

## University of Groningen

### What Are Aesthetic Emotions?

Menninghaus, Winfried; Wagner, Valentin; Wassiliwizky, Eugen; Schindler, Ines; Hanich, Julian; Jacobsen, Thomas; Koelsch, Stefan

*Published in:*  
 Psychological Review

*DOI:*  
[10.1037/rev0000135](https://doi.org/10.1037/rev0000135)

**IMPORTANT NOTE:** You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

*Document Version*  
 Publisher's PDF, also known as Version of record

*Publication date:*  
 2019

[Link to publication in University of Groningen/UMCG research database](#)

*Citation for published version (APA):*

Menninghaus, W., Wagner, V., Wassiliwizky, E., Schindler, I., Hanich, J., Jacobsen, T., & Koelsch, S. (2019). What Are Aesthetic Emotions? *Psychological Review*, 126(2), 171-195.  
<https://doi.org/10.1037/rev0000135>

#### Copyright

Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license. More information can be found on the University of Groningen website: <https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment>.

#### Take-down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

*Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.*

## What Are Aesthetic Emotions?

Winfried Menninghaus, Valentin Wagner,  
Eugen Wassiliwizky, and Ines Schindler  
Max Planck Institute for Empirical Aesthetics

Julian Hanich  
University of Groningen

Thomas Jacobsen  
Helmut Schmidt University/University of the Federal Armed  
Forces Hamburg

Stefan Koelsch  
University of Bergen

This is the first comprehensive theoretical article on aesthetic emotions. Following Kant's definition, we propose that it is the first and foremost characteristic of aesthetic emotions to make a direct contribution to aesthetic evaluation/appreciation. Each aesthetic emotion is tuned to a special type of perceived aesthetic appeal and is predictive of the subjectively felt pleasure or displeasure and the liking or disliking associated with this type of appeal. Contrary to the negativity bias of classical emotion catalogues, emotion terms used for aesthetic evaluation purposes include far more positive than negative emotions. At the same time, many overall positive aesthetic emotions encompass negative or mixed emotional ingredients. Appraisals of intrinsic pleasantness, familiarity, and novelty are preeminently important for aesthetic emotions. Appraisals of goal relevance/conduciveness and coping potential are largely irrelevant from a pragmatic perspective, but in some cases highly relevant for cognitive and affective coping. Aesthetic emotions are typically sought and savored for their own sake, with subjectively felt intensity and/or emotional arousal being rewards in their own right. The expression component of aesthetic emotions includes laughter, tears, and facial and bodily movements, along with applause or booing and words of praise or blame. Aesthetic emotions entail motivational approach and avoidance tendencies, specifically, tendencies toward prolonged, repeated, or interrupted exposure and wanting to possess aesthetically pleasing objects. They are experienced across a broad range of experiential domains and not coextensive with art-elicited emotions.

*Keywords:* aesthetic emotions, aesthetic evaluation/appreciation, liking, beauty, being moved

Ever since the Greek and Latin treatises on poetics (for a compendium, see Quintilian, 1920), it has been widely assumed that emotions play a crucial role in the processing of artworks, and specifically, in the enjoyment associated with them. Accordingly, recent models of processing visual artworks (Chatterjee & Vartanian, 2014; Leder, Belke, Oeberst, & Augustin, 2004; Pelowski, Markey, Forster, Gerger, & Leder, 2017), literature (A. M. Jacobs, 2015), and music (Brattico, Bogert, & Jacobsen, 2013; Juslin,

2013) all include a component called “aesthetic emotions.” At the same time, none of these models provide a detailed definition or discussion of what aesthetic emotions actually are. The same holds by and large for the studies of individual aesthetic emotions to which we refer throughout this article.

The present article is the first to offer an in-depth theoretical discussion of the distinctive nature of aesthetic emotions. We propose that aesthetic emotions are primarily defined by four mandatory features that are largely in accord with Kant's foundational introduction of the concept (Kant, 1790/2001, pp. 89–159):

1. Aesthetic emotions are full-blown discrete emotions that, for all their differences in affective nature, relevant appraisals, and other emotion components, *always include an aesthetic evaluation/appreciation* of the objects or events under consideration. For example, feelings of suspense experienced in literary or filmic narratives are aesthetic emotions, if they not only refer to varying degrees of uncertainty experienced in a sequence of events (= ordinary meaning), but contribute, by virtue of being suspenseful, to appreciating the elicitors as well-made and powerfully engaging narratives (= aesthetic emotion meaning).

---

Winfried Menninghaus, Valentin Wagner, Eugen Wassiliwizky, and Ines Schindler, Department of Language and Literature, Max Planck Institute for Empirical Aesthetics; Julian Hanich, Department of Arts, Culture and Media, University of Groningen; Thomas Jacobsen, Experimental Psychology Unit, Helmut Schmidt University/University of the Federal Armed Forces Hamburg; Stefan Koelsch, Department of Biological and Medical Psychology, University of Bergen.

We thank John T. Cacioppo, Philipp Ekardt, Arthur M. Jacobs, Christine A. Knoop, Klaus R. Scherer, Mira Shah, and Melanie Wald-Fuhrmann for their helpful comments on earlier versions of this article.

Correspondence concerning this article should be addressed to Winfried Menninghaus, Department of Language and Literature, Max Planck Institute for Empirical Aesthetics, Grüneburgweg 14, 60322 Frankfurt am Main, Germany. E-mail: [w.m@ae.mpg.de](mailto:w.m@ae.mpg.de)

2. Each aesthetic emotion is differentially tuned to, and predictive of, a specific type of *aesthetic* virtue (for the classical theory of aesthetic virtues and vices, see [Quintilian, 1920](#)), or, defined in subjective terms, *a specific type of aesthetic appeal* (for the notion of appeal, see [Knobloch-Westerwick & Keplinger, 2006](#); [Muth, Hessler, & Carbon, 2015](#); [Oliver & Sanders, 2004](#)). These are reflected in the attributes differentially assigned to the eliciting objects or events. The majority of these attributes are derivatives of the respective emotion category, such as “moving,” “fascinating,” “surprising,” “shocking,” “suspenseful,” and so forth.
3. As a function of their bearing on subjective aesthetic appreciation, aesthetic emotions are *associated with subjectively felt pleasure or displeasure* during the emotional episode.
4. For the same reason, aesthetic emotions are an important (though certainly not the only) *predictor of resultant liking or disliking*.

After Kant, the construct of aesthetic emotions went largely untreated for some 200 years. Neither [Fechner \(1876\)](#) nor [Berlyne \(1971\)](#) included it in their foundational work on empirical aesthetics. It is only in the past two decades that the frequency of the term *aesthetic emotions* in science journals has surged from 11 in 1990–1999 over 73 in 2000–2009 to 194 in 2010–2017.<sup>1</sup>

A closer look at [Berlyne’s \(1971\) \*Aesthetics and Psychobiology\*](#) reveals reasons both for the long absence and the renewed interest in “aesthetic emotions.” [Berlyne \(1971\)](#) starts his chapter on “Emotion and Arousal” in aesthetic perception and evaluation with a brief and very selective review of earlier theorizing. A quote from the influential 18th century author [Dubos](#) opens the panorama; it highlights a topical blend of emotional affection and aesthetic appreciation that we will later treat as a key example of an aesthetic emotion: “The first aim at painting is to move us. A work which moves us greatly must be excellent on the whole” ([Berlyne, 1971, p. 61](#); for [Dubos’](#) original sentence which includes poetry, too, see [Dubos, 1719, p. 305](#)). Additional brief remarks bring up [Herder](#), [Wordsworth](#), [Stravinsky](#), and the art critic [Clive Bell](#). The latter, [Berlyne](#) notes, has “recognized something called ‘aesthetic emotion’ as the proper intermediary through which art does its work” ([Berlyne, 1971, p. 61](#)). For [Bell](#), aesthetic emotions are about evaluating visual artworks regarding the artistic “rightness and necessity” of their “lines and colors,” and, in accord with [Dubos](#), the potentially resulting “aesthetically moving forms” ([Bell, 1947, pp. 8 and 26](#)).

In [Berlyne’s](#) subsequent own treatment of “Emotion and Arousal” in aesthetic perception and evaluation, the authors and topics of his one-page literature survey do not play a role anymore. [Berlyne](#) exclusively focuses on general psychological mechanisms of emotional activation, arousal, intensity, hedonic value, and motivation in aesthetic evaluation, and he systematically disregards the role specific discrete emotions might play in this context. In contrast, the renewed interest in aesthetic emotions over the past two decades is associated with a focus on individual discrete emotions. Moreover, many of the relevant authors are informed by appraisal theories of emotions ([Arnold, 1960](#); [Lazarus, Averill, &](#)

[Opton, 1970](#); [Scherer, 1984](#)) which became more influential only after [Berlyne’s](#) seminal works (see also [Silvia, 2005a](#)). Notably, [Berlyne](#) does not consider interest which he does extensively treat as an emotion; the latter understanding was proposed only in more recent years ([Izard, 1992](#); [Silvia, 2005b](#)).

Like the more recent models of art-reception quoted above, the present article endorses the assumption that aesthetic emotions are a special class of discrete emotions that can explain additional variance of the process of aesthetic perception and evaluation which [Berlyne](#) left unaccounted for. We analyze the conceptual underpinnings and the theoretical implications of the construct of “aesthetic emotions,” propose ways of operationalizing such emotions, and, based on existing empirical evidence, emphasize their value for a more comprehensive understanding of aesthetic evaluation. In this process, we adopt many of the other predictors of aesthetic evaluation that [Berlyne](#) actually did treat.

In addition to the four mandatory features identified above, we propose a greater variety of prototypical features in the sense defined by [Fehr and Russell \(1984\)](#). Even though none of these prototypical features alone allow to determine whether a given emotional episode is an “aesthetic emotion,” they further delineate the overall range and nature of aesthetic emotions and hence make important contributions to a detailed and multicomponent characterization. At the conclusion of this article, 19 bullet points summarize the mandatory and prototypical features in the order of their treatment.

As we spell out our model, we project all hypothetical characteristics of aesthetic emotions onto the framework of multicomponent models of emotions (cf. [Frijda, 1986](#); [Scherer, 2005](#)). The resultant model is depicted in [Figure 1](#).

### Aisthesis, Aesthetics, Aesthetic Emotions, Aesthetic Evaluation, Aesthetic Stance

In order to understand what is at stake in the concept of aesthetic emotions, it is helpful to reconsider what is at stake in aesthetics as a whole. The concept of aesthetic emotions was introduced against the background of the distinction between theoretical, practical (moral), and aesthetic cognition, which first motivated philosophers from [Baumgarten](#) through [Kant](#) to establish aesthetics as a third and separate discipline in addition to theoretical and practical philosophy. For [Kant](#) as well as for the modern sciences, theoretical cognition strives for valid judgments of truth (correctness) by means of strictly concept-guided lines of argument and interpretations of available empirical evidence. In this process, theoretical cognition abstracts from the particulars of individual phenomena. In contrast, aesthetic judgments are in the end—regardless of the regularities they also imply—about individual objects, and they try to do justice to subtle nuances in appearance rather than abstract from these individualizing nuances ([Baumgarten, 1735/1954, 1750/2007](#); [Kant, 1790/2001](#)); they are hence based on the full richness of the perceptual input. For this reason, [Baumgarten](#) took recourse to the Greek word for sensory perception in general, namely, *aisthesis*, as he proposed a new field of philosophy under the name of “aesthetics.”

<sup>1</sup> We submitted a query on scopus.com with the default settings, searching for TITLE-ABS-KEY (“\*aesthetic emotion\*” OR “\*aesthetic feeling\*”).

# Aesthetic Emotions

## Eliciting objects/events

- Human faces, bodies, movements, voices, singing, language use
- Artworks/art performances across domains
- Animals, plants, natural environments
- Objects of design, cultural environments

## Key Appraisals

- Intrinsic pleasantness
- Novelty
- Familiarity
- Goal relevance/conduciveness
- Coping potential

## Physiology

- Activations of the autonomic nervous system
- Chills (goose bumps, shivers)
- Involvement of the reward circuitry

## Subjective feelings

Associated with pleasure/displeasure

Positivity bias, while including negative and mixed emotional ingredients

Cover the whole spectrum from high to low arousal

Intensity is enjoyed/savored for its own sake

Include evaluative feelings of liking/disliking

## Expressions

- Laughter, tears
- Facial and bodily movements
- Applause or boing
- Words of praise or blame

## Motivational tendencies

- Extended/repeated vs. interrupted/avoided exposure
- Wish to possess aesthetically appealing objects

## Functions

- Formation of aesthetic preferences
- Decision making
- Promotion of consent and dissent/distinction
- Promotion of well-being

Personality variables

Cultural and historical contexts

*Figure 1.* The multicomponent model of aesthetic emotions. Note that only the boxes highlighted in yellow and light blue are more extensively treated in the main part of this article. The other boxes reflect additional desiderata that are briefly discussed in the Limitations and Directions for Future Research section.

At the same time, *aesthetics* in this modern sense entails a special judgmental focus on aspects of the objects under consideration that are *subjectively perceived as pleasing to our senses and/or our cognitive capacities*. The Greek word *aisthesis* and the broader modern notion of sensory perception entail no such special judgmental focus. As a result, the modern discipline of aesthetics blends sensory perception and an evaluative focus that does not rely on abstraction from the richness (Latin: *copia*) of the sensory perceptual input.

Baumgarten and Kant proposed that the special task demands of aesthetic perception and evaluation call for special faculties

and processing routines. Both authors assumed a stronger involvement of emotional processes in this task compared with purely perceptual processes, on the one hand, and abstraction-based theoretical cognition, on the other. Put briefly, aesthetic emotions were attributed the power to evaluate, in a largely intuitive way, phenomena that by definition partially defy a strictly conceptual derivation—namely, the aesthetic virtues of individual objects or performances in all their richness and individuality.

Mathematical solutions for difficult problems can serve to highlight the difference between theoretical and aesthetic judgments. In

the end, a mathematical solution must be correct and valid, regardless of how many steps were needed to arrive at it and how complex it is. However, some solutions to cognitive problems are not only correct, but also appreciated for their elegance, and hence for a genuine aesthetic virtue. Typically, such solutions have an appearance of a surprising lightness, ease, and parsimoniousness considering the cognitive challenge to be solved (Chatterjee, 2013; Montano, 2014; Silver & Metzger, 1989). Newton's  $F = ma$ , Einstein's  $e = mc^2$ , and Heisenberg's  $E = hf$  are classical examples of elegance in cognitive achievements. Even for individuals who do not fully understand the meaning of these equations, the elegance of the concrete phenomenal form of the equation and possibly of the daring lines of thought that led to them is likely to contribute to the emotional coloring—which involves astonishment and admiration—in the appreciation of such outstanding cognitive achievements.

This example also serves to highlight that virtually everything—and by no means only artworks—can be viewed with a focus on its aesthetic virtues. Kant (1790/2001, pp. 91–92) was very meticulous about separating aesthetically judgmental feelings from nonaesthetic interests, yet this did not prevent him from considering human faces and bodies, flowers, landscapes, and animals as elicitors of aesthetic feelings, no less so than poems, music, paintings, architecture, cognitive achievements, and so forth (for a systematic account of these examples, see Menninghaus, 1999, pp. 78–83; for studies on everyday aesthetics see e.g., Yeh, Hsu, & Li, 2018; Yeh, Lin, Hsu, Kuo, & Chan, 2015). We see no reason to be less inclusive (see Figure 1).

We likewise do not adopt another limitation, namely, that aesthetically evaluative feelings require a top-down activation of an “aesthetic stance” or “attitude” (Juslin, 2013). We can well be inadvertently struck by a beautiful face or a beautiful building we come across or by an unexpected view opening at the turn of a trail, without any apparent necessity to consciously activate an aesthetic stance (Höfel & Jacobsen, 2007). Moreover, the neural circuitry for aesthetic evaluation has been shown to be essentially always and automatically “on,” and hence appears not to be in need of a special task- or focus-driven activation (Bohrn, Altmann, Lubrich, Menninghaus, & Jacobs, 2013; Chatterjee, Thomas, Smith, & Aguirre, 2009).

On a terminological note, the concept of an *aesthetic judgment of taste* retained substantial class-based implications throughout the 18th and 19th centuries, with *good taste* converging with the taste of the higher social classes. To avoid such implications, we instead use the terms “aesthetic evaluation” (Berlyne, 1971) and “aesthetic appreciation” (Berlyne, 1974; Fingerhut & Prinz, 2018; Scherer, 2012), without making a strict distinction between these terms (for a slightly different use of the term “appreciation,” see Oliver & Bartsch, 2010).

### The Structure of This Article

The first main section of our article, Distinguishing the Concept of Aesthetic Emotions from Related Concepts, sets aesthetic emotions categorically apart from several concepts with which they have been frequently identified: art-represented and art-elicited emotions, form- versus content-focused emotions, art as art emotions, and fiction-related, quasi-, and make-believe emotions. In the second section, Two Classes of Aesthetic Emotion Terms, we

propose a linguistic taxonomy that helps to disentangle the fuzziness of the term *aesthetic emotion*.

In the third section, Being Moved as an Exemplary Aesthetic Emotion, we show how empirical analyses can provide evidence that an emotional response is directly predictive of overall liking and/or the attribution of specific aesthetic virtues to the objects or events under consideration. We singled out emotional episodes of being moved as an exemplary test case for three reasons. First, being moved has a particularly long-standing tradition as an aesthetic emotion, dating back to Latin rhetoric and poetics. Second, the concept has been lexicalized with a largely convergent meaning across many Western, Slavic, and Asian languages. And third, several studies on being moved have already specifically focused on the role of feelings of being moved in aesthetic appreciation contexts. Our choice does not imply that we consider being moved *the* preeminent aesthetic emotion.

The fourth and most extensive section, Prototypical Properties of Aesthetic Emotions, analyzes general properties of aesthetic emotions with regard to the following components and dimensions of emotions: cognitive appraisals, subjective feelings, and peripheral physiology as well as neural substrates, expression components, and motivational tendencies.

## Distinguishing the Concept of Aesthetic Emotions From Related Concepts

### Art-Represented, Art-Elicited, and Aesthetic Emotions

Many recent uses of the term “aesthetic emotions” equate these with art-elicited emotions (Armstrong & Detweiler-Bedell, 2008; Konečni, 2005; Perlovsky, 2014; Scherer, 2004b; Scherer & Coutinho, 2013; Silvia, 2005a, 2010; Silvia & Brown, 2007; Silvia, Fayn, Nusbaum, & Beaty, 2015; but also see Juslin, 2013 and Marković, 2010). Some studies consider all music-elicited emotions to be simultaneously *musical aesthetic emotions* (Trost, Ethofer, Zentner, & Vuilleumier, 2012; Zentner, Grandjean, & Scherer, 2008; but see Payne, 1961, 1973). However, in the absence of any specific evidence that a given music-elicited emotion actually influences aesthetic evaluation, this conceptual equation is not sufficiently justified. Following Kant and in agreement with Juslin (2013; see also Kivy, 1991; Payne, 1980; J. Robinson, 2009), we systematically distinguish between art-represented emotions, art-elicited emotions, and aesthetic emotions proper.

Emotions are often represented, displayed, portrayed, or alluded to in works of art, be this through protagonists' expressions of emotion (Dijkstra, Zwaan, Graesser, & Magliano, 1995), musical cues—for example, of sadness or happiness (Juslin & Laukka, 2003), or semantic allusions, symbolic hints, and other subtle cues of mood and emotional atmosphere (cf. Bartsch, 2008; Bartsch & Viehoff, 2003; Fitch, von Graevenitz, & Nicolas, 2009; G. M. Smith, 1999). All such art-represented emotions and emotion cues can be (cognitively) perceived or decoded without the emotions necessarily being shared and felt by the art recipients. For instance, we can feel moral indignation as a protagonist displays profound satisfaction with a cruel act of murder; inversely, we can be satisfied if a vicious murder plot finally fails and the criminal is deeply disappointed (cf. Sherman & Morrissey, 2017). To be sure, emotions represented or displayed in artworks can also elicit

conforming emotions in the audience—research on the role of empathy and theory of mind in the processing of artworks has provided evidence for this (e.g., Eerola, Vuoskoski, & Kautiainen, 2016). However, such a convergence of art-represented emotions and emotions actually felt by the art recipient is far from being a necessary outcome (cf. Gabrielsson, 2001-2002; Pelowski et al., 2017).

In the context of art reception, aesthetic emotions are a subgroup of the emotions that artworks actually elicit in recipients. Again, it is distinctive of this subgroup of emotional responses that they are appreciative of specific aesthetic virtues, such as the power of an artwork to move, fascinate, and surprise us, and predictive of overall liking. By no means do all art-elicited emotions meet these criteria. For instance, in the case of a thriller, feelings of moral contempt regarding the murderer are not likely to predict how well made and enjoyable we find the thriller as a whole.

Given the pivotal importance of distinguishing art-elicited and aesthetic emotions, our theoretical review does not discuss in any detail studies on art-elicited emotions that either do not specifically address aesthetic emotions or simply treat the terms *art-elicited emotions* and *aesthetic emotions* interchangeably.

### Form- Versus Content-Focused Emotions

Several authors have identified the emotions that specifically appraise the artistic virtues of artworks as emotions that focus on the form of artworks rather than on their content (Frijda, 1989; Plantinga, 2009; Tan, 1996, 2000; Visch, Tan, & Molenaar, 2010). We do not fully adopt this distinction for two reasons. First, the form–content distinction is commonly limited to the representational arts, and specifically to narrative art forms, including film. However, some art forms are not representational in any narrower sense, let alone narrative (e.g., abstract painting and music that neither involves words nor follows a representational “program”). Second, we contend that it is problematic, even with regard to the representational arts, to categorically set apart emotional responses to content on the one hand and to form on the other. After all, artworks are widely held to be integrative wholes featuring high levels of interaction between form and content rather than consisting of neatly separable layers of form and content that can be orthogonally rotated (for empirical evidence in favor of this assumption, see Menninghaus, Wagner, Wassiliwizky, Jacobsen, & Knoop, 2017).

### “Art as Art” Emotions

Fingerhut and Prinz’s (2018) definition of “aesthetic emotions” as evaluating “art as art” is reminiscent of Clive Bell’s (1947) definition quoted above. Like the concept of “form”-focused emotions, it places the prime focus on the “appreciation” of aesthetic “goodness,” yet it avoids a clear-cut dissociation of form and content. The authors propose that wonder is the preeminent aesthetic emotion in that it is only elicited by artworks that combine highly extraordinary sensory, cognitive, and spiritual features and effects. The emotional nature of art-elicited wonder is circumscribed as “filling us with confusion” and perplexity, similar to awe, disturbing, harrowing, and “awakening existential thoughts about the fragility of life” as well as “a sense of our smallness,” and in the end eliciting spiritual feelings of reverence. Even though

not fully convergent, this analysis shows substantial overlap with Kant’s analysis of the feeling of the sublime (Kant, 1790/2001, pp. 128–159).

We do not challenge the notion that some great artworks specifically elicit feelings of wonder and awe, along with some deep and potentially life-changing thoughts (see also Konečni, 2005; Marković, 2012; Pelowski, 2015; Perlovsky, 2014; Prinz, 2011). However, empirical evidence suggests that only a small fraction of actual responses to artworks and media products are of such a profound nature (Gabrielsson, 2010; Juslin, 2013; Juslin, Liljeström, Laukka, Västfjäll, & Lundqvist, 2011). Consequently, Fingerhut and Prinz’s (2018) proposal is decidedly selective and limited in scope. It cannot—and does not claim to—account for the great majority of aesthetic emotions in response to artworks and media products, and it programmatically disregards all aesthetic emotions beyond the domain of the arts.

### Fiction-Related, Quasi-, and Make-Believe Emotions

Finally, in order to avoid potential confounds, we also distinguish aesthetic emotions from the theoretical concept of fiction-related emotions. Since the beginning of the 20th century, researchers in the field of psychological aesthetics (cf. Bawden, 1908; Clay, 1908; Kirschmann, 1900; Külpe, 1903; Ritoók, 1910; Stratton, 1902) and also philosophers (Geiger, 1914, 1922; Lange, 1901; Meinong, 1917; Witasek, 1901, 1904) have discussed potentially distinctive characteristics of emotional responses to fictional artworks using terms such as *as-if*, *quasi*, *inauthentic*, and *phantasy emotions*. Walton’s (1990) concept of *make-believe emotions* was later added to these classifications (cf. Mulligan, 2009; Solomon, 2003).

All these terms focus exclusively on the special ontology of emotions elicited by fictional artworks. Some authors explicitly acknowledged that this focus needs to be clearly distinguished from a focus on aesthetic evaluation proper and the concomitant feelings (Külpe, 1921; Witasek, 1904). After all, the aesthetic virtues of a beautiful work of fiction are no less real (or at least perceived as real) than those of a beautiful car or a beautiful human face. Thus, in our understanding, aesthetic emotions proper are not quasi- or make-believe emotions, even if other art-elicited emotions might be. We therefore disregard this distinction in our theorizing about aesthetic emotions (for a similar stance, see Juslin, 2013).

### Two Classes of Aesthetic Emotion Terms

Natural languages do not provide a special and nuanced vocabulary for aesthetic emotions (but see the Indian concept of *rasa* and the Chinese concept of *pin wei*; cf. Sundararajan, 2010; Thampy, 1965). As a result, most aesthetic emotion terms cannot but draw on “ordinary” emotion terms and hence are linguistically no different from the latter. This may have contributed to the conceptual confusion regarding aesthetic emotions. In order to reduce or fully avoid this confusion, we propose a taxonomy of two complementary classes of aesthetic emotion terms and elucidate the cognitive challenges that come with each class: linguistic terms used for designating aesthetic emotions either superimpose an aesthetically evaluative meaning on ordinary emotion terms (Class 1) or an emotional meaning on prototypical aesthetic virtue terms (Class 2).

The first class of aesthetic emotion terms directly draws on emotion terms that are also, and mostly primarily, used with an “ordinary” emotion meaning, such as joy, amusement, nostalgia, surprise, being moved, being shattered, fascination, boredom, disgust, and anger. Importantly, with regard to artworks, the use of these emotion terms is not just descriptive of emotional contents and effects but is also (implicitly) meant to be evaluative of the artwork qua artwork (cf. Hanich, Wagner, Shah, Jacobsen, & Menninghaus, 2014; Oliver & Bartsch, 2010; Wassiliwizky, Wagner, Jacobsen, & Menninghaus, 2015). That is, we enjoy and like a work of art *because* it moves, fascinates, elevates, shocks, or surprises us, and we dislike an artwork *because* it bores us or makes us angry (for a critical epistemological discussion of this double use of emotion terms in aesthetic contexts, see Prinz, 2004).

In the second class, the key semantic constituent is not an emotion term, but a term that primarily designates an object’s aesthetic virtue, with beauty being the most significant example. By itself, the attribution of beauty to any given object does not amount to simultaneously designating an emotional response that may come with this attribution. Therefore, treating beauty itself “as an emotion” (cf. Armstrong & Detweiler-Bedell, 2008; Tan, 2000) seems to be odd from a linguistic point of view (see also Fingerhut & Prinz, 2018). Kant (1790/2001) solved this terminological issue by adding the expression *the feeling of*, and hence by speaking of *the feeling of beauty* and *the feeling of the sublime*. Essentially, many classical aesthetic virtue terms that are not emotion terms—such as the attribution of vividness to special kinds of artistic representation (cf. Belfi, Vessel, & Starr, 2018; Menninghaus, 2009)—can in this way be reformulated as emotional experiences (*feelings of vividness*, etc.). The same applies to a great variety of other concepts that capture dimensions of aesthetic processing. For instance, *groove*—at least in the meaning which focuses on the subjective feeling of “groove” rather than on an objective rhythmical property only—could well be considered as a distinct aesthetic feeling (e.g., Janata, Tomic, & Haberman, 2012; Stupacher, Hove, & Janata, 2016; Witek, Clarke, Wallentin, Kringelbach, & Vuust, 2014).

To be sure, emotion terms of this latter type are clearly nonprototypical as emotion terms. At the same time, Kant’s detailed analyses of the feelings of the beautiful and of the sublime leave no doubt that they are meant to designate full-blown discrete emotions/feelings distinguished by characteristic appraisal structures and affective profiles. Put very briefly, feelings of beauty arise when we intuitively experience a good fit, or a free harmonious interplay, between our sensory and cognitive dispositions and the objects perceived to be beautiful (Kant, 1790/2001, pp. 68–78, 89–130). In contrast, feelings of the sublime (Kant, 1790/2001, pp. 128–159) involve some mismatch between our relative smallness and the grandeur and potentially devastating might of both nature and social conflicts. At the same time, feelings of the sublime precisely activate our determination to withstand these seemingly incommensurate challenges rather than feel dwarfed by them. As a result, the *liking* (*Wohlgefallen*) associated with feelings of the sublime integrates negative feelings of facing almost overwhelming challenges with the *pleasure* of nevertheless mentally living up to them (Kant, 1790/2001, pp. 143–148; Menninghaus, 1991; for similar analyses of feelings of the sublime and awe, see Eskine, Kacinik, & Prinz, 2012; Gordon et al., 2017;

Keltner & Haidt, 2003; Konečni, 2005). Notably, Kant’s analyses of feelings of the sublime and the beautiful, respectively, can be readily projected onto Berlyne’s distinction of “two mechanisms of positive hedonic value” in aesthetic appreciation: one entails an overcoming and integration of markedly “unpleasant” processing ingredients, whereas the other does not (Berlyne, 1971, pp. 81–82).

The two classes of aesthetic emotion terms strongly differ in how linguistically salient they make their bearing on subjectively evaluated aesthetic virtues. In the second class (*feelings of beauty*, etc.), it is crystal clear that the feelings are about aesthetic virtues. In the first class, however, this is far less obvious and in fact not necessarily the case. Rather, it is only in special contexts that self-reported feelings of being emotionally moved, for example, can simultaneously be both meant and understood as *implying* a positive aesthetic appreciation of the eliciting stimulus (for further treatment of this point, see the Being Moved as an Exemplary Aesthetic Emotion section). In this sense, our linguistic taxonomy also has theoretical importance for understanding the use and functioning of aesthetic emotion terms.

In expressions such as *the feeling of beauty*, the term *beauty* is an objective genitive. By itself, it designates an aesthetic virtue of the object of the feeling; it is only in combination with *the feeling of* that it becomes a genuine emotion term. In contrast, in the expression *the emotion/feeling of surprise*, the term *surprise* is a subjective genitive: it is by itself the specific emotion that is here subsumed under the general category *emotion*. Importantly, in cases of objective genitives, the English language prefers the word *feeling* over *emotion*. Therefore, expressions such as *feeling of beauty* and *feeling of the sublime* sound far more idiomatic than *emotion of beauty* and *emotion of the sublime*. Accordingly, translations of Kant’s treatises on the *Gefühle* of beauty and the sublime consistently use the term *feeling* rather than *emotion* (see also Starr, 2013).

Regarding these subtle differences in language use, a terminological convention established in the more recent psychology of emotions may give rise to potential confusion. In this special scientific context, only the relatively recent term *emotion* is used as a broad concept that encompasses multiple components of emotion (physiology, expression, action tendency, etc.), whereas the older term *feeling* has been narrowed down to exclusively designating the “subjective feeling component” of an emotion (Scherer, 2004a, 2005). Setting apart two near-synonyms in the service of a theory-guided distinction is a smart move. Nevertheless, in everyday language use, the words *emotion* and *feeling* are far less categorically set apart along these lines, and again, linguistic expressions such as *emotions of the sublime* sound far less natural than *feelings of the sublime*.

We honor this prevalent common language use throughout this article. At the same time, we retain the distinction between the broader terms *emotion* and *feeling*, on the one hand, and the more narrowly defined *subjective feeling component*, on the other. Thus, whenever we use the term *subjective feeling* (mostly in conjunction with terms such as *component* or *dimension*), we refer to the subjective feeling component only. In contrast, when we use the term *feeling* without such specification, it encompasses *all* components of an emotion and is in this sense synonymous with the term *emotion*.

### Being Moved as an Exemplary Aesthetic Emotion

Newly released films or novels are frequently advertised as being “deeply moving.” Much like in earlier uses of this term in Latin poetics (Cicero, 1962; Quintilian, 1920), 18th-century aesthetics (Schiller, 1792), and beyond, this attribute clearly implies that the respective films or novels stand out as being well made, powerful, and emotionally engaging artistic achievements (see also Pelowski et al., 2017). At the same time, many real-life episodes can likewise be experienced as deeply moving, including weddings, funerals, acts of separation and reconciliation, and many others (Cova & Deonna, 2014; Kuehnast, Wagner, Wassiliwizky, Jacobsen, & Menninghaus, 2014). Importantly, this dual capacity is by no means exceptional. Rather, in the case of the aesthetic emotion terms that are linguistically based on ordinary emotion terms (i.e., *being moved*, *surprise amazement*, *awe*, etc.), the aesthetically evaluative dimension mostly comes not as an alternative to, or instead of, the nonaesthetic meaning of that emotion term, but on top of it. This makes it all the more urgent to distinguish the aesthetic and nonaesthetic meanings of labeling something as *deeply moving*.

To begin, it is a key feature of states of being moved that they activate feelings of social connectedness and prosocial values (Fiske, Seibt, & Schubert, 2017; Kuehnast et al., 2014; Menninghaus, Wagner, et al., 2015; Seibt, Schubert, Zickfeld, & Fiske, 2017). Accordingly, experimental studies have shown that experiencing states of being moved can enhance prosocial behavior (Fukui & Toyoshima, 2014; Stel, van Baaren, & Vonk, 2008). Something similar appears to hold for literature-induced empathy (Kidd & Castano, 2013; Mumper & Gerrig, 2017, but see Bal & Veltkamp, 2013; Panero et al., 2016; Samur, Tops, & Koole, 2018), which is often an integral component of states of being moved.

Moreover, ample evidence suggests that music, films, and poems can elicit feelings of being moved along with feelings such as joy, peacefulness, nostalgia, or sadness (Eerola, Vuoskoski, Peltola, Putkinen, & Schäfer, 2018; Menninghaus et al., 2017a; Panksepp, 1995; Taruffi & Koelsch, 2014; Zentner et al., 2008). Are all these feelings automatically aesthetic feelings by virtue of being experienced in contexts of art and media reception, as occasionally suggested (Nusbaum & Silvia, 2014; Nusbaum et al., 2014)?

Because feelings of being moved are often experienced independently of aesthetic evaluation, Fingerhut and Prinz (2018, pp. 114–115) have pointed out that it is therefore unclear in which cases and to what extent feelings of being moved are actually specifically about the “goodness” of an artwork as an aesthetic achievement. We agree that this is *the* crucial question to be asked when it comes to distinguishing aesthetic from nonaesthetic emotions (see also Xenakis, Arnellos, & Darzentas, 2012). Like all aesthetic emotions that are linguistically derived from ordinary emotion terms (further examples being suspense, surprise, interest, boredom), being moved can be an “everyday” emotion, an art-elicited emotion in the broader sense, and, to the extent that it directly predicts aesthetic appreciation, an aesthetic emotion in the narrower sense. Again, as languages quite generally do not offer separate lexical items for each meaning they can communicate, they cannot but rely on context-specific activations of different meanings of the same lexical items.

Importantly, explicit efforts aimed at distinguishing these multiple meanings of the same lexical emotion items have provided strong empirical evidence that, in many cases, labeling a speech or an artwork as *moving* does indeed entail a genuine aesthetically evaluative dimension and that this aesthetic emotion dimension allows for a straightforward empirical confirmation. Thus, in a study by Hanich, Wagner, Shah, Jacobsen, and Menninghaus (2014), participants who had given high ratings for being moved by deeply sad film clips were expressly asked whether these ratings implied a positive or a negative appreciation of the clips as *artworks*. The response was unambiguous: The emotional response of being moved was expressly identified as implying appreciation of the clips as well-made films and hence as aesthetic achievements.

Another experimental study (Menninghaus, Wagner, Wassiliwizky, et al., 2017) provided even stronger evidence for this assumption. While keeping the content constant, 20 sadly and 20 joyfully moving poems were presented to participants in their original and modified versions. The modifications specifically targeted metrical regularity and rhyme, and hence stylistic features of poetic diction. Average ratings for being moved were significantly affected by these formal modifications of diction. Moreover, across both versions of the poems, ratings for being moved were strongly and directly predictive of ratings of overall liking as well as of differential degrees of perceived *beauty* and *melodiousness*. Hence, in these contexts, feelings of being moved clearly have a stake in genuine aesthetic appreciation, on top of their involvement in the processing of the poems’ contents.

On a similar vein, a study on the physiology and neural correlates of reading emotionally moving poems revealed that peak moments of states of being moved—as marked by chills and goosebumps—are sensitive to an important compositional feature: They typically occurred toward the ends of lines and stanzas, with the intensity increasing the more the poem approached its closure in the final line (Wassiliwizky, Koelsch, Wagner, Jacobsen, & Menninghaus, 2017). Hence, feelings of being moved appear also to be sensitive to the music-analogous tension—resolution structure (Huron, 2006; Meyer, 1961) of poems: With each additional line, the predictions of readers regarding the poem’s formal patterning and its overall trajectory, including its content, become increasingly strong, and so do the rewards of the resolution perceived both at intermediate closing points of the composition (cadences of lines and stanzas) and at the poem’s final conclusion.

Path analyses performed on the results of the above-reported studies provided further insight into the distinction between aesthetic and nonaesthetic emotions. They revealed that sadness ratings for film clips made no direct contribution to liking ratings once the common variance with ratings of being moved was accounted for, but only via the mediation of feelings of being moved (Hanich et al., 2014; Wassiliwizky et al., 2015). This pattern of results has been replicated for sad-sounding music (Vuoskoski & Eerola, 2017). Moreover, Taruffi and Koelsch (2014) have shown that sad-sounding music elicits predominantly positive feelings because it is associated with feelings of nostalgia and tenderness in Western listeners and feelings of peacefulness and tenderness in Eastern (Asian) listeners. We interpret these findings as implying that, in such contexts, feelings of sadness are not aesthetic emotions per se simply because they are elicited by



an artwork, but, more specifically, only because and to the extent that these negative feelings contribute to other emotional responses that are either positive or mixed in affective valence (Juslin, 2013). Only the latter emotions are, in turn, *directly* predictive of both beauty ratings and overall liking (cf. Menninghaus et al., 2017a; Wald-Fuhrmann, 2010).

However, the indirect contributions made by sadness are by no means negligible (cf. the section titled The Role of Negative and Mixed Emotions). It may therefore be worth investigating to what extent the understanding of aesthetic emotions could profit from a threefold distinction between emotions that are *directly* predictive of aesthetic appreciation (as measured by liking ratings and/or the attribution of specific aesthetic virtues to the objects or events under consideration), emotions that contribute to such appreciation *via a detour* through other emotions, and emotions that do *not at all* contribute to genuine aesthetic appreciation.

Notably, for joyfully moving films, path analysis revealed that joy does make a direct contribution to measures of self-reported liking; in addition, joy—like sadness—also contributes to liking via mediation through feelings of being moved (Wasiliwizky et al., 2015). The finding lends empirical support to the assumption that more than one aesthetic emotion can be elicited by the same stimulus. It also raises an interesting question for future research: Namely, whether or not negative emotions, contrary to positive ones, routinely only make *indirect* contributions to perceived liking and enjoyment. Evidence in favor of this distinction between positive and negative emotions would further strengthen the positivity bias of aesthetic emotions (see the Pleasure, Reward, and Positivity Bias section). However, this outcome appears to be not readily predictable considering the complex relations of positive and negative emotional response dimensions discussed in the Intrinsic Pleasantness and the Special Role of Negative and Mixed Emotions section.

To be sure, mediation analyses of the type referred to above do not prove a causal relation between the respective feelings and aesthetic liking. Still, they do impose higher standards on the statistical correlations by controlling them for the potential influence of other co-occurrent response dimensions. We therefore consider path analyses an important and helpful tool in research on aesthetic emotions. Essentially, great progress could be made in identifying aesthetic emotions if existing and published data sets that include multiple emotion ratings (such as suspense, fascination, or horror ratings) along with liking and aesthetic virtue ratings were reanalyzed for the direct, indirect, or absent contributions the respective emotions make to the ratings for liking and aesthetic virtues. Performing such analyses is likewise a means to test our underlying conceptual assumptions about *aesthetic emotions* being a proxy for *aesthetically evaluative emotions*.

Summing up, research on being moved strongly supports the notion that experiencing specific emotions can in some contexts be directly predictive of aesthetic appreciation, concomitant liking and the attribution of a special range of aesthetic virtues. This predictive power of specific discrete emotions cannot be derived from Berlyne's (1971) model of aesthetic evaluation but constitutes an explanatory factor of its own.

## Prototypical Properties of Aesthetic Emotions

In this section, we analyze prototypical properties of aesthetic emotions with regard to the following components and dimensions of emotions: cognitive appraisals, subjective feeling qualities, peripheral physiology and neural substrates, expression components, and motivational tendencies.

### Cognitive Appraisals

Throughout various psychological theories, prototypical emotions are conceived as processes comprising a broad variety of cognitive appraisals (novelty, intrinsic pleasantness, relevance, attributions of agency, coping potential, conduciveness to our goals/needs, conformity to social standards and self-ideals, and so forth; see Clore, Ortony, & Foss, 1987; Frijda, 1986; Lazarus, 1991; Reizenstein, 2001; Russell, 2003; Russell & Barrett, 1999; Scherer, 2005; C. A. Smith & Ellsworth, 1985). In this section, we focus only on those appraisals that we propose to have particular importance across *all* aesthetic emotions and, by implication, for aesthetic evaluation. By definition, this effort requires substantial abstraction from the many features that are likely not to be shared across the broad spectrum of aesthetic emotions.

**Intrinsic pleasantness and the special role of negative and mixed emotions.** From 19th century psychophysics (Fechner, 1860; Wundt, 1896) to Berlyne (1971, p. 81) and beyond, the experiential dimension of pleasantness versus unpleasantness has time and again become a key topic in conceptualizations of pleasure and hedonic reward, and in the cases referred to above partly or even wholly with a special focus on aesthetic evaluation. Typically, however, specific discrete aesthetic emotions did not play a role in this context. Scherer has adopted the (un)pleasantness dimension for an appraisal account specifically of aesthetic emotions. In Scherer's view, the appraisal of "intrinsic pleasantness" is *the* cognitive appraisal for perceived aesthetic appeal and concomitant aesthetic emotions (Scherer, 2005; Scherer & Zentner, 2001). In general, appraisals of intrinsic pleasantness are an individual's evaluation of a stimulus in itself and independently of the individual's current needs and goals. In the case of aesthetic emotions, intrinsic pleasantness appraisals are specifically predictive of "the appreciation of the intrinsic qualities of the beauty of nature, or the qualities of a work of art or an artistic performance" (Scherer, 2005, p. 706).

Many findings and hypotheses in empirical aesthetics can be interpreted as supporting the importance of subjectively perceived pleasantness for aesthetic evaluation. Thus, it has been shown that, in aesthetic evaluation, perceived intrinsic pleasantness and concomitant liking are often driven by optimal arousal levels (Berlyne, 1971, 1974), optimal innovation levels (Giora et al., 2004; Hekkert, Snelders, & van Wieringen, 2003; Jacobsen, 2010; Loewy, 2002, p. 278), familiarity and mere exposure effects (Bornstein, 1989; Reber, Winkielman, & Schwarz, 1998; Zajonc, 1968), processing fluency (Reber, 2016; Reber, Schwarz, & Winkielman, 2004; Silvia, 2007; Winkielman & Cacioppo, 2001; Winkielman, Schwarz, Fazendeiro, & Reber, 2003), and perceptual processes such as contrast extraction, figure—ground separation, grouping, closure, and segmentation (Birkhoff, 1933; Eysenck, 1942; Köhler, 1929; Ramachandran & Hirstein, 1999). None of these findings and hypotheses refer to extrinsic goals or needs of observers; rather, they are based on intrinsic stimulus qualities as

well as on genetic and learned processing dispositions on the part of observers, which are also included in Scherer's definition of the intrinsic pleasantness appraisal (Scherer, 2005; Scherer & Zentner, 2001). Comparing aesthetic emotions with moral emotions makes the distinctive importance of the appraisal of intrinsic pleasantness all the more obvious: Moral emotions are not about sensory and cognitive pleasantness, but are rather, and even at the expense of some unpleasantness, about compatibility with socially accepted moral norms and (self-)ideals.

Although the appraisal of intrinsic pleasantness is of key importance, our understanding of aesthetic emotions differs from Scherer's in that we do not define aesthetic emotions by exclusive reference to this appraisal. Rather, we argue that all appraisals discussed in the present subsection make substantial and distinctive contributions to determining specific aesthetically evaluative emotions. Moreover, the emphasis on intrinsic pleasantness cannot by itself account for the important role of mixed and negative emotions—which typically are not experienced as (thoroughly) pleasant—in a broader range of aesthetic emotions. Kant already emphasized that the pleasure associated with aesthetic emotions is not limited to mere pleasantness and purely positive valence (Kant, 1790/2001, pp. 91–92), but in many cases is compatible with a dual process of “being attracted” and “repelled” (Kant, 1790/2001, p. 129). For other authors, as well, intellectual and emotional pleasures (including those of art reception) routinely “encompass negative emotions like sadness [. . .] and positive emotions that entail complex appraisal” (Dubé & Le Bel, 2003, p. 291; see also Berenbaum, 2002; Frijda & Sundararajan, 2007; Kubovy, 1999). In line with this understanding, the pleasure taken in the tension–resolution trajectories of music (Huron, 2006; Meyer, 1961; Salimpoor et al., 2013) often involves and integrates (temporarily) disappointed expectations. The temporal trajectories (for this concept, see Fitch et al., 2009) of narratives in different media as well as poems typically also include many unhappy and unpleasant events, including tragic endings.

As negative emotions are particularly powerful in securing attention, intense emotional involvement, and privileged access to and retrieval from memory (Cacioppo & Gardner, 1999; Frijda, 1988; R. J. Larsen & Prizmic, 2008; Musch & Klauer, 2003; Rozin & Royzman, 2001; Vaish, Grossmann, & Woodward, 2008), they are in fact conducive to, if not indispensable for, the very goals of art which are not least about access to these three resources: attention, emotional involvement, and memory. Accordingly, artworks that involve both positive and negative emotions are often experienced as more intense, more interesting, more emotionally moving, more profound, less prone to causing boredom, and occasionally even more beautiful than artworks that exclusively elicit positive emotions (for a comprehensive model of the psychological mechanisms that support the positive embracing of negative emotions, including a review of relevant literature, see Menninghaus et al., 2017a, 2017b).

Mixed emotions (Cacioppo, Gardner, & Berntson, 1999; Gonzalez, Smith, & Nielsen, 2017; J. T. Larsen, 2017; J. T. Larsen, Coles, & Jordan, 2017; J. T. Larsen, McGraw, & Cacioppo, 2001; Man, Nohlen, Melo, & Cunningham, 2017) are of particular importance in this context. They often help adopt the powers of negative emotions for affectively positive and aesthetically pleasurable purposes (Menninghaus et al., 2017a), specifically in the many cases in which mixed emotions are not associated with strict

ambivalence and a need for making difficult decisions, but show an overall prevalence of positive over negative affect, such as in nostalgia (Routledge et al., 2011; Wildschut, Sedikides, Arndt, & Routledge, 2006; Zhou, Wildschut, Sedikides, Chen, & Vingerhoets, 2012), being moved (Hanich et al., 2014; Wassiliwizky et al., 2015), and suspense (Menninghaus et al., 2017a).

Importantly, the inclusion of negative emotional response dimensions in predominantly positive emotional episodes is by no means limited to art reception. Experiences of the sublime and of awe in response to nature similarly entail such dimensions (Kant, 1790/2001, pp. 128–149; Gordon et al., 2017; Keltner & Haidt, 2003; Konečni, 2005; Silvia et al., 2015).

We therefore propose that the appraisal of intrinsic pleasantness is only a key predictor of perceived aesthetic appeal, and consequently of specific aesthetic emotions, if a special provision is added to its general definition: It should allow for integrating select unpleasant and affectively negative ingredients as resources that can enrich and altogether deepen positively valent aesthetic emotions, rather than being invariably detrimental to them. Such license is likely to differ for individual aesthetic emotions. (The example of being moved given above specifically allows for an integration of sadness into an overall positive feeling.)

It follows from these considerations that measures for aesthetic emotions should include separate unipolar ratings for positive and negative response dimensions rather than bipolar scales (for the use of such unipolar ratings, see Hunter, Schellenberg, & Schimmack, 2010; J. T. Larsen & Stastny, 2011; Menninghaus, Wagner, Wassiliwizky, et al., 2017). Alternatively, the two-dimensional Evaluative Space Grid (J. T. Larsen, Norris, McGraw, Hawkey, & Cacioppo, 2009) could serve the same purpose. We predict that in the majority of cases, the results for positive and negative response dimensions, including ratings for *pleasant* and *unpleasant*, will not be strictly reciprocal.

**Novelty and familiarity.** Today's psychology of emotion widely holds that detecting something novel and unpredictable in one's environment is a fundamental prerequisite for triggering an emotion episode (Huron, 2006; Juslin, 2013; Scherer, 2005). Ever since its foundation as an academic discipline, aesthetics has also stressed the expectation that aesthetically appealing objects should be novel and unique in one way or another. Although falling under the same heading, the novelty requirements of emotion psychology and aesthetics need to be clearly distinguished. Most of the time, novelty checks in the sense of emotion theory determine degrees of novelty regarding our present situation and by no means some categorically innovative (supernormal, deviant) feature on the part of the object or event under consideration. By contrast, the latter meaning of novelty is prevalent in aesthetics (Berlyne, 1971, pp. 142–143; Darwin, 1871/1981, Volume 2, p. 230; Fayn, MacCann, Tiliopoulos, & Silvia, 2015). Specifically, it has been shown that novelty of this sort supports interest, as long as it does not push cognitive challenges beyond individual tolerance levels; if very high degrees of novelty exceed such levels, confusion may result (Silvia, 2010).

At the same time, familiarity and familiarity-driven ease of processing are strong predictors of aesthetic appreciation-driven liking (Bornstein, 1989; Margulis, 2014; Reber et al., 1998; Zajonc, 1968), with combinations of familiarity and novelty often being particularly appealing (Giora et al., 2004; Hekkert et al., 2003). An entire research line—the investigation of peak physio-

logical and emotional responses to artworks—relies on both the familiarity of self-selected artworks and the absence of wear-out effects due to repeated exposure (Benedek & Kaernbach, 2011; Blood & Zatorre, 2001; Goldstein, 1980; Grewe, Nagel, Kopiez, & Altenmuller, 2007; Panksepp, 1995; Rickard, 2004; Salimpoor, Benovoy, Larcher, Dagher, & Zatorre, 2011). Similarly, many viewers seek repeated exposure to their favorite suspenseful films. In these cases, intense repeated enjoyment is even more of a “paradox” (Carroll, 1996; Yanal, 1996), as feelings of suspense are typically understood to be dependent on *not* knowing the outcome in advance (see Lehne & Koelsch, 2015).

Thus, contrary to the assumption of Armstrong and Detweiler-Bedell (2008), high familiarity does not necessarily predict only a “mild” and relatively flat type of aesthetic appreciation-driven pleasure; rather, it is clearly compatible with experiencing strong emotional responses. Moreover, recent research suggests that fluency is by no means always an antidote to disfluency, but that both routinely co-occur, specifically, in the processing of poetic and rhetorical language (Menninghaus, Bohm, et al., 2015; Wallot & Menninghaus, 2018). It follows that measures of aesthetic emotions should profit from being accompanied by rating items that are designed to separately capture aspects of fluency and disfluency of processing, and hence cover the whole spectrum of familiarity and novelty. We expect that in many cases, the measures for both poles of the spectrum should correlate positively with ratings for liking and special aesthetic virtues.

Repeated exposure can enrich and expand our familiarity with both artworks and natural sceneries by providing opportunities to discover ever new dimensions and consolidate them over time (for empirical evidence, see Dixon, Bortolussi, Twilley, & Leung, 1993). In this sense, novelty and familiarity appear not to be strict opposites in aesthetic perception and evaluation, and precisely this may constitute a distinctive role for novelty and familiarity appraisals in the context of aesthetic emotions.

**Goal relevance and goal conduciveness.** From an evolutionary perspective, beauty judgments and their affective correlates are highly relevant for mate choice and reproductive success (Darwin, 1871/1981). By contrast, a feature frequently suggested to be distinctive of art-elicited emotions (including aesthetic emotions proper) is a presumed lack of “goal relevance” for practical purposes (cf. Scherer’s opposition of “aesthetic” vs. “utilitarian” emotions, Scherer, 2004b, 2005).

However, this lack of pragmatic goal relevance and goal conduciveness has been embraced too easily as reflecting art’s much-acclaimed “autonomy” and the “disinterested pleasure” associated with it. Kant’s emphasis on the disinterestedness of aesthetic judgment exclusively meant that “pure” aesthetic judgments should be independent of any pragmatic interests. This does not imply that aesthetic emotions/feelings are, or should be, wholly devoid of personal relevance. In fact, Kant stipulated that feelings of beauty “directly bring with them a feeling of the promotion of life” (Kant, 1790/2001, p. 128). And he attributed to the less intellectual arts and forms of play—among which he counted music—the power to literally “promote the feeling of health” and “the restoration of balance,” thus directly affecting physical and psychological “well- or ill-being” (Kant, 1790/2001, pp. 208–209).

Typically, individuals are not aware of any mid- or long-term goals they might promote through aesthetic experiences. By con-

trast, short-term goals—such as pleasure seeking, mood enhancement, avoiding boredom, self-distinction through aesthetically appealing self-presentation (dance, self-ornamentation, displaying objects of high cultural and aesthetic prestige)—can well be hypothesized as being pursued in a more self-conscious fashion. For example, we often go to the movies or to a theater performance with the conscious goal of experiencing some excitement and/or emotional uplift (Oliver, 2003; Strizhakova & Krmar, 2007; Zillmann, 1988). If our anticipations are not met, negative aesthetic emotions arise, ranging from dislike to frustration or even anger about a poor performance.

Artworks may also activate—and occasionally challenge—an individual’s social norms and highly esteemed values in ways that allow—by means of empathy, identification, or affective transference—for the feeling that the individual’s own goals are at stake in the artistic representation (Silvia & Brown, 2007). In a similar vein, a recent neuroscientific study on images that were rated as more or less emotionally moving arrived at the conclusion that the neural activation patterns indicated a sense of “this matters to me” and hence of personal relevance, dependent on how emotionally moving the images were rated to be (Vessel, Starr, & Rubin, 2013; see also Starr, 2013). Finally, engagement with music often satisfies a wish or need to experience emotions in social interaction while synchronizing one’s movements with those of others (Koelsch, 2013; see also DeNora, 2010).

**Coping potential.** Regarding our chances of coping with given or upcoming changes in the environment, we have no means to alter the plots of narrative artworks, which may well include undesirable events. In ordinary-life scenarios, such a lack of coping potential will typically elicit mildly to markedly negative emotions. However, the top-down activation of a cognitive art framing (Apter, 1992, 1993; Gerger, Leder, & Kremer, 2014; Wagner et al., 2015; Wagner, Menninghaus, Hanich, & Jacobsen, 2014) extends the realm of pleurability by structurally suspending any concern regarding a threat to ourselves and concomitant evaluations of our personal chances of coping with this threat. (Similar to the appraisal of pragmatic coping potential, appraisals of “own causation” are also mostly of low relevance for aesthetic emotions, which are typically tied to an observer stance).

At the same time, the aesthetic enjoyability of objects and events that are not under our control is limited to situations in which our own safety is not at stake (see also Pelowski et al., 2017). We will not admire the beauty of a tiger as he jumps on us in attack. Similarly, the curvature and movement of giant waves are superbly beautiful *and* sublime to behold from a distance, but barely so in the moment where they are about to come crashing down on us. In such cases, we would need to give a negative answer to both the “power” and “adjustment” items of the factor “coping potential” in the Geneva Appraisal Questionnaire (see <http://www.affective-sciences.org/researchmaterial>; Scherer, 2001), for we would neither be able to avoid the imminent disaster through our own action nor could we live with the consequences that result from it. Only when one of these two conditions holds is there a chance to experience aesthetic emotions.

Beyond such concerns about control, safety, and sheer survival, some artworks can also challenge our capacities for cognitive and affective coping on less dangerous dimensions (Leder et al., 2004; Pelowski et al., 2017). Thus, to the extent that “the aesthetic experience can be understood as a challenging perceptual problem-

solving process” (Carbon & Leder, 2005, p. 499; see also Muth & Carbon, 2013; Muth et al., 2015), our perceptual and intellectual coping potential with respect to this challenge appears to have a direct bearing on the emotional reward or frustration associated with the processing effort (see also Silvia, 2006, 2010 on the role of comprehensibility). With “difficult” works of art, successful intellectual coping may in itself be a specific emotional reward for the connoisseur.

Artworks can also challenge our coping potential with respect to our personal preferences and tolerances regarding specific contents (Silvia & Brown, 2007). Thus, film scenes of graphic violence may exceed our tolerance and our potential to cope with such images in ways that are disruptive to the enjoyment of the media products that include these (Oliver & Sanders, 2004; Tamborini, Stiff, & Heidel, 1990). In such cases, a lack of coping potential regarding the challenges the movie exerts on the viewer will most likely result in the viewer’s motivational tendency to temporarily close his or her eyes and thus, through an act of avoidance, regain control over the situation (on this “control hypothesis,” see Andrade & Cohen, 2007; Apter, 1992, 1993; Eaton, 1982; Morreall, 1985; Tan, 2008; Witasek, 1904, pp. 116–117).

To be sure, engagement in physical and intellectual activities is likely to share some of the coping-potential-related characteristics of aesthetic emotions. Still, when viewed in their entirety, the general appraisal characteristics of aesthetic emotions add up to a complex profile that shows a systematic tension between two overarching tendencies. At first glance, the majority of the appraisals discussed above set aesthetic emotions clearly apart from the more pragmatic emotions in ordinary-life contexts. However, upon second inspection, aesthetic emotions often imply a distinct, autochthonous variant of the very appraisals that are at first sight irrelevant for them.

### Subjective Feeling Qualities of Aesthetic Emotions

**Pleasure, reward, and positivity bias.** As highlighted in the introductory section, “feelings of pleasure and displeasure” are for Kant closely associated with aesthetically evaluative emotions (Kant, 1790/2001, p. 83; for an empirical test of Kant’s theoretical assumption, see Briemann & Pelli, 2017). Importantly, however, the two poles pleasure and displeasure do not play a symmetrical role in aesthetically evaluative emotions. Kant does not even use terms that might be understood as antidotes to beauty and the sublime (such as *ugliness* and *the ridiculous*). In fact, throughout the entire tradition of aesthetics, aesthetic emotion terms that designate unambiguously negative emotions have been far less nuanced and frequently used than those of the positive spectrum, with boredom and anger as elicited by artworks being the most pronounced exceptions.

Moreover, the tradition of aesthetics even includes numerous serious attempts to interpret strongly negative emotions—such as horror (Oliver & Sanders, 2004; Tamborini & Stiff, 1987; Zuckerman, 1996) and disgust (Hemenover & Schimmack, 2007; Korsmeyer, 2011; Menninghaus, 2003)—as positive resources for enjoyment. Experiencing genuine anger—which in most cases amounts to a marked dislike of an artwork—can in certain cases also be embraced as part of enjoying an innovative theater performance (Wagner et al., 2015). Thus, aesthetic emotions show a marked positivity or hedonic bias, much as the very notion of art

reception does (Arnold, 1960; Berenbaum, 2002; Dubé & Le Bel, 2003; Jacobsen, Buchta, Köhler, & Schröger, 2004; Knobloch-Westerwick & Keplinger, 2006; Zillmann & Vorderer, 2000). This stands in marked contrast to the quantitative prevalence of negative emotion terms in prototypical emotion catalogues and the great attention they have received in psychological research (Cacioppo & Gardner, 1999; Clore et al., 1987; Frijda, 1988; Ito, Larsen, Smith, & Cacioppo, 1998; Shaver, Schwartz, Kirson, & O’Connor, 1987).

Finally, if a lengthy novel does not meet our preferences or expectations after we have read a few pages, we can readily stop reading it. In contrast, we do not have similarly good control over negative emotions in our personal and work–life relations. Thus, on top of being far less diverse and plentiful as positive aesthetic emotions, negative aesthetic emotions are also far more easily prevented from running their full course than “ordinary” negative emotions.

Distinguishing immediately pleasant and positive experiences from others which require some efforts of overcoming, or at least accommodating, unpleasant processing dimensions, Berlyne (1971, pp. 81–82) proposed that they might be designated as “pleasure” versus “reward” (for similar distinctions, see Graf & Landwehr, 2015, 2017; James, 1890). However, Berlyne (1971, p. 80) also maintained that, specifically in contexts of aesthetic evaluation, pleasure and reward “tend to go together.” Other authors use the concept of pleasure in ways that are broad enough to include the interesting, the sublime, awe, and other feelings that (often) feature both affectively positive and affectively negative ingredients (Frijda, 2010; Frijda & Sundararajan, 2007; Kubovy, 1999). Like these latter authors and Kant, we also do not limit the concept of aesthetic pleasure to mere pleasantness/pleasingness and purely positive ingredients.

Notably, in a theoretical article on the neural underpinnings of music-induced “pleasure” and “aesthetic rewards,” Salimpoor and Zatorre (2013) did not make any categorical distinction between the two concepts. Similarly, while the notion of “reward circuitry” is far more frequently used in neuroscientific research than that of “pleasure circuitry,” this difference in wording does not imply any consistent conceptual distinction. Against this background, it lies beyond the ambition of the present article to re-establish a firm distinction of the two concepts specifically for our purposes.

**Arousal and intensity.** The great importance of feelings of mixed and negative valence for deeper aesthetic enjoyment also shows in conceptualizations of the subjective feeling component of aesthetic emotions. Specifically, subjectively perceived “arousal” and “intensity” are often understood as sources of subjective pleasure and liking on their own, that is, irrespective of, or at least in some abstraction from, the valence of the respective emotions (we provide references below in this section).

In general, the broad range of aesthetic emotions/feelings covers the entire spectrum from high arousal (suspense, thrills, shock, excitement, anger) to low arousal (feelings of being sadly moved, melancholia, relaxation, peacefulness, calmness; cf. Armstrong & Detweiler-Bedell, 2008; Schindler et al., 2017). This fully accords with the diagnosis Berlyne arrived at through an analysis of the general emotional factors of aesthetic evaluation irrespective of specific aesthetic emotions: Namely, that arousing and “de-arousing” stimulus properties (Berlyne, 1971, p. 81) can likewise positively affect aesthetic evaluation and concomitant pleasure and

liking. It is therefore not possible to define aesthetic emotions in general in terms of being either high or low in arousal. Importantly, while we agree with Berlyne's general analysis of a broad arousal range, it is only in the context of analyzing discrete aesthetic emotions that specific predictions can be made as to whether aesthetic perception and evaluation is driven in special cases more by arousing or by "de-arousing" emotional factors.

A different perspective emerges if aesthetic feelings are considered as dynamic responses to unfolding aesthetic trajectories. Many compositional trajectories entail the elicitation of a variety of different emotions, and they involve both high- and low-arousal emotions in different gradations and hierarchies and in great dynamic change. Accordingly, we hypothesize that their distinctive arousal profiles should typically involve well-composed interplays of high- and low-arousal emotions rather than only one or the other. This can be readily tested by collecting ongoing online measures for emotional arousal. In fact, existing data of this sort (Salimpoor, Benovoy, Longo, Cooperstock, & Zatorre, 2009) already lend support to this expectation.

Most aesthetic perceptions of landscapes, natural scenes like sunrises and sunsets, and individual plants tend to elicit positive feelings of peacefulness, relaxation, and harmony and hence feelings of low emotional arousal (Chenoweth & Gobster, 1990; Grinde & Patil, 2009; Heerwagen & Orians, 1993; Joye & van den Berg, 2011; Kellert & Wilson, 1995; Ulrich, 1979, 1983, 1993; Wynn, 1997). In contrast, horror films and other suspenseful narratives rely on high-arousal emotions with substantial levels of negative affect. The psychological construct of sensation seeking (Zuckerman, 1979) and some studies on the rewards sought by horror film viewers support this notion (T. Robinson, Callahan, & Evans, 2014; Tamborini & Stiff, 1987).

Moreover, many artworks clearly elicit strong emotional arousal even in the absence of classical high-arousal emotions such as horror. Studies on chills, goosebumps, and tears in physiological response to music and poems show this in a particularly pronounced fashion (Blood & Zatorre, 2001; Grewe et al., 2007; Rickard, 2004; Salimpoor et al., 2011; Wassiliwizky, Jacobsen, Heinrich, Schneiderbauer, & Menninghaus, 2017; Wassiliwizky, Koelsch et al., 2017). Accordingly, it has been proposed that emotional arousal may already, *qua* arousal, be experienced as self-rewarding, at least within certain levels (Berlyne, 1971; Salimpoor et al., 2009).

Concepts of subjectively felt "intensity" play an even greater role in the tradition of theorizing aesthetic pleasure in relative abstraction not only from a narrow concept of pleasantness and positive valence, but also from arousal (for this tradition in classical aesthetics, see Kleinschmidt, 2004). After all, positive and negative emotions of both high and low arousal can all be experienced with high and low intensity (for the dissociation of arousal and intensity see Clore, 1994; Reisenzein, 1994; Sonnemans & Frijda, 1995; for combinations of both high and low arousal with high intensity, see Berlyne, 1971). Frijda credited the subjective feeling component of emotional responses to artworks with a distinct potential to be "savored" and indulged in for its own sake (Frijda & Sundararajan, 2007). Supporting this understanding, the suspension of prototypical action tendencies that results from the absence of challenges to one's safety in most situational contexts of aesthetic feelings has been hypothesized as supporting a higher, second-order awareness of one's felt sensations (Lambie & Mar-

cel, 2002) and an increased intensity of subjectively felt emotions (Gross & Levenson, 1997; Maslow, Frager, Fadiman, McReynolds, & Cox, 1970; Oatley, 1994; Tan, 2000, p. 117; Visch et al., 2010).

The nonprototypical action tendencies of aesthetic emotions likewise support a stronger focus on the subjective feeling component, as they are precisely about extending and renewing these feelings (for more details, see the Motivational Tendencies section). Moreover, a recent experimental study has revealed that the beauty of poetic diction pushes overall felt intensity to higher levels and that these levels of subjectively felt intensity correlate positively with ratings for aesthetic virtues and liking (Menninghaus, Wagner, Wassiliwizky, et al., 2017). For all these reasons, the subjective feeling component makes up the very center of our model.

In contrast to the hypothesis of often intensely felt and savored subjective feelings, several authors have suggested that emotion episodes in art contexts should have a lower intensity in terms of subjective feeling, motor expression, and peripheral physiological measures than emotional responses to analogous stimuli in real-life contexts, because the eliciting events do not challenge the individual's personal goals and safety nor those of other real persons (cf. Frijda, 1988, p. 352; Lange, 1901, pp. 100–105; Lazarus, 1991; Martindale, 1984; Scherer, 2005). Clearly, we are not likely to respond as intensely to a fictional murder in a movie as to a real murder taking place right before our eyes.

However, during the 2- to 4-hr course of a tragedy's performance, audiences experience emotional conflicts of an extreme type that most spectators will most likely never experience in their entire "real" life. Similarly, novels can take a few hours or days of reading time, during which the reader often goes through the entire emotional trajectory of a protagonist's lifetime. This quantitative condensation is routinely complemented by an increased salience of both the represented emotional conflicts and the possible gratifications or negative consequences they might entail for the lives of the protagonists. Hence, it is only when the compositional patterns of artworks are disregarded and isolated emotion episodes are compared with real analogues that the hypothesis of reduced levels of intensity in response to the arts appears plausible. Yet such a comparison is misleading because it ignores what is distinctive of the arts: their highly condensed composition of emotional episodes (Mar & Oatley, 2008) and their tendency to push levels of tension and conflict to extremes.

**Liking.** In Kant's theory, aesthetically evaluative feelings, feelings of pleasure/displeasure, and subjective "liking" or "disliking" form a triad. Essentially, no current model challenges the understanding that experienced positive aesthetic emotions associated with inherent processing pleasure prime the resultant liking. While liking is typically measured based on post hoc ratings, evaluations for liking and disliking already emerge and consolidate (or not) during an aesthetic trajectory. Subjective liking of specific stimuli can translate into stable person- or group-specific preferences that may motivate subsequent acts of seeking repeated exposure (see the Motivational Tendencies section).

Importantly, the concept of liking used in psychological aesthetics is typically broad enough to encompass aesthetic feelings that combine positive and negative emotional ingredients, at least as long as their interaction is overall experienced as pleasurable

(cf. Berlyne, 1971; Frijda & Sundararajan, 2007; Graf & Landwehr, 2015).

### Peripheral Physiological Correlates and Neural Substrates of Aesthetic Emotions

Under the assumptions of our model, research into the physiological and neural correlates of aesthetic emotions should include evidence that the respective emotions under consideration are indeed predictive of aesthetic liking ratings. We do not discuss studies that do not meet this crucial requirement.

Moreover, regarding aesthetic emotions such as *the feeling of beauty* or *the feeling of the sublime*, it would be important to specifically collect ratings for emotional responses rather than for object-focused attributions of aesthetic virtues only. After all, individuals could well acknowledge in a somewhat detached manner that a given object meets conventional beauty standards without necessarily personally feeling this beauty in any pronounced way. Therefore, as long as it is not shown that object-oriented beauty attributions and subjective feelings of beauty always and reliably converge, it is not meaningful to treat the two interchangeably. As the great variety of neuroscientific studies on visual beauty shows a consistent focus on object-focused beauty attributions only, we do not discuss this large body of literature in any detail (for reviews see Chatterjee & Vartanian, 2014; Christensen & Gomila, 2018; Pearce et al., 2016).

In the many cases in which hypothetical aesthetic emotions under scrutiny are not derived from aesthetic virtue terms (such as *feelings of beauty*), but from emotion terms that are also used with an ordinary (nonaesthetic) emotion meaning (such as *suspense*, *being moved*, or *awe*), two additional requirements on top of correlations with liking ratings would clearly strengthen claims that the physiological and neural activations found are, in fact, specifically correlates of aesthetic emotions. First, ratings for these emotions should be predictive of ratings for specific aesthetic virtues (for examples, see Hanich et al., 2014; Menninghaus, Wagner, Wassiliwizky, et al., 2017), and, second, physiological and neural activations associated with the emotions under consideration should be contrasted for episodes with and episodes without an aesthetic evaluation dimension of the respective emotions. We expect that neural activations of aesthetic emotions will largely overlap with those distinctive of their nonaesthetic counterparts, but will in addition differentially recruit brain areas that are known to be associated with aesthetic evaluation (see Brown, Gao, Tisdelle, Eickhoff, & Liotti, 2011; Chatterjee & Vartanian, 2016; Hu, Huang, Eickhoff, Peng, & Sui, 2016).

To date, there is no study of physiological and neural correlates of aesthetic emotions that meets all of these criteria. Specifically, no neuroscientific study has ever contrasted episodes of specific emotions both with and without an aesthetic evaluation dimension. This may well be doable using the same stimuli under different situational framings.

Still, there are important pieces of physiological and neuroscientific evidence that at least meet some of the criteria identified above. For example, highly intense experiences of being moved in response to paintings have been shown to be accompanied by a reuptake of neural activity in the default-mode network (DMN), comparable with (“resting”) states without experimental stimulation (Vessel, Starr, & Rubin, 2012; Vessel et al., 2013). The

authors interpret this finding in light of one assumed function of the DMN: the processing of self-relevant information. This interpretation is in line with other research on being moved that highlights the importance of personal involvement and self-relevance for experiencing a stimulus as emotionally moving (Cova & Deonna, 2014; Menninghaus, Wagner, et al., 2015).

At the same time, a study on the appreciation of paintings alone cannot determine the extent to which the reported activations are distinctive of all emotional episodes of being moved or only of being moved as an aesthetically evaluative emotion. Moreover, the instructions that Vessel et al. (2012) used further limit the generalizability of their results. First, they activated a fictional scenario that includes responsibility for both the prestige and the finances of a museum (“Imagine that the images you see are of paintings that may be acquired by a museum of fine art. The curator needs to know which paintings are the most aesthetically pleasing;” Vessel et al., 2012, p. 3), and second, they paraphrased the state of being moved by several adjectives that are all aesthetic virtue terms on their own (*powerful*, *beautiful*, *compelling*, *pleasing*, *profound*). For the time being, it is not clear to what extent the findings obtained under these very special instructions can be replicated if unspecified ratings for *being moved* are collected.

Two more recent studies have addressed physiological and neural correlates of responses to emotionally moving film clips and poems (Wassiliwizky, Jacobsen, et al., 2017; Wassiliwizky, Koelsch, et al., 2017). They reported the occurrence of tears, shivers down the spine (chills), and goosebumps, along with high activation levels of the sympathetic branch of the autonomic nervous system, including heightened skin conductance and accelerated heartbeats, and increased neural activity in the reward network, including the dorsal and ventral striatum. Notably, these studies effectively replicated and extended—by adding two new variables: tears and “goosetears” (co-occurrences of tears and goosebumps)—the results of earlier work showing similar activations of the reward circuitry in strong emotional responses to music (Mas-Herrero, Zatorre, Rodriguez-Fornells, & Marco-Pallarés, 2014; Salimpoor et al., 2009, 2011). However, these earlier studies did not address any specific discrete emotion, be it aesthetic or not. Does this convergence in results mean that a focus on a specific aesthetic emotion is superfluous and does not yield additional insight?

We propose a different explanation. Given that it is now known that peak levels of being moved are often accompanied by tears, chills, and goosebumps and that, in a great number of studies on responses to music, participants were instructed to bring self-selected pieces of music to the lab that reliably elicit chills, it is likely that they ended up selecting emotionally moving pieces of music. Supporting this assumption, these pieces of music were actually expressly labeled as being emotionally *moving* in several of these studies (Fukui & Toyoshima, 2014; Goldstein, 1980; Maruskin, Thrash, & Elliot, 2012; Panksepp, 1995; Panksepp & Bernatzky, 2002; Rickard, 2004).

Finally, an elaborate study by Tschacher et al. (2012) performed in an art museum likewise provides empirical evidence for a link between aesthetically evaluative emotions reported when looking at certain paintings and physiological correlates measured during these episodes.

Taken together, there is substantial evidence that emotional responses with an aesthetically evaluative implication—be they

directed at artworks or other antecedents—involve increased activations of classical physiological indicators of emotional arousal and the neural reward circuitry. To date, however, the relevant findings are either not at all related to specific aesthetic emotions or bear on only a very small subset of these (specifically, feelings of being moved and, with the reservations noted above, feelings of beauty).

## Emotion Expression

Smiling and (positive) laughter frequently accompany delight and amusement in response to humoristic poetry, comedies, and other artworks and media products (Owren & Amoss, 2014; Ruch & Ekman, 2001; Sauter, Eisner, Ekman, Scott, & Smith, 2010). Ridiculing laughter may occasionally be found when artworks or media products are considered to be outright failures, for example, overly pretentious, or poorly performed. At the opposite end of expressions of emotions, moist eyes and (silent) shedding of a few tears have repeatedly been shown to accompany art recipients' emotional states, particularly in response to sad films (e.g., Frey, Desota-Johnson, Hoffman, & McCall, 1981; Gračanin et al., 2015; Hanich et al., 2014; Oliver, 1993; van der Veen, Jorritsma, Krijger, & Vingerhoets, 2012).

Two recent studies on responses to self-selected emotionally moving poems (Wassiliwizky, Koelsch, et al., 2017) and film scenarios (Wassiliwizky, Jacobsen, et al., 2017) show strong simultaneous increases of both corrugator activity and zygomaticus activity, as measured by electromyography (Fridlund & Cacioppo, 1986), in moments that are intensely moving and intensely pleasurable at the same time. These findings corroborate the notion that concomitant negative affect often deepens and intensifies positive emotional responses to artworks rather than being a mere antidote to pleasurable processing (Meninghaus et al., 2017a).

Applause, booing, and words of praise or blame can be considered to be post hoc expressions of aesthetic emotions. Whether occurring in personal communications or in Internet fora, comments that praise or blame are made, as Kant (1790/2001, pp. 96–104) suggested, with the insinuation that others feel or have felt the same way, or with at least a latent stipulation of potential future consent. Negotiating one's aesthetic preferences with those of others can even constitute an entire level of social discourse in which aesthetic feelings fuel both taste-related agreement/social bonding and disagreement/social distinction (Bourdieu, 1984).

Listening to music often makes us move with the beat, join the song, or dance (Hodges, 2009; Janata & Grafton, 2003; Janata et al., 2012; Witek et al., 2014; Zentner & Eerola, 2010). Apart from the highly restrictive behavioral rules for listening to classical music in Western concert halls, music elicits not just inwardly experienced emotions but also responding movements on the part of the audience (cf. Clynes & Nettheim, 1982; Davidson & Correia, 2001; Epstein, 1995; Jackendoff & Lerdahl, 2006; Konečni, 2008). Similarly, quiet, inactive attendance became a rule of decent theater behavior only during the 19th century (Heim, 2015, pp. 66–67; Levine, 1988). In many non-Western cultural contexts, a more expressive and active behavior of the audience is the rule rather than an exception (Kreitler & Kreitler, 1972). In such responses, dimensions of emotion expression are often blended with tendencies to actually join in the musical performance or even influence the trajectory of a dramatic plot. However, unlike ap-

plause, booing, and words of praise or blame, such blends of participatory, expressive, and genuine action responses may also be supported by art-elicited emotions in the broader sense, and not only by the aesthetically appreciative emotions.

## Motivational Tendencies

Aesthetic emotions' lack of goal conduciveness in its predominant meaning and the concomitant cognitive appraisal that no "urgent" response is called for in exposure to artworks and media products are closely connected with another hypothetically distinctive feature: aesthetic emotions are widely believed to lack a *motivational component* (Frijda, 1989; Meinong, 1902/1977; Scherer, 2005). In contrast, we propose that aesthetic emotions do entail pronounced and important motivational tendencies and actually prime subsequent actions.

Kant succinctly defined the motivational "causality" of positive aesthetic feelings as the capacity to make us seek extended exposure: "We linger in and extend the observation of beauty, because this observation reinforces and reproduces itself" (Kant, 1790/2001, p. 107). The tendency to seek out a previously experienced pleasure once again is another approach behavior driven by aesthetic feelings. Both types of approach tendency may be interpreted as operations of our "seeking system," in Panksepp's (1998) sense. In contrast, negative aesthetic feelings prime disruption rather than continuation of actual exposure and/or future avoidance. Both the approach and the avoidance consequences of specific aesthetic emotions in Kant's sense are in full accord with the motivational tendencies of aesthetic evaluation Berlyne stipulated in his multifactor model of aesthetic evaluation (Berlyne, 1971, p. 78). They might likewise be explained as results of operant conditioning driven by positive or negative reinforcement (Skinner, 1938; Thorndike, 1898).

In any event, there is sound empirical evidence in support of Kant's view that positive aesthetic emotions favor a prolonged and self-reinforcing exposure. Museum visitors tend to spend more time looking at the artworks they like most compared with the others on display (Tschacher et al., 2012), and viewing time has been found to be predicted by self-reported interest and liking (Brieber, Nadal, Leder, & Rosenberg, 2014). To be sure, recorded songs and other pieces of music do not vary in listening time per exposure for different listeners, as the temporal trajectory is fully controlled by the musical performance itself. However, preferred songs are clearly listened to more often than disliked ones and hence likewise differ in absolute exposure time (for studies on optimal and excessive levels of repeated exposure to various types of stimuli, see Deutsch, Lapidis, & Henthorn, 2008; Huron, 2006; Szpunar, Schellenberg, & Pliner, 2004; Tinio, Gerger, & Leder, 2013; Tinio & Leder, 2009).

Two studies on short excerpts from feature films (Hanich et al., 2014; Wassiliwizky et al., 2015) used the self-reported action tendency "I would like to see the entire movie" as a measure for aesthetic appreciation/liking. In cases where an even greater expenditure of time is called for than just viewing a feature movie—such as reading novels of several hundred pages—the repeated decision to return to the reading of such novels and to keep doing this until their very end, can likewise be interpreted as a motivational consequence of prior enjoyment.

Inversely, experienced negative aesthetic emotions, such as boredom and anger, may motivate art recipients to stop reading a book or to walk out on a performance (see also Kirk, Skov, Hulme, Christensen, & Zeki, 2009; Silvia, 2009; Silvia & Brown, 2007), and anticipated negative aesthetic emotions are likely to predict avoidance of exposure. In all of these cases, aesthetic emotions have a direct bearing on motivational tendencies and decision-making (cf. Pearce et al., 2016). Moreover, both Kant's theory and the studies referred to above imply the notion that aesthetic emotions entail a "causality" that bears not only on the liking system but also on the wanting system (for the classical distinction between liking and wanting, see Berridge & Kringsbach, 2008, 2013), as they may motivate a wish to seek prolonged and repeated exposure ("I want to see it again") to a beautiful stimulus. In cases of fascination and high levels of suspense, aesthetic emotions may even appear to dominate action control in that "one cannot stop looking or listening" (Frijda, 1989, p. 1546).

Seeing a nice piece of clothing or a beautiful car may moreover stimulate a wish and a concomitant action tendency to personally own such objects of design and hence to buy them. The aesthetics of consumer-oriented design and fashion is largely devoted to triggering such straightforward action tendencies that translate into buying decisions. Similarly, it is fairly usual to pay money for access to songs one likes. Accordingly, Marković (2010) collected data on the self-reported wish to possess a painting presented in a study as a proxy for liking. Salimpoor et al. (2013) even offered an option to actually buy pieces of music during an experiment as a motivational consequence of liking them and as an indication of a wish to hear these pieces of music again. Importantly, approach tendencies of this type do not by themselves compromise the notion that "pure" aesthetic evaluations should not depend on nonaesthetic interests. After all, the approach tendencies arise from, rather than precede, aesthetic evaluation.

Summing up, contrary to widely held assumptions, aesthetic emotions do entail marked motivational tendencies of approach and avoidance.

## Conclusion

### Summary

Integrating philosophical and a broad variety of psychological perspectives, this article presents a comprehensive definition of aesthetic emotions that may guide future research on the topic. Before outlining directions for future research, we summarize the components of our model in 19 bullet points, following the order of appearance of these components in our text (see also Figure 1). Bullet Points 1 through 4 reflect the mandatory features of aesthetic emotions, and the remaining bullet points concern the prototypical features as defined in the introductory section.

1. Aesthetic emotions are full-blown discrete emotions that, for all their differences in multiple emotion components, always include *an aesthetic evaluation/appreciation* of the objects or events under consideration.
2. Individual aesthetic emotions are differentially tuned to a plethora of *various types of aesthetic virtues*, or, defined in subjective terms, *various types of aesthetic appeal*. Perceived beauty is only one of these, even if it is the preeminent one across a broad variety of cases.
3. As a function of their bearing on subjective aesthetic appreciation, aesthetic emotions are *associated with subjectively felt pleasure or displeasure* during the emotional episode.
4. For the same reason, aesthetic emotions are *predictive of resultant liking or disliking*.
5. Aesthetic emotions evaluate different types of perceived aesthetic appeal *across a broad variety of experiential domains*, including nature, the arts, design, fashion, social customs and events, and so forth.
6. The class of aesthetic emotions is categorically different from other classes of emotions with which it has often been conflated, such as art-represented and art-elicited emotions, form- versus content-focused emotions, art as art emotions, and fiction-related, quasi-, and make-believe emotions.
7. Aesthetic emotion terms are formed either by superimposing an aesthetically evaluative meaning on emotion terms (e.g., *an emotionally moving film, a fascinating book*) or by superimposing an emotional meaning on prototypical aesthetic virtue terms (e.g., *feelings of beauty*).
8. The appraisal of *intrinsic pleasantness* is of preeminent importance for aesthetic emotions.
9. At the same time, many aesthetic emotions are not simply positive in a bipolar affective valence space. Rather, they *include substantial negative ingredients* and hence are of a mixed affective nature. This is likely to reflect the great importance of negative emotions for making aesthetic experiences more intense, more varied, and more memorable.
10. The seemingly antithetical factors *novelty* and *familiarity* are important predictors of both positive aesthetic appreciation and concomitant aesthetic emotions. Balanced combinations of these two factors are often perceived as particularly appealing. Specifically, in the case of favorite artworks, repeated exposure often does not lead to wear-out effects on the intensity of emotional responses.
11. In many but by no means all contexts, feelings of beauty and other aesthetic feelings are devoid of any direct *pragmatic interest or goal relevance*. However, even in the absence of pragmatic goals, they can still be relevant for other important concerns, goals, dispositions, and needs of the viewer/reader/listener. Specifically, they can be instrumental for short-term mood regulation, but potentially also promote mid- and long-term emotional capacities and dispositions (for the latter, see the Limitations and Directions for Future Research section).
12. Like other emotional responses, aesthetic emotions are sensitive to both *our cognitive and our affective coping potential*. Moderate challenges to our cognitive and affective



coping potential—and hence combinations of factors of fluent and disfluent processing—are not detrimental but often conducive to experiencing positive aesthetic emotions. At the same time, individual tolerance levels vary greatly.

13. The association of aesthetic emotions with feelings of *pleasure and displeasure* is strongly asymmetrical and shows a clear *positivity (pleasure) bias*. The negative poles are treated with far less nuance, if at all. This stands in marked contrast to the quantitative prevalence of negative emotion terms in prototypical emotion catalogues and the great attention they have received in psychological research.
14. Aesthetic emotions cover the whole spectrum from *low to high affective arousal*. On the temporal axis, emotional responses to the same objects or events may involve substantial variation in both affective valence and arousing versus relaxing (soothing) episodes.
15. Aesthetic emotions can support high levels of *subjectively felt emotional intensity*, regardless of whether the respective emotion is high (e.g., suspense, horror) or low (e.g., relaxation, calm, peacefulness) on the arousal axis in affective space. The intensity of emotional involvement is by itself a prime factor of aesthetic enjoyment and liking.
16. Aesthetic emotions can elicit strong *physiological responses*, including increases in heart rate, skin conductance, zygomaticus and corrugator activity, tears, shivers (chills), and goosebumps.
17. Positive aesthetic emotions are associated with *activation of the neural reward circuitry*, at least if they reach relatively high intensity.
18. The *expression component* of aesthetic emotions includes laughter, tears, goosebumps, smiling, and other facial expressions, along with applause, booing, and words of praise or blame.
19. Contrary to widely held assumptions, aesthetic emotions also include *motivational tendencies of approach or avoidance*, most notably the tendency to end, extend, or repeat exposure, and in some cases also the wish to possess the eliciting object.

### Limitations and Directions for Future Research

Individual aesthetic emotions vary greatly in their appraisals, arousal, positive and negative affect, and cognitive demand. At the same time, a general definition of aesthetic emotions can only include what all of these different emotions share in their capacity as aesthetic emotions. For this reason, our general model clearly needs to be enriched by work on individual aesthetic emotions. At the same time, it can be used to identify potential conceptual shortcomings of already existing studies on aesthetic emotions.

Survey studies are needed to determine which specific aesthetic emotions occur most frequently and are most relevant in different experiential domains. Scales that have been used to measure per-

ceived aesthetic virtues and affective appeal in specific domains (cf. the overview of such scales in Schindler et al., 2017) and studies on aesthetic virtue terms commonly used in reference to music, literature, and various fields of visual aesthetics (Augustin, Wagemans, & Carbon, 2012; Istók et al., 2009; Jacobsen et al., 2004; Knoop, Wagner, Jacobsen, & Menninghaus, 2016) provide some guidance for such efforts. Existing comparative research on music and painting suggests substantial variance in the target emotions (Miu, Pițur, & Szentágotai-Tătar, 2016). Extending such research across a broader range of aesthetic domains (including nonart domains) would be a next step.

It is also worth investigating which other aesthetic as well as nonaesthetic emotions tend to cooccur with specific aesthetic emotions. Thus, feelings of being awestruck both by artworks and by nature (Silvia et al., 2015), responses to emotionally moving poems (cf. Menninghaus, Wagner, Wassiliwizky et al., 2017) and music-elicited feelings of sadness have already all been shown to cooccur with subjectively perceived beauty (Eerola et al., 2018; Garrido & Schubert, 2011; Panksepp, 1995; Panksepp & Bernatzky, 2002; Schellenberg, Peretz, & Viellard, 2008; Schubert, 2013; Taruffi & Koelsch, 2014). We hypothesize that a copresence of feelings of beauty may likewise routinely be found specifically in artworks that are experienced as enchanting, happiness-inducing, joyful, cheerful, relaxing, inspiring, peaceful, sentimental, and nostalgic. This hypothesis is straightforwardly testable.

On a more general note, what surprises us can at the same time interest or move us and strike us as beautiful, or it can first surprise us, subsequently interest us, and then move us (Hanich, Menninghaus, & Wilder, 2017). Applying all of the aesthetic emotion terms identified by Schindler et al. (2017) to any given object or event of aesthetic perception and appreciation therefore has the potential to reveal a complex interplay and hierarchy of multiple aesthetic emotions and hence fairly distinctive emotional profiles of aesthetic perception and appreciation (cf. Perlovsky, 2014). While we do not expect that factor analyses performed on the 42 aesthetic emotion items of the Aesthemos Scale would yield convergent factor solutions across the great variety of domains, genres, and individual objects/events, it is also likely that groups of select objects and events could be identified for which a starkly reduced set of the scale items might already yield sufficiently complex and distinct profiles.

Little is known to date regarding the time course of individual aesthetic emotions. Collecting continuous ratings for both feelings of beauty and liking could provide insight into the temporal dynamics involved in the experiencing of aesthetic emotions and in the build-up of their predictive power regarding self-reported liking. This issue is even more complex in the case of aesthetic emotions of the being-moved type, that is, those that are based on ordinary emotion terms. As in these cases the aesthetic emotion meaning emerges only on top rather than instead of the ordinary emotion meaning, the following hypothesis calls for an appropriate test: In aesthetic perception and appreciation, ordinary feelings of being moved need to reach a critical threshold of both duration and intensity in order to turn into predictors of liking, thereby (also) becoming aesthetic emotions.

Interindividual differences (in terms of personality and culture) in experiencing aesthetic emotions are another important desideratum. To date, only a few studies have linked personality traits to aesthetic emotions (Fayn et al., 2015; Silvia et al., 2015; Vuosko-

ski & Eerola, 2011). We propose that differences in susceptibility to (aesthetically) rewarding experiences (as captured, for instance, by the Big Five trait openness to experience, cf. McCrae, 2007, or by the seeking scale of the Affective Neuroscience Personality Scales, Davis, & Panksepp, 2011) should be linked to the overall intensity and frequency of experiencing aesthetic emotions. Such associations might well generalize beyond the reported associations of openness with interest, awe, beauty, being moved, and lower levels of boredom (Fayn et al., 2015; Silvia et al., 2015).

Other personality traits may be linked only to experiencing specific aesthetic emotions. For instance, being moved and nostalgia have been associated with empathy in prior studies (Eerola et al., 2016; Zhou, Wildschut, Sedikides, Shi, & Feng, 2012; Zickfeld, Schubert, Seibt, & Fiske, 2017), and agreeableness has been linked to more intense emotional responses to tender music (Vuoskoski & Eerola, 2011). Comparative empirical studies on cultural differences in seeking and experiencing specific aesthetic emotions are also an important topic that has gone untreated to date.

Finally, music and art therapies often aim to take advantage of the regenerative effects of art-evoked peacefulness or relaxation (MacDonald, Kreutz, & Mitchell, 2013). There is also some evidence that reading literature enhances human capacities for feeling and communicating increasingly subtle emotional nuances (Kumschick et al., 2014) as well as the theory of mind and empathic feelings (Kidd & Castano, 2013; Mumper & Gerrig, 2017; Sherman & Morrissey, 2017; but see also Bal & Veltkamp, 2013; Panero et al., 2016; Samur et al., 2018) and that art reception is conducive to overall well-being (Bavishi, Slade, & Levy, 2016; Bygren et al., 2009; Bygren, Konlaan, & Johansson, 1996; Cuypers et al., 2012; J. M. Jacobs, Hammerman-Rozenberg, Cohen, & Stessman, 2008; Konlaan, Bygren, & Johansson, 2000; Martínez-Martí, Hernández-Lloreda, & Avia, 2016; Rieger, Reinecke, Frischlich, & Bente, 2014; Wilkinson, Waters, Bygren, & Tarlov, 2007; but see also Węziak-Białowolska, 2016). To date, however, research on such benefits does not specifically consider aesthetic emotions. Future research on the mid- and longer-term benefits of aesthetic experiences for psychological and physical health, well-being, and cognitive functioning may profit from considering aesthetic emotions as an important variable.

## References

- Andrade, E. B., & Cohen, J. B. (2007). On the consumption of negative feelings. *The Journal of Consumer Research*, *34*, 283–300. <http://dx.doi.org/10.1086/519498>
- Apter, M. J. (1992). *The dangerous edge: The psychology of excitement*. New York, NY: The Free Press.
- Apter, M. J. (1993). Phenomenological frames and the paradoxes of experience. In J. H. Kerr, S. J. Murgatroyd, & M. J. Apter (Eds.), *Advances in reversal theory* (pp. 27–39). Amsterdam, the Netherlands: Swets & Zeitlinger.
- Armstrong, T., & Detweiler-Bedell, B. (2008). Beauty as an emotion: The exhilarating prospect of mastering a challenging world. *Review of General Psychology*, *12*, 305–329. <http://dx.doi.org/10.1037/a0012558>
- Arnold, M. B. (1960). *Emotion and personality: Psychological aspects*. New York, NY: Columbia University Press.
- Augustin, M. D., Wagemans, J., & Carbon, C.-C. (2012). All is beautiful? Generality vs. specificity of word usage in visual aesthetics. *Acta Psychologica*, *139*, 187–201. <http://dx.doi.org/10.1016/j.actpsy.2011.10.004>
- Bal, P. M., & Veltkamp, M. (2013). How does fiction reading influence empathy? An experimental investigation on the role of emotional transportation. *PLoS ONE*, *8*, e55341. <http://dx.doi.org/10.1371/journal.pone.0055341>
- Bartsch, A. (2008). Meta-emotion: How films and music videos communicate emotions about emotions. *Projections*, *2*, 45–59. <http://dx.doi.org/10.3167/proj.2008.020104>
- Bartsch, A., & Viehoff, R. (2003). Meta-emotion: In search of a meta-account for entertainment by negative emotions. *SPIEL*, *22*, 309–328.
- Baumgarten, A. G. (1954). *Reflections on poetry* (K. Aschenbrenner & W. B. Holther, Trans.). Berkeley: University of California Press. (Original work published 1735)
- Baumgarten, A. G. (2007). *Aesthetica* (D. Mirbach, Ed.). Hamburg, Germany: Meiner. (Original work published 1750)
- Bavishi, A., Slade, M. D., & Levy, B. R. (2016). A chapter a day: Association of book reading with longevity. *Social Science & Medicine*, *164*, 44–48. <http://dx.doi.org/10.1016/j.socscimed.2016.07.014>
- Bawden, H. H. (1908). The nature of aesthetic value; with a critique of Miss Puffer's theory of its alleged absoluteness. *Psychological Review*, *15*, 217–236. <http://dx.doi.org/10.1037/h0073010>
- Belfi, A. M., Vessel, E. A., & Starr, G. G. (2018). Individual ratings of vividness predict aesthetic appeal in poetry. *Psychology of Aesthetics, Creativity, and the Arts*, *12*, 341–350. <http://dx.doi.org/10.1037/aca0000153>
- Bell, C. (1947). *Art*. London, UK: Chatto & Windus. (Original work published 1914)
- Benedek, M., & Kaernbach, C. (2011). Physiological correlates and emotional specificity of human piloerection. *Biological Psychology*, *86*, 320–329. <http://dx.doi.org/10.1016/j.biopsycho.2010.12.012>
- Berenbaum, H. (2002). Varieties of joy-related pleasurable activities and feelings. *Cognition and Emotion*, *16*, 473–494. <http://dx.doi.org/10.1080/0269993014000383>
- Berlyne, D. E. (1971). *Aesthetics and psychobiology*. New York, NY: Meredith Corporation.
- Berlyne, D. E. (Ed.). (1974). *Studies in the new experimental aesthetics: Steps toward an objective psychology of aesthetic appreciation*. New York, NY: Wiley.
- Berridge, K. C., & Kringelbach, M. L. (2008). Affective neuroscience of pleasure: Reward in humans and animals. *Psychopharmacology*, *199*, 457–480. <http://dx.doi.org/10.1007/s00213-008-1099-6>
- Berridge, K. C., & Kringelbach, M. L. (2013). Neuroscience of affect: Brain mechanisms of pleasure and displeasure. *Current Opinion in Neurobiology*, *23*, 294–303. <http://dx.doi.org/10.1016/j.conb.2013.01.017>
- Birkhoff, G. D. (1933). *Aesthetic measure*. Cambridge, MA: Harvard University Press. <http://dx.doi.org/10.4159/harvard.9780674734470>
- Blood, A. J., & Zatorre, R. J. (2001). Intensely pleasurable responses to music correlate with activity in brain regions implicated in reward and emotion. *Proceedings of the National Academy of Sciences of the United States of America*, *98*, 11818–11823. <http://dx.doi.org/10.1073/pnas.191355898>
- Bohn, I. C., Altmann, U., Lubrich, O., Menninghaus, W., & Jacobs, A. M. (2013). When we like what we know—A parametric fMRI analysis of beauty and familiarity. *Brain and Language*, *124*, 1–8. <http://dx.doi.org/10.1016/j.bandl.2012.10.003>
- Bornstein, R. F. (1989). Exposure and affect: Overview and meta-analysis of research, 1968–1987. *Psychological Bulletin*, *106*, 265–289. <http://dx.doi.org/10.1037/0033-2909.106.2.265>
- Bourdieu, P. (1984). *Distinction: A social critique of the judgement of taste*. Cambridge, MA: Harvard University Press.
- Brattico, E., Bogert, B., & Jacobsen, T. (2013). Toward a neural chronometry for the aesthetic experience of music. *Frontiers in Psychology*, *4*, 206.

- Brieber, D., Nadal, M., Leder, H., & Rosenberg, R. (2014). Art in time and space: Context modulates the relation between art experience and viewing time. *PLoS ONE*, *9*, e99019. <http://dx.doi.org/10.1371/journal.pone.0099019>
- Briellmann, A. A., & Pelli, D. G. (2017). Beauty requires thought. *Current Biology*, *27*, 1506–1513.
- Brown, S., Gao, X., Tisdelle, L., Eickhoff, S. B., & Liotti, M. (2011). Naturalizing aesthetics: Brain areas for aesthetic appraisal across sensory modalities. *NeuroImage*, *58*, 250–258. <http://dx.doi.org/10.1016/j.neuroimage.2011.06.012>
- Bygren, L. O., Johansson, S.-E., Konlaan, B. B., Grijbovski, A. M., Wilkinson, A. V., & Sjöström, M. (2009). Attending cultural events and cancer mortality: A Swedish cohort study. *Arts & Health*, *1*, 64–73. <http://dx.doi.org/10.1080/17533010802528058>
- Bygren, L. O., Konlaan, B. B., & Johansson, S.-E. (1996). Attendance at cultural events, reading books or periodicals, and making music or singing in a choir as determinants for survival: Swedish interview survey of living conditions. *British Medical Journal*, *313*, 1577–1580. <http://dx.doi.org/10.1136/bmj.313.7072.1577>
- Cacioppo, J. T., & Gardner, W. L. (1999). Emotion. *Annual Review of Psychology*, *50*, 191–214. <http://dx.doi.org/10.1146/annurev.psych.50.1.191>
- Cacioppo, J. T., Gardner, W. L., & Berntson, G. G. (1999). The affect system has parallel and integrative processing components: Form follows function. *Journal of Personality and Social Psychology*, *76*, 839–855. <http://dx.doi.org/10.1037/0022-3514.76.5.839>
- Carbon, C.-C., & Leder, H. (2005). When feature information comes first! Early processing of inverted faces. *Perception*, *34*, 1117–1134. <http://dx.doi.org/10.1068/p5192>
- Carroll, N. (1996). The paradox of suspense. In P. Vorderer, H. J. Wulff, & M. Friedrichsen (Eds.), *Suspense: Conceptualizations, theoretical analyses, and empirical explorations* (pp. 71–91). Mahwah, NJ: Erlbaum.
- Chatterjee, A. (2013). *The aesthetic brain: How we evolved to desire beauty and enjoy art*. United Kingdom: Oxford University Press. <http://dx.doi.org/10.1093/acprof:oso/9780199811809.001.0001>
- Chatterjee, A., Thomas, A., Smith, S. E., & Aguirre, G. K. (2009). The neural response to facial attractiveness. *Neuropsychology*, *23*, 135–143. <http://dx.doi.org/10.1037/a0014430>
- Chatterjee, A., & Vartanian, O. (2014). Neuroaesthetics. *Trends in Cognitive Sciences*, *18*, 370–375. <http://dx.doi.org/10.1016/j.tics.2014.03.003>
- Chatterjee, A., & Vartanian, O. (2016). Neuroscience of aesthetics. *Annals of the New York Academy of Sciences*, *1369*, 172–194. <http://dx.doi.org/10.1111/nyas.13035>
- Chenoweth, R. E., & Gobster, P. H. (1990). The nature and ecology of aesthetic experiences in the landscape. *Landscape Journal*, *9*, 1–8. <http://dx.doi.org/10.3368/lj.9.1.1>
- Christensen, J. F., & Gomila, A. (2018). Introduction: Art and the brain: From pleasure to well-being. In J. F. Christensen & A. Gomila (Eds.), *Progress in brain research* (Vol. 237, pp. xxvii–xlvi). Cambridge, MA: Academic Print.
- Cicero, M. T. (1962). Orator. In T. E. Page & E. Capps (Eds.), *Brutus. Orator* (H. M. Hubbell and G. L. Hendrickson, Trans.) (pp. 297–509). Cambridge, MA: Harvard University Press.
- Clay, F. (1908). The origin of the aesthetic emotion. *Sammelbände der Internationalen Musikgesellschaft*, *9*, 282–290.
- Clare, G. L. (1994). Why emotions vary in intensity. In P. Ekman & R. J. Davidson (Eds.), *The nature of emotion: Fundamental questions* (pp. 386–393). New York, NY: Oxford University Press.
- Clare, G. L., Ortony, A., & Foss, M. A. (1987). The psychological foundations of the affective lexicon. *Journal of Personality and Social Psychology*, *53*, 751–766. <http://dx.doi.org/10.1037/0022-3514.53.4.751>
- Clynes, M., & Nettheim, N. (1982). The living quality of music. In M. Clynes (Ed.), *Music, mind, and brain: The neuropsychology of music* (pp. 47–82). New York, NY: Springer. [http://dx.doi.org/10.1007/978-1-4684-8917-0\\_4](http://dx.doi.org/10.1007/978-1-4684-8917-0_4)
- Cova, F., & Deonna, J. A. (2014). Being moved. *Philosophical Studies*, *169*, 447–466. <http://dx.doi.org/10.1007/s11098-013-0192-9>
- Cuyppers, K., Krokstad, S., Holmen, T. L., Skjei Knudsen, M., Bygren, L. O., & Holmen, J. (2012). Patterns of receptive and creative cultural activities and their association with perceived health, anxiety, depression and satisfaction with life among adults: The HUNT study, Norway. *Journal of Epidemiology and Community Health*, *66*, 698–703. <http://dx.doi.org/10.1136/jech.2010.113571>
- Darwin, C. (1981). *The descent of man, and selection in relation to sex*. New Jersey: Princeton University Press. (Original work published 1871) <http://dx.doi.org/10.5962/bhl.title.70891>
- Davidson, J. W., & Correia, J. S. (2001). Meaningful musical performance: A bodily experience. *Research Studies in Music Education*, *17*, 70–83. <http://dx.doi.org/10.1177/1321103X010170011301>
- Davis, K. L., & Panksepp, J. (2011). The brain's emotional foundations of human personality and the Affective Neuroscience Personality Scales. *Neuroscience and Biobehavioral Reviews*, *35*, 1946–1958. <http://dx.doi.org/10.1016/j.neubiorev.2011.04.004>
- DeNora, T. (2010). *Music in everyday life* (9th ed.). United Kingdom: Cambridge University Press.
- Deutsch, D., Lapidis, R., & Henthorn, T. (2008). The speech-to-song illusion. *The Journal of the Acoustical Society of America*, *124*, 2471. <http://dx.doi.org/10.1121/1.4808987>
- Dijkstra, K., Zwaan, R. A., Graesser, A. C., & Magliano, J. P. (1995). Character and reader emotions in literary texts. *Poetics*, *23*, 139–157. [http://dx.doi.org/10.1016/0304-422X\(94\)00009-U](http://dx.doi.org/10.1016/0304-422X(94)00009-U)
- Dixon, P., Bortolussi, M., Twilley, L. C., & Leung, A. (1993). Literary processing and interpretation: Towards empirical foundations. *Poetics*, *22*, 5–33. [http://dx.doi.org/10.1016/0304-422X\(93\)90018-C](http://dx.doi.org/10.1016/0304-422X(93)90018-C)
- Dubé, L., & Le Bel, J. (2003). The content and structure of laypeople's concept of pleasure. *Cognition and Emotion*, *17*, 263–295. <http://dx.doi.org/10.1080/026999303022295>
- Dubos, J.-B. (1919). *Réflexions critiques sur la poésie et sur la peinture, Partie 2* [Critical reflections on poetry and painting, Part 2]. Paris, France: J. Mariette.
- Eaton, M. M. (1982). A strange kind of sadness. *The Journal of Aesthetics and Art Criticism*, *41*, 51–63. <http://dx.doi.org/10.2307/430823>
- Eerola, T., Vuoskoski, J. K., & Kautiainen, H. (2016). Being moved by unfamiliar sad music is associated with high empathy. *Frontiers in Psychology*, *7*, 1176. <http://dx.doi.org/10.3389/fpsyg.2016.01176>
- Eerola, T., Vuoskoski, J. K., Peltola, H.-R., Putkinen, V., & Schäfer, K. (2018). An integrative review of the enjoyment of sadness associated with music. *Physics of Life Reviews*, *25*, 100–121.
- Epstein, D. (1995). *Shaping time: Music, the brain, and performance*. New York, NY: Schirmer Books.
- Eskine, K. J., Kacinek, N. A., & Prinz, J. J. (2012). Stirring images: Fear, not happiness or arousal, makes art more sublime. *Emotion*, *12*, 1071–1074. <http://dx.doi.org/10.1037/a0027200>
- Eysenck, H. J. (1942). The experimental study of the 'good Gestalt': A new approach. *Psychological Review*, *49*, 344–364. <http://dx.doi.org/10.1037/h0057013>
- Fayn, K., MacCann, C., Tiliopoulos, N., & Silvia, P. J. (2015). Aesthetic emotions and aesthetic people: Openness predicts sensitivity to novelty in the experiences of interest and pleasure. *Frontiers in Psychology*, *6*, 1877. <http://dx.doi.org/10.3389/fpsyg.2015.01877>
- Fechner, G. T. (1860). *Elemente der Psychophysik* [Elements of psychophysics]. Leipzig, Germany: Breitkopf und Härtel.
- Fechner, G. T. (1876). *Vorschule der Ästhetik* [Elementary aesthetics]. Leipzig, Germany: Breitkopf & Härtel.

- Fehr, B., & Russell, J. A. (1984). Concept of emotion viewed from a prototype perspective. *Journal of Experimental Psychology: General*, *113*, 464–486. <http://dx.doi.org/10.1037/0096-3445.113.3.464>
- Fingerhut, J., & Prinz, J. J. (2018). Wonder, appreciation, and the value of art. In J. F. Christensen & A. Gomila (Eds.), *Progress in brain research* (Vol. 237, pp. 107–128). Cambridge, MA: Academic Print.
- Fiske, A. P., Seibt, B., & Schubert, T. (2017). The sudden devotion emotion: Kama muta and the cultural practices whose function is to evoke it. *Emotion Review*. Advance online publication. <http://dx.doi.org/10.1177/1754073917723167>
- Fitch, W. T., von Graevenitz, A., & Nicolas, E. (2009). Bio-aesthetics and the aesthetic trajectory: A dynamic cognitive and cultural perspective. In M. Skov, O. Vartanian, C. Martindale, & A. Berleant (Eds.), *Neuroaesthetics* (pp. 59–102). Amityville, NY: Baywood.
- Frey, W. H., II, DeSota-Johnson, D., Hoffman, C., & McCall, J. T. (1981). Effect of stimulus on the chemical composition of human tears. *American Journal of Ophthalmology*, *92*, 559–567. [http://dx.doi.org/10.1016/0002-9394\(81\)90651-6](http://dx.doi.org/10.1016/0002-9394(81)90651-6)
- Fridlund, A. J., & Cacioppo, J. T. (1986). Guidelines for human electro-myographic research. *Psychophysiology*, *23*, 567–589. <http://dx.doi.org/10.1111/j.1469-8986.1986.tb00676.x>
- Frijda, N. H. (1986). *The emotions*. United Kingdom: Cambridge University Press.
- Frijda, N. H. (1988). The laws of emotion. *American Psychologist*, *43*, 349–358. <http://dx.doi.org/10.1037/0003-066X.43.5.349>
- Frijda, N. H. (1989). Aesthetic emotions and reality. *American Psychologist*, *44*, 1546–1547. <http://dx.doi.org/10.1037/0003-066X.44.12.1546>
- Frijda, N. H. (2010). On the nature and function of pleasure. In M. L. Kringelbach & K. C. Berridge (Eds.), *Pleasures of the brain* (pp. 99–112). New York, NY: Oxford University Press.
- Frijda, N. H., & Sundararajan, L. (2007). Emotion refinement: A theory inspired by Chinese poetics. *Perspectives on Psychological Science*, *2*, 227–241. <http://dx.doi.org/10.1111/j.1745-6916.2007.00042.x>
- Fukui, H., & Toyoshima, K. (2014). Chill-inducing music enhances altruism in humans. *Frontiers in Psychology: Cognition*, *5*, 1215. <http://dx.doi.org/10.3389/fpsyg.2014.01215>
- Gabrielsson, A. (2001–2002). Emotion perceived and emotion felt: Same or different? *Musicae Scientiae*, *5*, 123–147. <http://dx.doi.org/10.1177/102986490200505105>
- Gabrielsson, A. (2010). Strong experiences with music. In P. N. Juslin & J. A. Sloboda (Eds.), *Handbook of music and emotion: Theory, research, applications* (pp. 547–574). New York, NY: Oxford University Press.
- Garrido, S., & Schubert, E. (2011). Individual differences in the enjoyment of negative emotion in music: A literature review and experiment. *Music Perception*, *28*, 279–296. <http://dx.doi.org/10.1525/mp.2011.28.3.279>
- Geiger, M. (1914). Das Problem der ästhetischen Scheingefühle. [The problem of aesthetic quasi-emotions] In M. Dessoir, G. J. v. Allesch, K. Glaser, O. Wulff, & W. Wolffheim (Eds.), *Kongreß für Ästhetik und allgemeine Kunstwissenschaft, Berlin 7.-9. Oktober 1913* (pp. 191–195). Stuttgart, Germany: Enke.
- Geiger, M. (1922). *Beiträge zur Phänomenologie des ästhetischen Genusses* [Contributions to the phenomenology of aesthetic enjoyment]. Halle, Germany: M. Niemeyer.
- Gerger, G., Leder, H., & Kremer, A. (2014). Context effects on emotional and aesthetic evaluations of artworks and IAPS pictures. *Acta Psychologica*, *151*, 174–183. <http://dx.doi.org/10.1016/j.actpsy.2014.06.008>
- Giora, R., Fein, O., Kronrod, A., Elnatan, I., Shuval, N., & Zur, A. (2004). Weapons of mass distraction: Optimal innovation and pleasure ratings. *Metaphor and Symbol*, *19*, 115–141. [http://dx.doi.org/10.1207/s15327868ms1902\\_2](http://dx.doi.org/10.1207/s15327868ms1902_2)
- Goldstein, A. (1980). Thrills in response to music and other stimuli. *Physiological Psychology*, *8*, 126–129. <http://dx.doi.org/10.3758/BF03326460>
- Gonzalez, R., Smith, J., & Nielsen, L. (2017). Editorial overview: Theories, methods, and applications of mixed emotions. *Current Opinion in Behavioral Sciences*, *15*, iv–vi. <http://dx.doi.org/10.1016/j.cobeha.2017.05.019>
- Gordon, A. M., Stellar, J. E., Anderson, C. L., McNeil, G. D., Loew, D., & Keltner, D. (2017). The dark side of the sublime: Distinguishing a threat-based variant of awe. *Journal of Personality and Social Psychology*, *113*, 310–328. <http://dx.doi.org/10.1037/pspp0000120>
- Gračanin, A., Vingerhoets, A. J. J. M., Kardum, I., Zupčić, M., Šantek, M., & Šimić, M. (2015). Why crying does and sometimes does not seem to alleviate mood: A quasi-experimental study. *Motivation and Emotion*, *39*, 953–960. <http://dx.doi.org/10.1007/s11031-015-9507-9>
- Graf, L. K. M., & Landwehr, J. R. (2015). A dual-process perspective on fluency-based aesthetics: The pleasure-interest model of aesthetic liking. *Personality and Social Psychology Review*, *19*, 395–410. <http://dx.doi.org/10.1177/1088868315574978>
- Graf, L. K. M., & Landwehr, J. R. (2017). Aesthetic pleasure versus aesthetic interest: The two routes to aesthetic liking. *Frontiers in Psychology*, *8*, 15.
- Grewé, O., Nagel, F., Kopiez, R., & Altenmüller, E. (2007). Listening to music as a re-creative process: Physiological, psychological, and psychoacoustical correlates of chills and strong emotions. *Music Perception*, *24*, 297–314. <http://dx.doi.org/10.1525/mp.2007.24.3.297>
- Grinde, B., & Patil, G. G. (2009). Biophilia: Does visual contact with nature impact on health and well-being? *International Journal of Environmental Research and Public Health*, *6*, 2332–2343. <http://dx.doi.org/10.3390/ijerph6092332>
- Gross, J. J., & Levenson, R. W. (1997). Hiding feelings: The acute effects of inhibiting negative and positive emotion. *Journal of Abnormal Psychology*, *106*, 95–103. <http://dx.doi.org/10.1037/0021-843X.106.1.95>
- Hanich, J., Menninghaus, W., & Wilder, S. (2017). Beyond sadness: The multi-emotional trajectory of melodrama. *Cinema Journal*, *56*, 76–101. <http://dx.doi.org/10.1353/cj.2017.0041>
- Hanich, J., Wagner, V., Shah, M., Jacobsen, T., & Menninghaus, W. (2014). Why we like to watch sad films: The pleasure of being moved in aesthetic experiences. *Psychology of Aesthetics, Creativity, and the Arts*, *8*, 130–143. <http://dx.doi.org/10.1037/a0035690>
- Heerwagen, J. H., & Orians, G. H. (1993). Humans, habitats, and aesthetics. In S. R. Kellert & E. O. Wilson (Eds.), *The biophilia hypothesis* (pp. 138–172). Washington, DC: Island Press.
- Heim, C. (2015). *Audience as performer: The changing role of theatre audiences in the twenty-first century*. London, UK: Routledge. <http://dx.doi.org/10.4324/9781315757568>
- Hekkert, P., Snelders, D., & van Wieringen, P. C. W. (2003). ‘Most advanced, yet acceptable’: Typicality and novelty as joint predictors of aesthetic preference in industrial design. *British Journal of Psychology*, *94*, 111–124. <http://dx.doi.org/10.1348/000712603762842147>
- Hemenover, S. H., & Schimmack, U. (2007). That’s disgusting! . . . , but very amusing: Mixed feelings of amusement and disgust. *Cognition and Emotion*, *21*, 1102–1113. <http://dx.doi.org/10.1080/02699930601057037>
- Hodges, D. A. (2009). Bodily responses to music. In S. Hallam, I. Cross, & M. Thaut (Eds.), *The Oxford handbook of music psychology* (pp. 121–130). United Kingdom: Oxford University Press.
- Höfel, L., & Jacobsen, T. (2007). Electrophysiological indices of processing aesthetics: Spontaneous or intentional processes? *International Journal of Psychophysiology*, *65*, 20–31. <http://dx.doi.org/10.1016/j.ijpsycho.2007.02.007>
- Hu, C.-P., Huang, Y., Eickhoff, S. B., Peng, K., & Sui, J. (2016). *Shared neural basis for experiencing the beauty of human faces and visual art: Evidence from a meta-analysis of fMRI studies*. Retrieved from <https://www.biorxiv.org/content/early/2017/05/24/081539>
- Hunter, P. G., Schellenberg, E. G., & Schimmack, U. (2010). Feelings and perceptions of happiness and sadness induced by music: Similarities,

- differences, and mixed emotions. *Psychology of Aesthetics, Creativity, and the Arts*, 4, 47–56. <http://dx.doi.org/10.1037/a0016873>
- Huron, D. B. (2006). *Sweet anticipation: Music and the psychology of expectation*. Cambridge, MA: MIT Press.
- Istók, E., Brattico, E., Jacobsen, T., Krohn, K., Muller, M., & Tervaniemi, M. (2009). Aesthetic responses to music: A questionnaire study. *Musicae Scientiae*, 13, 183–206. <http://dx.doi.org/10.1177/102986490901300201>
- Ito, T. A., Larsen, J. T., Smith, N. K., & Cacioppo, J. T. (1998). Negative information weighs more heavily on the brain: The negativity bias in evaluative categorizations. *Journal of Personality and Social Psychology*, 75, 887–900. <http://dx.doi.org/10.1037/0022-3514.75.4.887>
- Izard, C. E. (1992). Basic emotions, relations among emotions, and emotion-cognition relations. *Psychological Review*, 99, 561–565. <http://dx.doi.org/10.1037/0033-295X.99.3.561>
- Jackendoff, R., & Lerdahl, F. (2006). The capacity for music: What is it, and what's special about it? *Cognition*, 100, 33–72. <http://dx.doi.org/10.1016/j.cognition.2005.11.005>
- Jacobs, A. M. (2015). Towards a neurocognitive poetics model of literary reading. In R. M. Willems (Ed.), *Cognitive neuroscience of natural language use* (pp. 135–159). United Kingdom: Cambridge University Press. <http://dx.doi.org/10.1017/CBO9781107323667.007>
- Jacobs, J. M., Hammerman-Rozenberg, R., Cohen, A., & Stessman, J. (2008). Reading daily predicts reduced mortality among men from a cohort of community-dwelling 70-year-olds. *The Journals of Gerontology: Series B*, 63, S73–S80. <http://dx.doi.org/10.1093/geronb/63.2.S73>
- Jacobsen, T. (2010). Beauty and the brain: Culture, history and individual differences in aesthetic appreciation. *Journal of Anatomy*, 216, 184–191. <http://dx.doi.org/10.1111/j.1469-7580.2009.01164.x>
- Jacobsen, T., Buchta, K., Köhler, M., & Schröger, E. (2004). The primacy of beauty in judging the aesthetics of objects. *Psychological Reports*, 94, 1253–1260. <http://dx.doi.org/10.2466/pr0.94.3c.1253-1260>
- James, W. (1890). *The principles of psychology*. London, UK: Macmillan.
- Janata, P., & Grafton, S. T. (2003). Swinging in the brain: Shared neural substrates for behaviors related to sequencing and music. *Nature Neuroscience*, 6, 682–687. <http://dx.doi.org/10.1038/nm1081>
- Janata, P., Tomic, S. T., & Haberman, J. M. (2012). Sensorimotor coupling in music and the psychology of the groove. *Journal of Experimental Psychology: General*, 141, 54–75. <http://dx.doi.org/10.1037/a0024208>
- Joye, Y., & van den Berg, A. (2011). Is love for green in our genes? A critical analysis of evolutionary assumptions in restorative environments research. *Urban Forestry & Urban Greening*, 10, 261–268. <http://dx.doi.org/10.1016/j.ufug.2011.07.004>
- Juslin, P. N. (2013). From everyday emotions to aesthetic emotions: Towards a unified theory of musical emotions. *Physics of Life Reviews*, 10, 235–266. <http://dx.doi.org/10.1016/j.plrev.2013.05.008>
- Juslin, P. N., & Laukka, P. (2003). Communication of emotions in vocal expression and music performance: Different channels, same code? *Psychological Bulletin*, 129, 770–814. <http://dx.doi.org/10.1037/0033-2909.129.5.770>
- Juslin, P. N., Liljeström, S., Laukka, P., Västfjäll, D., & Lundqvist, L.-O. (2011). Emotional reactions to music in a nationally representative sample of Swedish adults: Prevalence and causal influences. *Musicae Scientiae*, 15, 174–207. <http://dx.doi.org/10.1177/10298649114101169>
- Kant, I. (2001). *Critique of the power of judgment* (P. Guyer & E. Matthews, Trans.). United Kingdom: Cambridge University Press. (Original work published 1790)
- Kellert, S. R., & Wilson, E. O. (1995). *The biophilia hypothesis* (new ed.). Washington, DC: Island Press.
- Keltner, D., & Haidt, J. (2003). Approaching awe, a moral, spiritual, and aesthetic emotion. *Cognition and Emotion*, 17, 297–314. <http://dx.doi.org/10.1080/026999303022297>
- Kidd, D. C., & Castano, E. (2013). Reading literary fiction improves theory of mind. *Science*, 342, 377–380. <http://dx.doi.org/10.1126/science.1239918>
- Kirk, U., Skov, M., Hulme, O., Christensen, M. S., & Zeki, S. (2009). Modulation of aesthetic value by semantic context: An fMRI study. *NeuroImage*, 44, 1125–1132. <http://dx.doi.org/10.1016/j.neuroimage.2008.10.009>
- Kirschmann, A. (1900). Concepts and laws of aesthetics. *University of Toronto Studies. Psychological Services*, 1, 100–200.
- Kivy, P. (1991). *Music alone: Philosophical reflections on the purely musical experience*. Ithaca, NY: Cornell University Press.
- Kleinschmidt, E. (2004). *Die Entdeckung der Intensität: Geschichte einer Denkfigur im 18. Jahrhundert* [The discovery of intensity: History of a figure of thought in the 18th century]. Göttingen, Germany: Wallstein.
- Knobloch-Westerwick, S., & Keplinger, C. (2006). Mystery appeal: Effects of uncertainty and resolution on the enjoyment of mystery. *Media Psychology*, 8, 193–212. [http://dx.doi.org/10.1207/s1532785xmp0803\\_1](http://dx.doi.org/10.1207/s1532785xmp0803_1)
- Knoop, C. A., Wagner, V., Jacobsen, T., & Menninghaus, W. (2016). Mapping the aesthetic space of literature “from below.” *Poetics*, 56, 35–49. <http://dx.doi.org/10.1016/j.poetic.2016.02.001>
- Koelsch, S. (2013). From social contact to social cohesion: The 7 Cs. *Music and Medicine*, 5, 204–209. <http://dx.doi.org/10.1177/1943862113508588>
- Köhler, W. (1929). *Gestalt psychology*. New York, NY: Liveright.
- Konečni, V. J. (2005). The aesthetic trinity: Awe, being moved, thrills. *Bulletin of Psychology and the Arts*, 5, 27–44.
- Konečni, V. J. (2008). Does music induce emotion? A theoretical and methodological analysis. *Psychology of Aesthetics, Creativity, and the Arts*, 2, 115–129. <http://dx.doi.org/10.1037/1931-3896.2.2.115>
- Konlaan, B. B., Bygren, L. O., & Johansson, S.-E. (2000). Visiting the cinema, concerts, museums or art exhibitions as determinant of survival: A Swedish fourteen-year cohort follow-up. *Scandinavian Journal of Public Health*, 28, 174–178. <http://dx.doi.org/10.1177/14034948000280030501>
- Korsmeyer, C. (2011). *Savoring disgust: The foul and the fair in aesthetics*. New York, NY: Oxford University Press. <http://dx.doi.org/10.1093/acprof:oso/9780199756940.001.0001>
- Kreitler, H., & Kreitler, S. (1972). *Psychology of the arts*. Durham, NC: Duke University Press.
- Kubovy, M. (1999). On the pleasures of the mind. In D. Kahneman, E. Diener, & N. Schwarz (Eds.), *Well-being: The foundations of hedonic psychology* (pp. 134–154). New York, NY: Russell Sage Foundation.
- Kuehnast, M., Wagner, V., Wassiliwizky, E., Jacobsen, T., & Menninghaus, W. (2014). Being moved: Linguistic representation and conceptual structure. *Frontiers in Psychology: Emotion Science*, 5, 1242. <http://dx.doi.org/10.3389/fpsyg.2014.01242>
- Külpe, O. (1903). Ein Beitrag zur experimentellen Aesthetik [A contribution to experimental aesthetics]. *The American Journal of Psychology*, 14, 215–231. <http://dx.doi.org/10.2307/1412316>
- Külpe, O. (1921). *Grundlagen der Ästhetik* [Foundations of aesthetics]. Leipzig, Germany: S. Hirzel.
- Kumschick, I. R., Beck, L., Eid, M., Witte, G., Klann-Delius, G., Heuser, I., . . . Menninghaus, W. (2014). READING and FEELING: The effects of a literature-based intervention designed to increase emotional competence in second and third graders. *Frontiers in Psychology*, 5, 1448. <http://dx.doi.org/10.3389/fpsyg.2014.01448>
- Lambie, J. A., & Marcel, A. J. (2002). Consciousness and the varieties of emotion experience: A theoretical framework. *Psychological Review*, 109, 219–259. <http://dx.doi.org/10.1037/0033-295X.109.2.219>
- Lange, K. (1901). *Das Wesen der Kunst: Grundzüge einer realistischen Kunstlehre* [The nature of art: Outline of a realistic theory of art]. Berlin, Germany: Grote.

- Larsen, J. T. (2017). Introduction to the special section on mixed emotions. *Emotion Review*, 9, 97–98. <http://dx.doi.org/10.1177/1754073916672523>
- Larsen, J. T., Coles, N. A., & Jordan, D. K. (2017). Varieties of mixed emotional experience. *Current Opinion in Behavioral Sciences*, 15, 72–76. <http://dx.doi.org/10.1016/j.cobeha.2017.05.021>
- Larsen, J. T., McGraw, A. P., & Cacioppo, J. T. (2001). Can people feel happy and sad at the same time? *Journal of Personality and Social Psychology*, 81, 684–696. <http://dx.doi.org/10.1037/0022-3514.81.4.684>
- Larsen, J. T., Norris, C. J., McGraw, A. P., Hawley, L. C., & Cacioppo, J. T. (2009). The evaluative space grid: A single-item measure of positivity and negativity. *Cognition and Emotion*, 23, 453–480. <http://dx.doi.org/10.1080/02699930801994054>
- Larsen, J. T., & Stastny, B. J. (2011). It's a bittersweet symphony: Simultaneously mixed emotional responses to music with conflicting cues. *Emotion*, 11, 1469–1473. <http://dx.doi.org/10.1037/a0024081>
- Larsen, R. J., & Prizmic, Z. (2008). Regulation of emotional well-being: Overcoming the hedonic treadmill. In M. Eid & R. J. Larsen (Eds.), *The science of subjective well-being* (pp. 258–289). New York, NY: Guilford Press.
- Lazarus, R. S. (1991). Progress on a cognitive-motivational-relational theory of emotion. *American Psychologist*, 46, 819–834. <http://dx.doi.org/10.1037/0003-066X.46.8.819>
- Lazarus, R. S., Averill, J. R., & Opton, E. M. (1970). Towards a cognitive theory of emotion. In M. B. Arnold (Ed.), *Feelings and emotions: The Loyola symposium* (pp. 207–232). New York, NY: Academic Press. <http://dx.doi.org/10.1016/B978-0-12-063550-4.50023-1>
- Leder, H., Belke, B., Oeberst, A., & Augustin, D. (2004). A model of aesthetic appreciation and aesthetic judgments. *British Journal of Psychology*, 95, 489–508. <http://dx.doi.org/10.1348/0007126042369811>
- Lehne, M., & Koelsch, S. (2015). Toward a general psychological model of tension and suspense. *Frontiers in Psychology*, 6, 79. <http://dx.doi.org/10.3389/fpsyg.2015.00079>
- Levine, L. W. (1988). *Highbrow/lowbrow: The emergence of cultural hierarchy in America*. Cambridge, MA: Harvard University Press.
- Loewy, R. (2002). *Never leave well enough alone*. Baltimore, MD: John Hopkins University Press.
- MacDonald, R., Kreutz, G., & Mitchell, L. (Eds.). (2013). *Music, health, and wellbeing*. United Kingdom: Oxford University Press.
- Man, V., Nohlen, H. U., Melo, H., & Cunningham, W. A. (2017). Hierarchical brain systems support multiple representations of valence and mixed affect. *Emotion Review*, 9, 124–132. <http://dx.doi.org/10.1177/1754073916667237>
- Mar, R. A., & Oatley, K. (2008). The function of fiction is the abstraction and simulation of social experience. *Perspectives on Psychological Science*, 3, 173–192. <http://dx.doi.org/10.1111/j.1745-6924.2008.00073.x>
- Margulis, E. H. (2014). *On repeat: How music plays the mind*. United Kingdom: Oxford University Press.
- Marković, S. (2010). Aesthetic experience and the emotional content of paintings. *Psihologija*, 43, 47–64. <http://dx.doi.org/10.2298/PSI1001047M>
- Marković, S. (2012). Components of aesthetic experience: Aesthetic fascination, aesthetic appraisal, and aesthetic emotion. *Perception*, 3, 1–17. <http://dx.doi.org/10.1068/i0450aap>
- Martindale, C. (1984). The pleasures of thought: A theory of cognitive hedonics. *Journal of Mind and Behavior*, 5, 49–80.
- Martínez-Martí, M. L., Hernández-Lloreda, M. J., & Avia, M. D. (2016). Appreciation of beauty and excellence: Relationship with personality, prosociality and well-being. *Journal of Happiness Studies*, 17, 2613–2634. <http://dx.doi.org/10.1007/s10902-015-9709-6>
- Maruskin, L. A., Thrash, T. M., & Elliot, A. J. (2012). The chills as a psychological construct: Content universe, factor structure, affective composition, elicitors, trait antecedents, and consequences. *Journal of Personality and Social Psychology*, 103, 135–157. <http://dx.doi.org/10.1037/a0028117>
- Mas-Herrero, E., Zatorre, R. J., Rodriguez-Fornells, A., & Marco-Pallarés, J. (2014). Dissociation between musical and monetary reward responses in specific musical anhedonia. *Current Biology*, 24, 699–704. <http://dx.doi.org/10.1016/j.cub.2014.01.068>
- Maslow, A. H., Frager, R., Fadiman, J., McReynolds, C., & Cox, R. (1970). *Motivation and personality* (Vol. 2). New York, NY: Harper & Row.
- McCrae, R. R. (2007). Aesthetic chills as a universal marker of openness to experience. *Motivation and Emotion*, 31, 5–11. <http://dx.doi.org/10.1007/s11031-007-9053-1>
- Meinong, A. (1917). *Über emotionale Präsentation* [On emotional presentation]. Wien, Austria: A. Hölder.
- Meinong, A. (1977). Über Annahmen. [On assumptions] In R. Haller & R. Kindinger (Eds.), *Alexius Meinong Gesamtausgabe* (Vol. 4). Graz, Austria: Akademische Druck- und Verlagsanstalt. (Original work published 1902)
- Menninghaus, W. (1991). Zwischen Überwältigung und Widerstand: Macht und Gewalt in Longins und Kants Theorien des Erhabenen [Between being overwhelmed and withstanding the challenge: Power and violence in Longin's and Kant's theories of the sublime]. *Poetica*, 23, 1–19.
- Menninghaus, W. (1999). *In praise of nonsense: Kant and Bluebeard*. California: Stanford University Press.
- Menninghaus, W. (2003). *Disgust: Theory and history of a strong sensation* (H. Eiland & J. Golb, Trans.). Albany, NY: SUNY Press.
- Menninghaus, W. (2009). “Ein Gefühl der Beförderung des Lebens”: Kants Reformulierung des Topos lebhafter Vorstellung. [“A feeling of life's being furthered”: Kant's reformulation of the topos of vivid imagination] In A. Avanesian, W. Menninghaus, & J. Völker (Eds.), *Vita aesthetica. Szenarien ästhetischer Lebendigkeit* [Vita aesthetics. Scenarios of aesthetic vividness] (pp. 77–94). Berlin, Germany: Diaphanes.
- Menninghaus, W., Bohrn, I. C., Knoop, C. A., Kotz, S. A., Schlotz, W., & Jacobs, A. M. (2015). Rhetorical features facilitate prosodic processing while handicapping ease of semantic comprehension. *Cognition*, 143, 48–60. <http://dx.doi.org/10.1016/j.cognition.2015.05.026>
- Menninghaus, W., Wagner, V., Hanich, J., Wassiliwizky, E., Jacobsen, T., & Koelsch, S. (2017a). The distancing-embracing model of the enjoyment of negative emotions in art reception. *Behavioral and Brain Sciences*, 40, e347. <http://dx.doi.org/10.1017/S0140525X17000309>
- Menninghaus, W., Wagner, V., Hanich, J., Wassiliwizky, E., Jacobsen, T., & Koelsch, S. (2017b). Negative emotions in art reception: Refining theoretical assumptions and adding variables to the Distancing-Embracing model. *Behavioral and Brain Sciences*, 40, e380. <http://dx.doi.org/10.1017/S0140525X17001947>
- Menninghaus, W., Wagner, V., Hanich, J., Wassiliwizky, E., Kuehnast, M., & Jacobsen, T. (2015). Towards a psychological construct of being moved. *PLoS ONE*, 10, e0128451. <http://dx.doi.org/10.1371/journal.pone.0128451>
- Menninghaus, W., Wagner, V., Wassiliwizky, E., Jacobsen, T., & Knoop, C. A. (2017). The emotional and aesthetic powers of parallelistic diction. *Poetics*, 63, 47–59. <http://dx.doi.org/10.1016/j.poetic.2016.12.001>
- Meyer, L. B. (1961). *Emotion and meaning in music*. Illinois: University of Chicago Press. <http://dx.doi.org/10.7208/chicago/9780226521374.001.0001>
- Miu, A. C., Pişur, S., & Szentágotai-Tátar, A. (2016). Aesthetic emotions across arts: A comparison between painting and music. *Frontiers in Psychology*, 6, 1951. <http://dx.doi.org/10.3389/fpsyg.2015.01951>
- Montano, U. (2014). Case analysis II: Elegance. In U. Montano (Ed.), *Explaining beauty in mathematics: An aesthetic theory of mathematics* (pp. 179–195). Cham, Switzerland: Springer International. [http://dx.doi.org/10.1007/978-3-319-03452-2\\_13](http://dx.doi.org/10.1007/978-3-319-03452-2_13)

- Morreall, J. (1985). Enjoying negative emotions in fiction. *Philosophy and Literature*, 9, 95–103. <http://dx.doi.org/10.1353/phl.1985.0118>
- Mulligan, K. (2009). Emotions and values. In P. Goldie (Ed.), *The Oxford handbook of philosophy of emotion* (pp. 475–500). United Kingdom: Oxford University Press.
- Mumper, M. L., & Gerrig, R. J. (2017). Leisure reading and social cognition: A meta-analysis. *Psychology of Aesthetics, Creativity, and the Arts*, 11, 109–120. <http://dx.doi.org/10.1037/aca0000089>
- Musch, J., & Klauer, K. C. (2003). *The psychology of evaluation: Affective processes in cognition and emotion*. Mahwah, NJ: Erlbaum. <http://dx.doi.org/10.4324/9781410606853>
- Muth, C., & Carbon, C.-C. (2013). The aesthetic aha: On the pleasure of having insights into Gestalt. *Acta Psychologica*, 144, 25–30. <http://dx.doi.org/10.1016/j.actpsy.2013.05.001>
- Muth, C., Hesslinger, V. M., & Carbon, C.-C. (2015). The appeal of challenge in the perception of art: How ambiguity, solvability of ambiguity, and the opportunity for insight affect appreciation. *Psychology of Aesthetics, Creativity, and the Arts*, 9, 206–216. <http://dx.doi.org/10.1037/a0038814>
- Nusbaum, E. C., & Silvia, P. J. (2014). Unusual aesthetic states. In P. P. L. Tinio & J. K. Smith (Eds.), *The Cambridge handbook of the psychology of aesthetics and the arts* (pp. 519–539). United Kingdom: Cambridge University Press.
- Nusbaum, E. C., Silvia, P. J., Beaty, R. E., Burgin, C. J., Hodges, D. A., & Kwapił, T. R. (2014). Listening between the notes: Aesthetic chills in everyday music listening. *Psychology of Aesthetics, Creativity, and the Arts*, 8, 104–109. <http://dx.doi.org/10.1037/a0034867>
- Oatley, K. (1994). A taxonomy of the emotions of literary response and a theory of identification in fictional narrative. *Poetics*, 23, 53–74. [http://dx.doi.org/10.1016/0304-422X\(94\)P4296-S](http://dx.doi.org/10.1016/0304-422X(94)P4296-S)
- Oliver, M. B. (1993). Exploring the paradox of the enjoyment of sad films. *Human Communication Research*, 19, 315–342. <http://dx.doi.org/10.1111/j.1468-2958.1993.tb00304.x>
- Oliver, M. B. (2003). Mood management and selective exposure. In J. Bryant, D. Roskos-Ewoldsen, & J. Cantor (Eds.), *Communication and emotion: Essays in honor of Dolf Zillmann* (pp. 85–106). Mahwah, NJ: Erlbaum.
- Oliver, M. B., & Bartsch, A. (2010). Appreciation as audience response: Exploring entertainment gratifications beyond hedonism. *Human Communication Research*, 36, 53–81. <http://dx.doi.org/10.1111/j.1468-2958.2009.01368.x>
- Oliver, M. B., & Sanders, M. (2004). The appeal of horror and suspense. In S. Price (Ed.), *The horror film* (pp. 243–259). New Brunswick, NJ: Rutgers University Press.
- Owren, M. J., & Amoss, R. T. (2014). Spontaneous human laughter. In M. M. Tugade, M. N. Shiota, & L. D. Kirby (Eds.), *Handbook of positive emotions* (Vol. 9, pp. 159–178). New York, NY: Guilford Press.
- Panero, M. E., Weisberg, D. S., Black, J., Goldstein, T. R., Barnes, J. L., Brownell, H., & Winner, E. (2016). Does reading a single passage of literary fiction really improve theory of mind? An attempt at replication. *Journal of Personality and Social Psychology*, 111, e46–e54. <http://dx.doi.org/10.1037/pspa0000064>
- Panksepp, J. (1995). The emotional sources of “chills” induced by music. *Music Perception*, 13, 171–207. <http://dx.doi.org/10.2307/40285693>
- Panksepp, J. (1998). *Affective neuroscience: The foundations of human and animal emotions*. United Kingdom: Oxford University Press.
- Panksepp, J., & Bernatzky, G. (2002). Emotional sounds and the brain: The neuro-affective foundations of musical appreciation. *Behavioural Processes*, 60, 133–155. [http://dx.doi.org/10.1016/S0376-6357\(02\)00080-3](http://dx.doi.org/10.1016/S0376-6357(02)00080-3)
- Payne, E. (1961). Emotion in music and in music appreciation. *The Music Review*, 22, 39–50.
- Payne, E. (1973). The nature of musical emotion and its place in the appreciative experience. *British Journal of Aesthetics*, 13, 171–181. <http://dx.doi.org/10.1093/bjaesthetics/13.2.171>
- Payne, E. (1980). Towards an understanding of music appreciation. *Psychology of Music*, 8, 31–41. <http://dx.doi.org/10.1177/0305735668082004>
- Pearce, M. T., Zaidel, D. W., Vartanian, O., Skov, M., Leder, H., Chatterjee, A., & Nadal, M. (2016). Neuroaesthetics: The cognitive neuroscience of aesthetic experience. *Perspectives on Psychological Science*, 11, 265–279. <http://dx.doi.org/10.1177/1745691615621274>
- Pelowski, M. (2015). Tears and transformation: Feeling like crying as an indicator of insightful or “aesthetic” experience with art. *Frontiers in Psychology: Emotion Science*, 6, 1006. <http://dx.doi.org/10.3389/fpsyg.2015.01006>
- Pelowski, M., Markey, P. S., Forster, M., Gerger, G., & Leder, H. (2017). Move me, astonish me . . . delight my eyes and brain: The Vienna Integrated Model of top-down and bottom-up processes in Art Perception (VIMAP) and corresponding affective, evaluative, and neurophysiological correlates. *Physics of Life Reviews*, 21, 80–125. <http://dx.doi.org/10.1016/j.plrev.2017.02.003>
- Perlovsky, L. (2014). Mystery in experimental psychology, how to measure aesthetic emotions? *Frontiers in Psychology: Emotion Science*, 5, 1006. <http://dx.doi.org/10.3389/fpsyg.2014.01006>
- Plantinga, C. (2009). *Moving viewers: American film and the spectator's experience*. Berkeley: University of California Press.
- Prinz, J. J. (2004). *Gut reactions: A perceptual theory of emotion*. New York, NY: Oxford University Press.
- Prinz, J. J. (2011). Emotion and aesthetic value. In E. Schellekens & P. Goldie (Eds.), *The aesthetic mind: Philosophy and psychology* (pp. 71–88). United Kingdom: Oxford University Press. <http://dx.doi.org/10.1093/acprof:oso/9780199691517.003.0006>
- Quintilian, M. F. (1920). *The Institutio oratoria of Quintilian* (H. E. Butler, Trans.). Cambridge, MA: Harvard University Press.
- Ramachandran, V. S., & Hirstein, W. (1999). The science of art: A neurological theory of aesthetic experience. *Journal of Consciousness Studies*, 6, 15–51.
- Reber, R. (2016). *Critical feeling: How to use feelings strategically*. United Kingdom: Cambridge University Press. <http://dx.doi.org/10.1017/CBO9781107446755>
- Reber, R., Schwarz, N., & Winkielman, P. (2004). Processing fluency and aesthetic pleasure: Is beauty in the perceiver's processing experience? *Personality and Social Psychology Review*, 8, 364–382. [http://dx.doi.org/10.1207/s15327957pspr0804\\_3](http://dx.doi.org/10.1207/s15327957pspr0804_3)
- Reber, R., Winkielman, P., & Schwarz, N. (1998). Effects of perceptual fluency on affective judgments. *Psychological Science*, 9, 45–48. <http://dx.doi.org/10.1111/1467-9280.00008>
- Reisenzein, R. (1994). Pleasure–arousal theory and the intensity of emotions. *Journal of Personality and Social Psychology*, 67, 525–539. <http://dx.doi.org/10.1037/0022-3514.67.3.525>
- Reisenzein, R. (2001). Appraisal processes conceptualized from a schema-theoretic perspective: Contributions to a process analysis of emotions. In K. R. Scherer, A. Schorr, & T. Johnstone (Eds.), *Appraisal processes in emotion: Theory, methods, research* (pp. 187–201). United Kingdom: Oxford University Press.
- Rickard, N. S. (2004). Intense emotional responses to music: A test of the physiological arousal hypothesis. *Psychology of Music*, 32, 371–388. <http://dx.doi.org/10.1177/0305735604046096>
- Rieger, D., Reinecke, L., Frischlich, L., & Bente, G. (2014). Media entertainment and well-being—Linking hedonic and eudaimonic entertainment experience to media-induced recovery and vitality. *Journal of Communication*, 64, 456–478. <http://dx.doi.org/10.1111/jcom.12097>
- Ritoók, E. v. (1910). Zur Analyse der ästhetischen Wirkung auf Grund der Methode der Zeitvariation [On the analysis of aesthetic effects based on the method of time variation]. *Zeitschrift für Ästhetik Und Allgemeine Kunstwissenschaft*, 5, 512–544.
- Robinson, J. (2009). Emotional responses to music: What are they? How

- do they work? And are they relevant to aesthetic appreciation? In P. Goldie (Ed.), *The Oxford handbook of philosophy of emotion* (pp. 651–680). United Kingdom: Oxford University Press.
- Robinson, T., Callahan, C., & Evans, K. (2014). Why do we keep going back? A Q method analysis of our attraction to horror movies. *Operant Subjectivity*, 37, 41–57.
- Routledge, C., Arndt, J., Wildschut, T., Sedikides, C., Hart, C. M., Juhl, J., . . . Schlotz, W. (2011). The past makes the present meaningful: Nostalgia as an existential resource. *Journal of Personality and Social Psychology*, 101, 638–652. <http://dx.doi.org/10.1037/a0024292>
- Rozin, P., & Royzman, E. B. (2001). Negativity bias, negativity dominance, and contagion. *Personality and Social Psychology Review*, 5, 296–320. [http://dx.doi.org/10.1207/S15327957PSPR0504\\_2](http://dx.doi.org/10.1207/S15327957PSPR0504_2)
- Ruch, W., & Ekman, P. (2001). The expressive pattern of laughter. In A. Kaszniak (Ed.), *Emotions, qualia, and consciousness* (pp. 426–443). Singapore: World Scientific. [http://dx.doi.org/10.1142/9789812810687\\_0033](http://dx.doi.org/10.1142/9789812810687_0033)
- Russell, J. A. (2003). Core affect and the psychological construction of emotion. *Psychological Review*, 110, 145–172. <http://dx.doi.org/10.1037/0033-295X.110.1.145>
- Russell, J. A., & Barrett, L. F. (1999). Core affect, prototypical emotional episodes, and other things called emotion: Dissecting the elephant. *Journal of Personality and Social Psychology*, 76, 805–819. <http://dx.doi.org/10.1037/0022-3514.76.5.805>
- Salimpoor, V. N., Benovoy, M., Larcher, K., Dagher, A., & Zatorre, R. J. (2011). Anatomically distinct dopamine release during anticipation and experience of peak emotion to music. *Nature Neuroscience*, 14, 257–262. <http://dx.doi.org/10.1038/nn.2726>
- Salimpoor, V. N., Benovoy, M., Longo, G., Cooperstock, J. R., & Zatorre, R. J. (2009). The rewarding aspects of music listening are related to degree of emotional arousal. *PLoS ONE*, 4, e7487. <http://dx.doi.org/10.1371/journal.pone.0007487>
- Salimpoor, V. N., van den Bosch, I., Kovacevic, N., McIntosh, A. R., Dagher, A., & Zatorre, R. J. (2013). Interactions between the nucleus accumbens and auditory cortices predict music reward value. *Science*, 340, 216–219. <http://dx.doi.org/10.1126/science.1231059>
- Salimpoor, V. N., & Zatorre, R. J. (2013). Neural interactions that give rise to musical pleasure. *Psychology of Aesthetics, Creativity, and the Arts*, 7, 62–75. <http://dx.doi.org/10.1037/a0031819>
- Samur, D., Tops, M., & Koole, S. L. (2018). Does a single session of reading literary fiction prime enhanced mentalising performance? Four replication experiments of Kidd and Castano (2013). *Cognition and Emotion*, 32, 130–144. <http://dx.doi.org/10.1080/02699931.2017.1279591>
- Sauter, D. A., Eisner, F., Ekman, P., Scott, S. K., & Smith, E. E. (2010). Cross-cultural recognition of basic emotions through nonverbal emotional vocalizations. *Proceedings of the National Academy of Sciences of the United States of America*, 107, 2408–2412. <http://dx.doi.org/10.1073/pnas.0908239106>
- Schellenberg, E. G., Peretz, I., & Vieillard, S. (2008). Liking for happy- and sad-sounding music: Effects of exposure. *Cognition and Emotion*, 22, 218–237. <http://dx.doi.org/10.1080/02699930701350753>
- Scherer, K. R. (1984). Emotion as multicomponent process. A model and some cross-cultural data. In P. Shaver (Ed.), *Review of personality and social psychology* (pp. 37–63). Beverly Hills, CA: Sage.
- Scherer, K. R. (2001). Appraisal considered as a process of multi-level sequential checking. In K. R. Scherer, A. Schorr, & T. Johnstone (Eds.), *Appraisal processes in emotion: Theory, methods, research* (pp. 92–120). New York, NY: Oxford University Press.
- Scherer, K. R. (2004a). Feelings integrate the central representation of appraisal-driven response organization in emotion. In A. S. R. Manstead, N. H. Frijda, & A. H. Fischer (Eds.), *Feelings and emotions: The Amsterdam Symposium* (pp. 136–157). United Kingdom: Cambridge University Press.
- Scherer, K. R. (2004b). Which emotions can be induced by music? What are the underlying mechanisms? And how can we measure them? *Journal of New Music Research*, 33, 239–251. <http://dx.doi.org/10.1080/0929821042000317822>
- Scherer, K. R. (2005). What are emotions? And how can they be measured? *Social Science Information*, 44, 695–729.
- Scherer, K. R. (2012). Emotion in action, interaction, music and speech. In M. Arbib (Ed.), *Language, music and the brain: A mysterious relationship* (pp. 107–140). Cambridge, MA: MIT Press.
- Scherer, K. R., & Coutinho, E. (2013). How music creates emotion: A multifactorial process approach. In T. Cochrane, B. Fantini, & K. R. Scherer (Eds.), *The emotional power of music: Multidisciplinary perspectives on musical arousal, expression, and social control* (pp. 121–145). United Kingdom: Oxford University Press. <http://dx.doi.org/10.1093/acprof:oso/9780199654888.003.0010>
- Scherer, K. R., & Zentner, M. R. (2001). Emotional effects of music: Production rules. In P. N. Juslin & J. A. Sloboda (Eds.), *Music and emotion: Theory and research* (pp. 361–392). United Kingdom: Oxford University Press.
- Schiller, F. (1792). Über den Grund des Vergnügens an tragischen Gegenständen [On the reason for our enjoyment of tragic subjects]. In F. Schiller (Ed.), *Neue Thalia, erstes Stück* (pp. 92–125). Leipzig, Germany: Georg Joachim Göschen.
- Schindler, I., Hosoya, G., Menninghaus, W., Beermann, U., Wagner, V., Eid, M., & Scherer, K. R. (2017). Measuring aesthetic emotions: A review of the literature and a new assessment tool. *PLoS ONE*, 12, e0178899. <http://dx.doi.org/10.1371/journal.pone.0178899>
- Schubert, E. (2013). Loved music can make a listener feel negative emotions. *Musicae Scientiae*, 17, 11–26. <http://dx.doi.org/10.1177/1029864912461321>
- Seibt, B., Schubert, T. W., Zickfeld, J. H., & Fiske, A. P. (2017). Interpersonal closeness and morality predict feelings of being moved. *Emotion*, 17, 389–394. <http://dx.doi.org/10.1037/emo0000271>
- Shaver, P., Schwartz, J., Kirson, D., & O'Connor, C. (1987). Emotion knowledge: Further exploration of a prototype approach. *Journal of Personality and Social Psychology*, 52, 1061–1086. <http://dx.doi.org/10.1037/0022-3514.52.6.1061>
- Sherman, A., & Morrissey, C. (2017). What is art good for? The socio-epistemic value of art. *Frontiers in Human Neuroscience*, 11, 411. <http://dx.doi.org/10.3389/fnhum.2017.00411>
- Silver, E. A., & Metzger, W. (1989). Aesthetic influences on expert mathematical problem solving. In D. B. McLeod & V. M. Adams (Eds.), *Affect and mathematical problem solving: A new perspective* (pp. 59–74). New York: Springer New York. [http://dx.doi.org/10.1007/978-1-4612-3614-6\\_5](http://dx.doi.org/10.1007/978-1-4612-3614-6_5)
- Silvia, P. J. (2005a). Emotional responses to art: From collation and arousal to cognition and emotion. *Review of General Psychology*, 9, 342–357. <http://dx.doi.org/10.1037/1089-2680.9.4.342>
- Silvia, P. J. (2005b). What is interesting? Exploring the appraisal structure of interest. *Emotion*, 5, 89–102. <http://dx.doi.org/10.1037/1528-3542.5.1.89>
- Silvia, P. J. (2006). *Exploring the psychology of interest*. United Kingdom: Oxford University Press. <http://dx.doi.org/10.1093/acprof:oso/9780195158557.001.0001>
- Silvia, P. J. (2007). Knowledge-based assessment of expertise in the arts: Exploring aesthetic fluency. *Psychology of Aesthetics, Creativity, and the Arts*, 1, 247–249. <http://dx.doi.org/10.1037/1931-3896.1.4.247>
- Silvia, P. J. (2009). Looking past pleasure: Anger, confusion, disgust, pride, surprise, and other unusual aesthetic emotions. *Psychology of Aesthetics, Creativity, and the Arts*, 3, 48–51. <http://dx.doi.org/10.1037/a0014632>
- Silvia, P. J. (2010). Confusion and interest: The role of knowledge emotions in aesthetic experience. *Psychology of Aesthetics, Creativity, and the Arts*, 4, 75–80. <http://dx.doi.org/10.1037/a0017081>



- Silvia, P. J., & Brown, E. M. (2007). Anger, disgust, and the negative aesthetic emotions: Expanding an appraisal model of aesthetic experience. *Psychology of Aesthetics, Creativity, and the Arts, 1*, 100–106. <http://dx.doi.org/10.1037/1931-3896.1.2.100>
- Silvia, P. J., Fayn, K., Nusbaum, E. C., & Beaty, R. E. (2015). Openness to experience and awe in response to nature and music: Personality and profound aesthetic experiences. *Psychology of Aesthetics, Creativity, and the Arts, 9*, 376–384. <http://dx.doi.org/10.1037/aca0000028>
- Skinner, B. F. (1938). *The behavior of organisms: An experimental analysis*. New York, NY: Appleton-Century.
- Smith, C. A., & Ellsworth, P. C. (1985). Patterns of cognitive appraisal in emotion. *Journal of Personality and Social Psychology, 48*, 813–838. <http://dx.doi.org/10.1037/0022-3514.48.4.813>
- Smith, G. M. (1999). Local emotions, global moods, and film structure. In C. Plantinga & G. M. Smith (Eds.), *Passionate views: Film, cognition, and emotion* (pp. 103–120). Baltimore, MD: John Hopkins University Press.
- Solomon, R. C. (2003). I. Emotions, thoughts and feelings: What is a ‘cognitive theory’ of the emotions and does it neglect affectivity? *Royal Institute of Philosophy Supplements, 52*, 1–18. <http://dx.doi.org/10.1017/S1358246100007864>
- Sonnemans, J., & Frijda, N. H. (1995). The determinants of subjective emotional intensity. *Cognition and Emotion, 9*, 483–506. <http://dx.doi.org/10.1080/02699939508408977>
- Starr, G. G. (2013). *Feeling beauty: The neuroscience of aesthetic experience*. Cambridge, MA: MIT Press. <http://dx.doi.org/10.7551/mitpress/9780262019316.001.0001>
- Stel, M., van Baaren, R. B., & Vonk, R. (2008). Effects of mimicking: Acting prosocially by being emotionally moved. *European Journal of Social Psychology, 38*, 965–976. <http://dx.doi.org/10.1002/ejsp.472>
- Stratton, G. M. (1902). Eye-movements and the aesthetics of visual form. *Philosophical Studies, 20*, 336–359.
- Strizhakova, Y., & Krmar, M. (2007). Mood management and video rental choices. *Media Psychology, 10*, 91–112.
- Stupacher, J., Hove, M. J., & Janata, P. (2016). Audio features underlying perceived groove and sensorimotor synchronization in music. *Music Perception, 33*, 571–589. <http://dx.doi.org/10.1525/mp.2016.33.5.571>
- Sundararajan, L. (2010). Two flavors of aesthetic tasting: Rasa and savoring a cross-cultural study with implications for psychology of emotion. *Review of General Psychology, 14*, 22–30. <http://dx.doi.org/10.1037/a0018122>
- Szpunar, K. K., Schellenberg, E. G., & Pliner, P. (2004). Liking and memory for musical stimuli as a function of exposure. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 30*, 370–381. <http://dx.doi.org/10.1037/0278-7393.30.2.370>
- Tamborini, R., & Stiff, J. (1987). Predictors of horror film attendance and appeal: An analysis of the audience for frightening films. *Communication Research, 14*, 415–436. <http://dx.doi.org/10.1177/009365087014004003>
- Tamborini, R., Stiff, J., & Heidel, C. (1990). Reacting to graphic horror: A model of empathy and emotional behavior. *Communication Research, 17*, 616–640. <http://dx.doi.org/10.1177/009365090017005003>
- Tan, E. S. H. (1996). *Emotion and the structure of narrative film: Film as an emotion machine*. Mahwah, NJ: Erlbaum.
- Tan, E. S. H. (2000). Emotion, art, and the humanities. In M. D. Lewis (Ed.), *Handbook of emotions* (Vol. 3, pp. 116–134). New York, NY: Guilford Press.
- Tan, E. S. H. (2008). Entertainment is emotion: The functional architecture of the entertainment experience. *Media Psychology, 11*, 28–51. <http://dx.doi.org/10.1080/15213260701853161>
- Taruffi, L., & Koelsch, S. (2014). The paradox of music-evoked sadness: An online survey. *PLoS ONE, 9*, e110490. <http://dx.doi.org/10.1371/journal.pone.0110490>
- Thampi, G. B. M. (1965). “Rasa” as aesthetic experience. *The Journal of Aesthetics and Art Criticism, 24*, 75–80. <http://dx.doi.org/10.2307/428249>
- Thorndike, E. L. (1898). Animal intelligence: An experimental study of the associative processes in animals. *The Psychological Review: Monograph Supplements, 2*, 1–109.
- Tinio, P. P. L., Gerger, G., & Leder, H. (2013). Birds of a feather . . . Generalization of facial structures following massive familiarization. *Acta Psychologica, 144*, 463–471. <http://dx.doi.org/10.1016/j.actpsy.2013.08.003>
- Tinio, P. P. L., & Leder, H. (2009). Just how stable are stable aesthetic features? Symmetry, complexity, and the jaws of massive familiarization. *Acta Psychologica, 130*, 241–250. <http://dx.doi.org/10.1016/j.actpsy.2009.01.001>
- Trost, W., Ethofer, T., Zentner, M., & Vuilleumier, P. (2012). Mapping aesthetic musical emotions in the brain. *Cerebral Cortex, 22*, 2769–2783. <http://dx.doi.org/10.1093/cercor/bhr353>
- Tschacher, W., Greenwood, S., Kirchberg, V., Wintzerith, S., van den Berg, K., & Tröndle, M. (2012). Physiological correlates of aesthetic perception of artworks in a museum. *Psychology of Aesthetics, Creativity, and the Arts, 6*, 96–103. <http://dx.doi.org/10.1037/a0023845>
- Ulrich, R. S. (1979). Visual landscapes and psychological well-being. *Landscape Research, 4*, 17–23. <http://dx.doi.org/10.1080/01426397908705892>
- Ulrich, R. S. (1983). Aesthetic and affective response to natural environment. In I. Altman & J. F. Wohlwill (Eds.), *Behavior and the natural environment* (pp. 85–125). New York, NY: Springer. [http://dx.doi.org/10.1007/978-1-4613-3539-9\\_4](http://dx.doi.org/10.1007/978-1-4613-3539-9_4)
- Ulrich, R. S. (1993). Biophilia, biophobia, and natural landscapes. In S. R. Kellert & E. O. Wilson (Eds.), *The biophilia hypothesis* (pp. 73–137). Washington, DC: Island Press.
- Vaish, A., Grossmann, T., & Woodward, A. (2008). Not all emotions are created equal: The negativity bias in social-emotional development. *Psychological Bulletin, 134*, 383–403. <http://dx.doi.org/10.1037/0033-2909.134.3.383>
- van der Veen, F. M., Jorritsma, J., Krijger, C., & Vingerhoets, A. J. (2012). Paroxetine reduces crying in young women watching emotional movies. *Psychopharmacology, 220*, 303–308. <http://dx.doi.org/10.1007/s00213-011-2477-z>
- Vessel, E. A., Starr, G. G., & Rubin, N. (2012). The brain on art: Intense aesthetic experience activates the default mode network. *Frontiers in Human Neuroscience, 6*, 66.
- Vessel, E. A., Starr, G. G., & Rubin, N. (2013). Art reaches within: Aesthetic experience, the self and the default mode network. *Frontiers in Neuroscience, 7*, 258. <http://dx.doi.org/10.3389/fnins.2013.00258>
- Visch, V., Tan, E. S. H., & Molenaar, D. (2010). The emotional and cognitive effect of immersion in film viewing. *Cognition and Emotion, 24*, 1439–1445. <http://dx.doi.org/10.1080/02699930903498186>
- Vuoskoski, J. K., & Eerola, T. (2011). Measuring music-induced emotion: A comparison of emotion models, personality biases, and intensity of experiences. *Musicae Scientiae, 15*, 159–173. <http://dx.doi.org/10.1177/1029864911403367>
- Vuoskoski, J. K., & Eerola, T. (2017). The pleasure evoked by sad music is mediated by feelings of being moved. *Frontiers in Psychology, 8*, 439. <http://dx.doi.org/10.3389/fpsyg.2017.00439>
- Wagner, V., Klein, J., Hanich, J., Shah, M., Menninghaus, W., & Jacobsen, T. (2015). Anger framed: A field study on emotion, pleasure, and art. *Psychology of Aesthetics, Creativity, and the Arts, 10*, 134–146. <http://dx.doi.org/10.1037/aca0000029>
- Wagner, V., Menninghaus, W., Hanich, J., & Jacobsen, T. (2014). Art schema effects on affective experience: The case of disgusting images. *Psychology of Aesthetics, Creativity, and the Arts, 8*, 120–129. <http://dx.doi.org/10.1037/a0036126>

- Wald-Fuhrmann, M. (2010). "Ein Mittel wider sich selbst": *Melancholie in der Instrumentalmusik um 1800* ["A means against oneself": Melancholy in instrumental music around 1800]. Kassel, Germany: Bärenreiter.
- Wallot, S., & Menninghaus, W. (2018). Ambiguity effects of rhyme and meter. *Journal of Experimental Psychology: Learning, Memory, and Cognition*. Advance online publication. <http://dx.doi.org/10.1037/xlm0000557>
- Walton, K. L. (1990). *Mimesis as make-believe: On the foundations of the representational arts*. Cambridge, MA: Harvard University Press.
- Wassiliwizky, E., Jacobsen, T., Heinrich, J., Schneiderbauer, M., & Menninghaus, W. (2017). Tears falling on goosebumps: Co-occurrence of emotional lacrimation and emotional piloerection indicates a psychophysiological climax in emotional arousal. *Frontiers in Psychology*, 8, 41.
- Wassiliwizky, E., Koelsch, S., Wagner, V., Jacobsen, T., & Menninghaus, W. (2017). The emotional power of poetry: Neural circuitry, psychophysiology and compositional principles. *Social Cognitive and Affective Neuroscience*, 12, 1229–1240. <http://dx.doi.org/10.1093/scan/nsx069>
- Wassiliwizky, E., Wagner, V., Jacobsen, T., & Menninghaus, W. (2015). Art-elicited chills indicate states of being moved. *Psychology of Aesthetics, Creativity, and the Arts*, 9, 405–416. <http://dx.doi.org/10.1037/aca0000023>
- Węziak-Białowolska, D. (2016). Attendance of cultural events and involvement with the arts-impact evaluation on health and well-being from a Swiss household panel survey. *Public Health*, 139, 161–169. <http://dx.doi.org/10.1016/j.puhe.2016.06.028>
- Wildschut, T., Sedikides, C., Arndt, J., & Routledge, C. (2006). Nostalgia: Content, triggers, functions. *Journal of Personality and Social Psychology*, 91, 975–993. <http://dx.doi.org/10.1037/0022-3514.91.5.975>
- Wilkinson, A. V., Waters, A. J., Bygren, L. O., & Tarlov, A. R. (2007). Are variations in rates of attending cultural activities associated with population health in the United States? *BMC Public Health*, 7, 226. <http://dx.doi.org/10.1186/1471-2458-7-226>
- Winkelman, P., & Cacioppo, J. T. (2001). Mind at ease puts a smile on the face: Psychophysiological evidence that processing facilitation elicits positive affect. *Journal of Personality and Social Psychology*, 81, 989–1000. <http://dx.doi.org/10.1037/0022-3514.81.6.989>
- Winkelman, P., Schwarz, N., Fazendeiro, T., & Reber, R. (2003). The hedonic marking of processing fluency: Implications for evaluative judgment. In J. Musch & K. C. Klauer (Eds.), *The psychology of evaluation: Affective processes in cognition and emotion* (pp. 189–217). Mahwah, NJ: Erlbaum.
- Witasek, S. (1901). Zur psychologischen Analyse der ästhetischen Einföhlung [On the psychological analysis of aesthetic empathy]. *Zeitschrift für Psychologie und Physiologie der Sinnesorgane*, 25, 1–49.
- Witasek, S. (1904). *Grundzüge der allgemeinen Ästhetik* [Fundamentals of aesthetics in general]. Leipzig, Germany: Barth.
- Witek, M. A. G., Clarke, E. F., Wallentin, M., Kringelbach, M. L., & Vuust, P. (2014). Syncopation, body-movement and pleasure in groove music. *PLoS ONE*, 9, e94446. <http://dx.doi.org/10.1371/journal.pone.0094446>
- Wundt, W. (1896). *Grundriss der Psychologie* [Outlines of psychology]. Leipzig, Germany: Engelmann.
- Wynn, M. (1997). Beauty, providence and the biophilia hypothesis. *Heythrop Journal*, 38, 283–299. <http://dx.doi.org/10.1111/1468-2265.00051>
- Xenakis, I., Arnellos, A., & Darzentas, J. (2012). The functional role of emotions in aesthetic judgment. *New Ideas in Psychology*, 30, 212–226. <http://dx.doi.org/10.1016/j.newideapsych.2011.09.003>
- Yanal, R. J. (1996). The paradox of suspense. *British Journal of Aesthetics*, 36, 146–158. <http://dx.doi.org/10.1093/bjaesthetics/36.2.146>
- Yeh, Y., Hsu, W.-C., & Li, P.-H. (2018). The modulation of personal traits in neural responses during the aesthetic experience of mundane art. *Trends in Neuroscience and Education*, 10, 8–18. <http://dx.doi.org/10.1016/j.tine.2017.12.002>
- Yeh, Y. C., Lin, C.-W., Hsu, W.-C., Kuo, W.-J., & Chan, Y.-C. (2015). Associated and dissociated neural substrates of aesthetic judgment and aesthetic emotion during the appreciation of everyday designed products. *Neuropsychologia*, 73, 151–160. <http://dx.doi.org/10.1016/j.neuropsychologia.2015.05.010>
- Zajonc, R. B. (1968). Attitudinal effects of mere exposure. *Journal of Personality and Social Psychology*, 9, 1–27. <http://dx.doi.org/10.1037/h0025848>
- Zentner, M., & Eerola, T. (2010). Rhythmic engagement with music in infancy. *Proceedings of the National Academy of Sciences of the United States of America*, 107, 5768–5773. <http://dx.doi.org/10.1073/pnas.1000121107>
- Zentner, M., Grandjean, D., & Scherer, K. R. (2008). Emotions evoked by the sound of music: Characterization, classification, and measurement. *Emotion*, 8, 494–521. <http://dx.doi.org/10.1037/1528-3542.8.4.494>
- Zhou, X., Wildschut, T., Sedikides, C., Chen, X., & Vingerhoets, A. J. J. M. (2012). Heartwarming memories: Nostalgia maintains physiological comfort. *Emotion*, 12, 678–684. <http://dx.doi.org/10.1037/a0027236>
- Zhou, X., Wildschut, T., Sedikides, C., Shi, K., & Feng, C. (2012). Nostalgia: The gift that keeps on giving. *The Journal of Consumer Research*, 39, 39–50. <http://dx.doi.org/10.1086/662199>
- Zickfeld, J. H., Schubert, T. W., Seibt, B., & Fiske, A. P. (2017). Empathic concern is part of a more general communal emotion. *Frontiers in Psychology*, 8, 723. <http://dx.doi.org/10.3389/fpsyg.2017.00723>
- Zillmann, D. (1988). Mood management: Using entertainment to full advantage. In L. Donohew, H. E. Sypher, & E. T. Higgins (Eds.), *Communication, social cognition, and affect* (pp. 147–171). Hillsdale, NJ: Erlbaum.
- Zillmann, D., & Vorderer, P. (2000). *Media entertainment: The psychology of its appeal*. Mahwah, NJ: Erlbaum. <http://dx.doi.org/10.4324/9781410604811>
- Zuckerman, M. (1979). *Sensation seeking: Beyond the optimal level of arousal*. Hillsdale, NJ: Erlbaum.
- Zuckerman, M. (1996). Sensation seeking and the taste for vicarious horror. In J. B. Weaver & R. Tamborini (Eds.), *Horror films: Current research on audience preferences and reactions* (pp. 147–160). Mahwah, NJ: Erlbaum.

Received March 27, 2018

Revision received August 15, 2018

Accepted August 31, 2018 ■