

## **Music and Appraisal**

Over the past 30 years emotion research has shifted its emphasis from typical response patterns (basic emotion theory) or dimensional representation of emotional feeling to the mechanisms that determine the elicitation and patterning of an emotional response to an event. Appraisal theories of emotion (Scherer & Ellsworth, 2009) provide a comprehensive theoretical framework for the exploration of such elicitation mechanisms. Appraisal processes furnish crucial evaluations of events and situations which continuously drive other emotion components during the course of an emotional episode (changes in bodily symptoms, action tendencies, expressive behaviour, and subjective feelings). More recently, appraisal mechanisms are also discussed in the area of the aesthetic emotions, such as the emotional reaction to musical experiences (see Robinson, 2009).

In the context of musical experiences, emotional response patterns are the outcome of the elicitation of different induction mechanisms. Based on earlier suggestions, Scherer & Coutinho (2013) have postulated five major routes for induction: A, appraisal; B, memory; C, entrainment; D, emotional contagion; and E, empathy. In addition, the interaction between music structure and the particular conditions of the music listening situation, both in relation to listener expectation, mood, and personality and to the general situational context, will affect the resulting emotional reaction.

A central aspect of the appraisal of musical experience is the fact that listeners construe emotional meaning and experience emotions by attending (consciously or unconsciously) to structural aspects of the music. The appraisal process may occur in a rudimentary, automatic fashion at lower levels of the central nervous system (mostly the limbic system, including the brainstem), especially for evolutionarily 'prepared' stimuli, or in a series of more elaborated and more effortful processes involving the higher regions of the central nervous system.

At lower levels, certain structural aspects of music can trigger emotional appraisals by means of innate detection mechanisms of relevant affective information. For instance, it is plausible to assume that musical stimuli that share the acoustic characteristics of fear vocalizations (sudden onset, high pitch, wide range, strong energy in the high frequency range) may be appraised by the evolutionarily low-level but extremely powerful detection systems and may provoke physiological defense responses in a similar way to pictures of spiders or facial expressions of fear. Similar automatic evaluation processes can occur for auditory stimuli that are not themselves evolutionarily prepared but that have been conditioned to such stimuli by occurring repeatedly at the same time.

There is also evidence that musical sounds are evaluated against appraisal criteria of suddenness and/or novelty, particularly for evolutionary prepared stimuli (e.g., abrupt onset of sound, sharp attack of the amplitude and pitch envelopes, and sudden tone shifts), and, very importantly, intrinsic pleasantness. A good example is perceived roughness, and particularly sensory dissonance, since humans show a preferential bias favoring consonance over dissonance from the early stages of development, and that has a great impact in the development and appreciation of music. But more complex evaluations can also occur. An interesting possibility that, so far, has not been much explored in the psychology of emotion, is that, either as a part of intrinsic detection of importance or as a separate mechanism, there may be automatic evaluations of aesthetic qualities. Thus, it could be that there are some universal criteria of beauty that are

evaluated automatically on the basis of visual and auditory stimulation and give rise to an affective response (see also Robinson, 2009).

Another central role of appraisals of music structure is the evaluation of *discrepancies from expectations*, which relates to the listeners' tendency to anticipate what will happen next in the music, and it ties in directly into the fundamental issue of musical expectancies, which has been one of the earliest music-related appraisals highlighted by the pioneering work of Leonard Meyer (1956) on the emotional meaning of music. The appraisal of the discrepancy of temporal or melodic expectancies can occur on a micro-level, within phrases, or in much larger time frames, therefore the structural aspects of music relevant for this appraisal stage are not only low-level features (e.g., loudness, pitch level, timbre, tempo), but also the results of various hierarchical neural computations applied to those. Music expectancies, many other aspects of the appreciation of music, are strongly mediated by the exposure to particular music styles and link directly to appraisals of familiarity. Familiarity involves pattern matching with stored schemata (e.g., a particular music style), and evaluations of predictability, that is how musical sounds conforming to particular culture are more predictable to listeners of that same culture than other music systems), which are also central to the process of emotion induction through music.

As mentioned before, many aspects related to the listener (e.g., personality, mood, goals), the performance (e.g., musicians' quality and appearance, acoustic quality of the concert hall) and the physical and social context (e.g., location, occasion), have, directly or indirectly, an influence on the emotions produced by music. Appraisal processes also mediate these interactions at different levels. One example is the evaluation of *goal relevance*, that is particularly important to define how one will react to the music given particular goals related (or not) to music listening. The pervasiveness of music in everyday life and its concomitance with various physical and cognitive tasks and activities points out various levels of goals in engaging in musical activities. For instance, music is known to support and powerfully modulate cognition as well as to regulate arousal and emotion, which leads to the engagement in musical activities with goals such as the experience pleasure and specific instances of physical, emotional and cognitive regulation (e.g., to pass the time, keep awake, concentration, etc.). It should also be mentioned that music can also lead to undesirable effects much stronger than mere displeasure. Some physical effects (e.g., raised blood pressure and stress hormones) may be hard to deal with for some listeners, and, although rare, unwanted loud music can even trigger fits among epileptics. Appraisals of *urgency*, *control* and *adjustment* are fundamental in these contexts, and are often related to the ability to stop the music or easily leave its range of audibility.

Another important example of high-level appraisals in music are evaluations of *normative significance*, which consist of the overall assessment of the event with respect to its compatibility with one's self-concept, and values on the one hand and the dominant social-norms, and moral rules on the other. There seem to be prescriptions specific to culture and/or historical periods as to what is aesthetically pleasing, beautiful, and even what is to be rejected as a violation of 'good taste'. Throughout musical history, the social norm or standards criterion has been involved in powerful emotional reactions towards 'modern' music, which was seen as violating established standards of morality and decency. The well-known scandal provoked by the première of Igor Stravinsky's dissonant and polyrhythmic *Sacre du Printemps* or by the première of Edgar Varèse's surreal *Deserts*, both in Paris, are just two particularly drastic examples of strong emotional reactions to the perceived disregard of established standards. In relation to one's values and musical identity, it is important to mention the use of music as a

means and source for developing individual identities, to conform to a particular group, or to society in general.

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See Also: Emotion; Aesthetic emotions; Emotional contagion; Empathy; Entrainment; Evaluative conditioning; Imagery; Memory; Music cognition; Structure; Consonance and dissonance; Prosody; Expectancy; Everyday uses of music.

### **Further Readings**

Gabrielsson, A., & Lindström, E. (2010). The role of structure in the musical expression of emotions. In P. N. Juslin & J. Sloboda (Eds.), *Handbook of music and emotion: Theory, research, applications* (pp. 367–400). Oxford: Oxford University Press.

Meyer, Leonard B. (1956). *Emotion and Meaning in Music*. Chicago: Chicago University Press.

Juslin, P. N., & Västfjäll, D. (2008). Emotional responses to music: the need to consider underlying mechanisms. *The Behavioral and brain sciences*, 31(5), 559–75; discussion 575–621. doi:10.1017/S0140525X08005293

Robinson, J. (2009). Aesthetic emotions. In Sander, D., & Scherer, K. R. (Eds.). *Oxford Companion to Emotion and the Affective Sciences* (pp. 6-9). Oxford: Oxford University Press.

Scherer, K.R. and Coutinho, E. (2013). How music creates emotion: a multifactorial process approach. In T. Cochrane, B. Fantini, and K. R. Scherer (Eds.), *The Emotional Power of Music*. Oxford: OUP.

Scherer, K. R. & Ellsworth, P. C. (2009). Appraisal theories. In Sander, D., & Scherer, K. R. (Eds.). *Oxford Companion to Emotion and the Affective Sciences* (pp. 45-49). Oxford: Oxford University Press.