auditory cheesecake, an exquisite confection crafted to tickle the sensitive spots of at least six of our mental faculties. A standard piece tickles them all at once, but we can see the ingredients in various kinds of not-quite-music that leave one or more of them out.

Later on, he proposes some possible nonadaptive causes for music's emergence in human cognitive and cultural evolution:

Perhaps a resonance in the brain between neurons firing in synchrony with a sound-wave and a natural oscillation in the emotion circuits? An unused counterpart in the right hemisphere of the speech areas in the left? Some kind of spandrel or crawl space or short-circuit or coupling that came along as an accident of the way that auditory, emotional, language, and motor circuits are packed together in the brain?

The term *spandrel* is borrowed from architecture, referring to the space between two adjacent archways and is used in evolutionary theory to describe traits that are by-products rather than targets of evolutionary forces. To conclude his argument, Pinker notes the following:

The analysis of music is speculative, but it nicely complements the discussions of the mental faculties in the rest of the book. I chose them as topics because they show the clearest signs of being adaptations. I chose music because it shows the clearest signs of not being one.

### A Counterfactual Argument

The speculation regarding the possible consequence of an absence of music in human culture ("virtually unchanged") is an example of what is termed a *counterfactual argument*, a thought experiment that presents a theoretical circumstance rather than one that is observable. In standard scientific experimentation, painstaking effort