

Lecture 6.1 Music and the Psychology of Expectation

MUS 20 Exploring the Musical Mind

Summer Session II 2025

Instructor: Jingwei Liu | August 21, 2025

Relation to Meyer's Work

Sweet Anticipation: Music and the Psychology of Expectation by David Huron

- Meyer's seminal book, *Emotion and Meaning in Music*, argued that the principal emotional content of music arises through the composer's choreographing of expectation.
- Meyer noted that composers sometimes thwart our expectations, sometimes delay an expected outcome, and sometimes simply give us what we expect.
- Meyer suggested that, although music does contain representational elements, the principal source for music's emotive power lies in the realm of expectation.
- This research provides an opportunity to revisit Meyer's topic and to recast the discussion in light of contemporary psychological findings to form a comprehensive theory of expectation.

ITPRA theory

Sweet Anticipation: Music and the Psychology of Expectation by David Huron

- Any theory of musical expectation necessarily presupposes a general theory of expectation. The *ITPRA theory* is intended to provide such a general theory.
- The ability to anticipate future events is important for survival. Minds are “wired” for expectation.
- Neuroscientists have identified several brain structures that appear to be essential for prediction and anticipation. These include the substantia nigra, the ventral tegmental area, the anterior cingulate cortex, and the lateral prefrontal cortical areas.
- It's proposed that the emotions evoked by expectation involve five functionally distinct physiological systems: *Imagination, Tension, Prediction, Reaction, and Appraisal*.

ITPRA theory

Sweet Anticipation: Music and the Psychology of Expectation by David Huron

- *Pre-outcome* responses (feelings that occur prior to an expected/unexpected event)
 - Imagination Response
 - Tension Response
- *Post-outcome* responses (feelings that occur after an expected/unexpected event)
 - Prediction Response
 - Reaction Response
 - Appraisal Response

Imagination Response

Sweet Anticipation: Music and the Psychology of Expectation by David Huron

- *Imagining* an outcome allows us to feel some vicarious pleasure (or displeasure)—as though that outcome has already happened.
- This *imagination response* is one of the principal mechanisms in behavioral motivation. Through the simple act of daydreaming, it is possible to make future outcomes emotionally palpable. In turn, these feelings motivate changes in behavior that can increase the likelihood of a future favorable result.
- The imagination response provides the biological foundation for *deferred gratification*. Feelings that arise through imagination help individuals to forgo immediate pleasures in order to achieve a greater pleasure later.

Tension Response

Sweet Anticipation: Music and the Psychology of Expectation by David Huron

- Preparing for an expected event typically involves both motor preparation (*arousal*) and perceptual preparation (*attention*). The goal is to match arousal and attention to the expected outcome and to synchronize the appropriate arousal and attention levels so that they are reached just in time for the onset of the event. Usually, events require some increase in arousal.
- The physiological changes characteristic of high arousal are also those associated with stress. Not all high arousal is stressful: positively valenced emotions such as joy and exuberance will evoke high arousal with little stress. But anticipating negative events is sure to be stressful. In dangerous situations, organisms respond with one of three classic behaviors: *fighting*, *fleeing*, or *freezing*.

Tension Response

Sweet Anticipation: Music and the Psychology of Expectation by David Huron

- The tension response is linked to the period immediately prior to the anticipated moment of outcome.
- As the arousal and attention levels move toward an optimum level in anticipation of the outcome, the physiological changes themselves evoke characteristic feeling states.

Prediction Response

Sweet Anticipation: Music and the Psychology of Expectation by David Huron

- Once some event occurs, there ensues a convoluted sequence of physiological and psychological changes. It is useful to distinguish three post-outcome responses.
- Organisms respond better to expected events than unexpected events.
- Accurate predictions help an organism to prepare to exploit opportunities and circumvent dangers.
- When a stimulus is expected, appropriate motor responses are initiated more rapidly and more accurately.
- In addition, a stimulus is more accurately perceived when it is predictable.

Prediction Response

Sweet Anticipation: Music and the Psychology of Expectation by David Huron

- Since accurate predictions are of real benefit to an organism, it would be reasonable for psychological *rewards and punishments* to arise in response solely to the accuracy of the expectation.
- When the stimulus is expected, the emotional response is positively valenced; when the stimulus is unexpected, the emotional response is negatively valenced.
- Confirmation of expected outcomes generally induces a positive emotional response even when the expected outcome is bad.

Reaction & Appraisal Responses

Sweet Anticipation: Music and the Psychology of Expectation by David Huron

- The most obvious emotions in the post-outcome epoch are those that pertain to the pleasantness or unpleasantness of the outcome itself. Once an outcome is known, our emotions reflect some sort of *assessment* of the new state.
- Two types of responses to the advent of events:
 - Fast response (*reaction response*): “quick-and-dirty” assessment of the situation followed by an immediate somatic (bodily) response.
 - Slow response (*appraisal response*): more “thoughtful” assessment of the situation—a response that takes into account complex social and environmental factors.

Reaction Response

Sweet Anticipation: Music and the Psychology of Expectation by David Huron

- 1) **The response has a fast onset.** Typically, the onset of the response begins less than 150 milliseconds following the onset of the outcome. Although the onset of the response is fast, the somatic changes arising from the response might continue for several seconds afterward.
- 2) **The response is not mediated by consciousness.** No conscious thought or rumination is involved. Some reaction responses can even occur when we are asleep.
- 3) **The response is defensive or protective in function.** The reaction assumes a worst-case scenario, and responds accordingly.

Appraisal Response

Sweet Anticipation: Music and the Psychology of Expectation by David Huron

- Our initial reactions to events are susceptible to revision or augmentation. What we find initially exciting or startling may be completely transformed by further thought.
- The *reaction response* is quick and unconscious. Once conscious thought is engaged, the assessment of a situation is the province of the *appraisal response*.
- Appraisal responses can involve conscious thought that often draws on complex social and contextual factors. By contrast, the reaction response involves no conscious thought.
- The reaction response and the appraisal response are independent and need not be consistent with each other.