

Reference:

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## Aesthetics

### Antecedents, underlying processes and behavioural consequences

*Martin Reimann and C. Clark Cao*

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Ever since Gustav Theodor Fechner first empirically investigated the aesthetic properties of different rectangles in his seminal work *Vorschule der Ästhetik* more than 130 years ago (Fechner, 1876), psychologists have been fascinated with the experimental study of aesthetics – in spite of the intricacy of the subject. In this chapter, we ask and methodically review what has happened since Fechner's very early attempt to empirically understand aesthetics in both general psychology and its applied domain, consumer psychology. We also attempt to categorize the existing empirical literature on aesthetics to see which aspects of aesthetics have received the most attention from researchers and which may be understudied.

Our chapter contributes a systematic review and comprehensive overview of the subject of empirical aesthetics to the extant literature. Specifically, our review shows that Fechner's effort to empirically understand aesthetics (which was published in the form of two-volume book in 1876) was indeed the preschool (*Vorschule*) of aesthetics, as it would be another 45 years before empirical aesthetics research first emerged in journals; the first journal publication on aesthetics that our review identified dates back to 1921 (Perrin, 1921). Our review of all volumes of some of the most traditional journals in psychology (e.g., the *Journal of Experimental Psychology*) also documents that, over the decades, investigations of aesthetics have evolved from an interest in understanding the aesthetics of objects (e.g., the beauty of different ratios in rectangles, as studied by Thompson 1946; Shipley et al. 1947) and the aesthetics of subjects (e.g., the physical attractiveness of humans, as studied by Milord, 1978) to social factors (Eysenck, 1939) and cultural variables (Cunningham, Roberts, Barbee, Druen, & Wu, 1995) that influence aesthetics. Undeniably, Fechner's initial studies set the stage for what has become a fruitful field of discovery; in total, our review identified 77 articles dealing empirically with aesthetics, 55 of which have been published in general psychology outlets.

In more recent decades, work on aesthetics has also appeared in consumer psychology. The first paper identified in consumer research journals (i.e., the *Journal of Consumer Psychology*, the *Journal of Consumer Research* and the *Journal of Marketing Research*) was published in 1977 (Baker & Churchill, 1977). The fact that it took more than half a century for aesthetics research to impact our understanding of consumer psychology is interesting, given the former's many potential applications to product and package design, advertising and other aspects of marketing. While product and package designers, ad and web designers and related creative professionals have

developed a wealth of tacit knowledge on what makes things and beings beautiful, systematic empirical research has surprisingly only emerged in consumer psychology journals in recent years. It was a 2010 special issue published in the *Journal of Consumer Psychology* that propelled interest in the topic by curating a collection of empirical investigations of aesthetics (Patrick & Peracchio, 2010). However, there are still few publications (out of all marketing journals reviewed in this chapter, only 14 papers on consumer aesthetics were identified). This observation has, in many respects, changed little since the first seminal review on aesthetics in consumer psychology by Hoegg and Alba (2008) in the *Handbook of Consumer Psychology*, which commented that aesthetics “has been largely ignored by consumer psychologists” (p. 748).

In the following sections of this chapter, we will report and discuss a systematic review of extant aesthetics research, which are categorized into five major areas: (1) aesthetic judgements based on sensory, referring to the questions of how and why individuals perceive and judge beauty based on their sensations (e.g., Perrin, 1921; Steck & Machotka, 1975); (2) aesthetic judgements based on ease of processing, referring to the questions of how and why individuals perceive and judge beauty based on the ease of processing the stimuli that they encounter (e.g., Martindale & Moore, 1988; Veryzer & Hutchinson, 1998); (3) aesthetic affect, referring to the question of which emotions, feelings and moods result from perceptions of beauty (e.g., Strube, Turner, Patrick, & Perrillo, 1983); (4) responses to aesthetics, referring to the question of what behaviours are triggered by beauty (e.g., Dion, Berscheid, & Walster, 1972; Peracchio & Meyers-Levy, 1994); and (5) individual and culture difference in aesthetics (Gordon, 1923; Yang, Zhang, & Peracchio, 2010). We also review the methodological approaches that have been applied most often in empirical studies of aesthetics. Researchers have contrived a broad spectrum of ways to manipulate aesthetics, ranging from visual stimuli (e.g., product designs, human faces) to auditory stimuli (e.g., music). Most prior research, however, has focused on manipulating visual aesthetics, leaving aesthetics related to the other four senses (i.e., audition, olfaction, haptics and taste) largely understudied.

Through the aforementioned discussions, this chapter aims to (1) achieve clarity on the key conceptual and methodological issues in empirical aesthetics research, (2) develop an integrative view of aesthetics for both general psychology and consumer psychology, and (3) discuss ideas and directions for further research on the subject of aesthetics.

## Literature review

In our literature review, we deliberately focused on empirical studies of aesthetics published in leading journals in psychology and consumer research, including the *Journal of Consumer Psychology*, the *Journal of Consumer Research*, the *Journal of Experimental Psychology (JEP: General, JEP: Applied and JEP: Human Perception and Performance)*, the *Journal of Marketing Research*, the *Journal of Personality and Social Psychology* and *Psychological Science*.

Our literature search started with the first issues of each journal, up to and including the last issue of the 2014 volume. The first relevant article was published in 1921. The keywords *aesthetic*, *aesthetics*, *beauty* and *beautiful* served to identify relevant articles by their titles, abstracts and lists of keywords. We acknowledge that many more published articles are related to the idea of aesthetics. However, we did not include in our literature review articles that (1) did not explicitly include the terms *aesthetic*, *aesthetics*, *beauty* and *beautiful* in their titles, abstracts and/or lists of keywords (e.g., Cho & Schwarz, 2010; Madzharov & Block, 2010); (2) did not contain empirical work (e.g., Park, 2012); (3) reported qualitative work (Joy & Sherry, 2003; Venkatesh, Joy, Sherry, & Deschenes, 2010); and/or (4) appeared in other journals (e.g., *Psychology of Aesthetics, Creativity, and the Arts*). In total, 196 empirical studies in 77 relevant articles (note that many articles reported multiple studies) were identified. Table 30.1 summarizes

Table 30.1 Literature review

<i>Author(s) (year)</i>	<i>Discipline</i>	<i>Focal topic</i>	<i>N</i>	<i>Core finding(s)</i>	<i>Journal</i>	<i>Category</i>
Perrin (1921)	General psychology	How do physical traits affect the perception of attractiveness?	Only partially reported (29 for the second investigation, seven judges in the third investigation, etc.)	Physical characteristics associated with sexual appeals positively correlate with the perception of attractiveness.	<i>JEP</i>	Aesthetic judgements (sense perception: visual); physical attractiveness
Gordon (1923)	General psychology	Do aesthetic judgements have external standards?	207	Individual judgements on pictures of oriental rugs show great diversity in aesthetic judgements. However, individual preferences are consistent over time. Moreover, the agreement between group judgements is high and increases with the size of groups.	<i>JEP</i>	Aesthetic judgements (sense perception: visual); Individual differences
Eysenck (1939)	General psychology	How does the number of judges influence the validity of aesthetic judgements?	900	As the number of judges becomes larger, the validity of aesthetic judgements increases.	<i>JEP</i>	Aesthetic judgements (sense perception: visual)
Campbell (1941)	General psychology	How do "natural" characteristics influence the perception of designs?	Part I: 15; Part II: 25 for Presentation 1, 9 for Presentation 2, 23 for Presentation 3; Part III: 18; Part IV: 21	Principles of natural sensory organization, experience or meaning are determinants of visual aesthetic perceptions.	<i>JEP</i>	Aesthetic judgements (sense perception: visual)

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Table 30.1 (Continued)

<i>Author(s) (year)</i>	<i>Discipline</i>	<i>Focal topic</i>	<i>N</i>	<i>Core finding(s)</i>	<i>Journal</i>	<i>Category</i>
Thompson (1946)	General psychology	How do the aesthetic preferences for rectangles of different proportions vary across age groups?	100	College students prefer rectangles with width-length ratios from 0.55 to 0.65. Preschool children, however, show no consistent preferences.	<i>JEP</i>	Aesthetic judgements (sense perception: visual); rectangles; individual differences
Shipley et al. (1947)	General psychology	How do children and adults differ in their preference for rectangles?	200	Children prefer larger rectangles, whereas adults prefer more medium-sized rectangles for any given width-length ratio.	<i>JEP</i>	Aesthetic judgements (sense perception: visual); rectangles; individual differences
Guilford and Holley (1949)	General psychology	What are determinants of aesthetic judgements?	12	Four theme factors and one special design variable emerge as determinants of aesthetic judgements on playing card designs.	<i>JEP</i>	Aesthetic judgements (sense perception: visual); individual differences
Crandall (1967)	General psychology	How does familiarity influence stimuli preference?	Preliminary Study: 30; Study 1: 30; Study 2: 16; Study 3: 35	Foreign words and consonant-vowel-consonant syllables at intermediate levels of familiarity are rated more favourably than unfamiliar or very familiar ones.	<i>JEP</i>	Aesthetic judgements (sense perception: visual)
Child and Iwao (1968)	General psychology	What is the relationship between aesthetic sensitivity and cognitive independence/openness?	Study 1: 72 (final sample); Study 2: 131	There is a positive relationship between aesthetic sensitivity and cognitive independence/openness in both American secondary-school students and male Japanese college students.	<i>JPSP</i>	Individual differences

Bryson and Driver (1972)	General psychology	How does introversion/extroversion influence the preference for complexity?	40	Extraverts prefer moderate levels of complexity in stimuli. However, introverts with greater cognitive complexity (i.e., those assumed to prefer more complex stimuli) prefer the simplest stimuli, while introverts low in cognitive complexity (i.e., those assumed to prefer less complex stimuli) prefer the most complex stimuli.	<i>JPSP</i>	Aesthetic judgements (sense perception: visual); individual differences
Dion et al. (1972)	General psychology	Are physically attractive individuals assumed to possess more socially favourable traits and to live better lives than physically unattractive individuals?	60	Attractive individuals are indeed perceived to possess more favourable traits and to live better lives.	<i>JPSP</i>	Responses to aesthetics; physical attractiveness
Wilson et al. (1973)	General psychology	How do liberalism and conservatism influence the preference for paintings?	30	Conservative individuals prefer paintings that are simple representations and dislike complex and abstract paintings, whereas liberal individuals show a preference for more complex and abstract artworks.	<i>JPSP</i>	Aesthetic judgements (sense perception: visual); artwork; individual differences
Sigall and Landy (1973)	General psychology	How can having a physically attractive romantic partner influence one's perceived physical attractiveness?	Study 1: 56; Study 2: 40	A male is evaluated more favourably when he is associated with an attractive female and less favourably when associated with an unattractive female.	<i>JPSP</i>	Aesthetic judgements (sense perception: visual); physical attractiveness; responses to aesthetics

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Table 30.1 (Continued)

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Landy and Sigall (1974)	General psychology	How can task performance evaluation be influenced by the performers' physical attractiveness?	60	Individuals evaluate a writer and his/her work most favourably when the writer is attractive, least favourably when the writer is unattractive and intermediately when her appearance is unknown.	<i>JPSP</i>	Responses to aesthetics; physical attractiveness
Aitken (1974)	General psychology	How does complexity influence the preference for polygons?	30	As complexity increases, group judgements of pleasingness and interestingness also go up, whereas individual judgements of pleasingness decrease with complexity.	<i>JEP</i>	Aesthetic judgements (sense perception: visual)
Moskowitz et al. (1974)	General psychology	How does odour intensity influence odour pleasantness?	33	In the case of butanol, pleasantness and intensity correlate inversely for individual judgement but not group judgement.	<i>JEP</i>	Aesthetic judgements (sense perception: olfactory)
Sigall and Ostrove (1975)	General psychology	How does physical attractiveness of a criminal defendant work for or against his or her punishment?	120	When a crime is unrelated to attractiveness (e.g., burglary), individuals will assign more lenient sentences to an attractive defendant than to an unattractive defendant; however, when the crime relates to physical attractiveness (e.g., swindling), harsher punishment will be meted out to an attractive defendant.	<i>JPSP</i>	Responses to aesthetics; physical attractiveness

Dermer and Thiel (1975)	General psychology	Do individuals perceive physically attractive females as having more favourable traits?	Study 1: 40; Study 2: 354	Physically attractive females are perceived to have some positive traits (e.g., more sociable or more professionally successful). However, they are also perceived to have negative traits (e.g., more likely to engage in adultery or more bourgeois).	<i>JPSP</i>	Responses to aesthetics; physical attractiveness
Steck and Machotka (1975)	General psychology	Do individuals have absolute preference for the complexity of music (specifically, how many different tones make up a piece of music), or is this preference influenced by contextual factors (e.g., the range of complexity to which the subject adapts)?	60	The range of complexity to which the subject adapts partially determines the preference for complexity, suggesting that the complexity preference for music is to a large extent relative rather than absolute.	<i>JEP: Human Perception and Performance</i>	Aesthetic judgements (sense perception: auditory); music
Baker and Churchill (1977)	Consumer psychology	How does the physical attractiveness of male and female models influence evaluations of ads?	96	Individuals will more highly evaluate an ad showing a model of the opposite sex than an ad showing a model of their own sex. Physical attractiveness of the model positively influences the rating.	<i>JMR</i>	Aesthetic judgements (sense perception: visual); responses to aesthetics; physical attractiveness
Milord (1978)	General psychology	How do individuals build face perceptions?	Study 1A: 10; Study 1B: 12; Study 1C: 16; Study 1D: 32	People build face perceptions on dimensions such as beauty, race, and features/expression.	<i>JPSP</i>	Aesthetic judgements (sense perception: visual); physical attractiveness

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Table 30.1 (Continued)

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Kenrick and Gutierres (1980)	General psychology	How can judgements of average females' attractiveness or dating desirability be adversely affected by exposing judges to extremely attractive prior stimuli?	Study 1: 81; Study 2: 48; Study 3: 98	A contrast effect was found. Specifically, subjects' previous exposure to extremely beautiful females decreases average females' attractiveness and dating desirability.	<i>JPSP</i>	Aesthetic judgements (sense perception: visual); physical attractiveness
Reis, Nezlak and Wheeler (1980)	General psychology	How does physical attractiveness influence social interaction?	71	For males, attractiveness correlates strongly with the quantity of social interaction (positively with the opposite sex and negatively with the same sex). There is no specific pattern for females. Attractiveness also influences the satisfaction and form (e.g., conversation or activity) of social interaction.	<i>JPSP</i>	Responses to aesthetics; physical attractiveness
Maddux and Rogers (1980)	General psychology	Will the expertness and attractiveness of the source influence the effect of persuasion?	106	Expertness positively influences the effect of persuasion. Attractiveness, however, does not show this influence.	<i>JPSP</i>	Responses to aesthetics; physical attractiveness
Machotka (1982)	General psychology	What are some personality categories in aesthetic judgements?	35	Participants are tested on aesthetic judgement under two different instructions: subjective preference and objective judgement. The two instructions yield four personality categories: "warm" judges (high scorers under the preference	<i>JPSP</i>	Aesthetic judgements; aesthetic affect; individual differences



				instructions) who are open to emotional experience; "cool" judges (high scorers under the judgement instructions) who believe in evaluative standards; "aesthetic" subjects (high scorers under both instructions) who are emotionally open to art and guided by standards; and "non-artistic" subjects (low scorers under both instructions) who do not believe in standards and are emotionally constricted.		
Reis et al. (1982)	General psychology	What is the relationship between physical attractiveness and social interaction?	116	Physical attractiveness is a predictor of the quantity of socializing but only for males. Physical attractiveness also influences assertiveness, fear of rejection etc.	<i>JPSP</i>	Responses to aesthetics; physical attractiveness
Strube et al. (1983)	General psychology	How do simple and predictable aesthetic stimuli (e.g., simplex melodies) influence task performance for Type A (coronary prone) and Type B (non-coronary prone) personalities?	62	Simple, predictable, aesthetic stimuli mitigate negative affect and increase task performance of a frustrating cognitive task for Type B individuals. Type A individuals, however, do not exhibit these effects.	<i>JPSP</i>	Aesthetic affect; responses to aesthetics; individual differences
Sussman, Mueser, Grau and Yarnold (1983)	General psychology	Is female facial attractiveness relatively persistent during childhood?	96	Physical attractiveness shows some stability over time.	<i>JPSP</i>	Aesthetic judgements (sense perception: visual); physical attractiveness

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Table 30.1 (Continued)

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Cunningham (1986)	General psychology	What is the relationship between specific female facial features and the attraction of adult males?	Study 1: 75; Study 2: 82	Neonate features (e.g., large eyes, small nose, and small chin); maturity features (e.g., prominent cheekbones and narrow cheeks); and expressive features (e.g., high eyebrows, large pupils, and large smile) are positively correlated with female attractiveness ratings.	<i>JPSP</i>	Aesthetic judgements (sense perception: visual); physical attractiveness
Martindale and Moore (1988)	General psychology	How does preference for colours relate to mental representations of colour?	Study 1: 17; Study 2: 48; Study 3: 31; Study 4: 51; Study 5: 89 297	More typical colours are marked by greater mental representations and are thus more preferred.	<i>JEP: Human Perception and Performance</i>	Aesthetic judgements (sense perception: visual); colour; aesthetic judgements (ease of processing)
Langlois and Roggman (1990)	General psychology	What makes a face beautiful?		A face is deemed beautiful if it presents the average value (i.e., the "average" or "prototypical" face) of the population. This is because average faces are more evolutionarily adaptive (evolutionary pressure works against extreme characteristics) and thus cognitively preferred.	<i>PS</i>	Aesthetic judgements (sense perception: visual); physical attractiveness; aesthetic judgements (ease of processing)
Graziano, Jensen-Campbell, Shebilske and Lundgren (1993)	General psychology	How do peer evaluations influence ratings on physical attractiveness?	Study 1: 138; Study 2: 105; Study 3: 265; Study 4: 203	When evaluating physical attractiveness, females are more influenced by peer evaluations than are males.	<i>JPSP</i>	Aesthetic judgements (sense perception: visual); physical attractiveness

Holbrook and Schindler (1994)	Consumer psychology	How do consumers' aesthetic tastes change over their lifetimes, and what are some predictors of this taste?	237	This research supported the previous finding that individuals usually form stable preference in a sensitive period in their lives. Age, sex and attitude towards the past are major predictors of this tendency.	<i>JMR</i>	Aesthetic affect; individual differences
Peracchio and Meyers-Levy (1994)	Consumer psychology	Does severe cropping of persons and/or objects in advertisements (e.g., only showing a leg or an arm) influence individuals' product evaluations?	493	If individuals are motivated to complete the cropped objects, and if the attempt to verify the ad claims is not impeded by the cropped person/object, cropped ad stimuli will enhance product evaluations.	<i>JCR</i>	Responses to aesthetics
Diener, Wolsic and Fujita (1995)	General psychology	How does physical attractiveness relate to subjective well-being?	Study 1: 221; Study 2: 131; Study 3: 155	The positive correlation between physical attractiveness and subjective well-being drops when appearance enhancers (e.g., hair, clothing, and jewellery) are covered or removed.	<i>JPSP</i>	Responses to aesthetics; physical attractiveness
Cunningham et al. (1995)	General psychology	Are physical attractiveness ratings consistent across cultures?	Study 1: 46; Study 2: 38; Study 3: 63	The rating of physical attractiveness towards Asian, Hispanic, Black and White photographed women are highly consistent across cultures, with some difference in ratings of certain features (e.g., sexual maturity, expressive features).	<i>JPSP</i>	Aesthetic judgements (sense perception: visual); physical attractiveness; individual differences

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Table 30.1 (Continued)

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Schlosser (1998)	Consumer psychology	Can an aesthetically pleasing shopping atmosphere serve a social identity function?	Study 1: 88; Study 2: 70	An aesthetically pleasing shopping atmosphere can serve as a social identity appeal, having a positive influence on perceived quality of social identity products (e.g., products used for social communication) but not utilitarian products.	<i>JCP</i>	Responses to aesthetics
Veryzer and Hutchinson (1998)	Consumer psychology	How do unity and prototypically affect aesthetic responses?	Study 1: 50; Study 2: 197; Study 3: 240; Study 4: 257	Unity and prototypically positively affect aesthetic responses to new product designs.	<i>JCR</i>	Aesthetic judgements (sense perception: visual); aesthetic judgements (ease of processing)
Page and Herr (2002)	Consumer psychology	How does product design, characterized as product aesthetics and function, interact with brand strength to moderate consumers' liking for and quality evaluation of the product?	Study 1: 80; Study 2: 200	Product design (i.e., product aesthetics and function) positively impacts liking and quality evaluation. Brand strength does not influence liking, but it does influence quality evaluation when product aesthetics and product function are in conflict, or when product aesthetics and brand strength are in conflict.	<i>JCP</i>	Responses to aesthetics
Bloch, Brunel and Arnold (2003)	Consumer psychology	When determining consumers' relationship with products, how is the importance of visual aesthetics to a certain consumer to be measured?	Study 1: 4; Study 2: 318; Study 3: 136; Study 4: 108; Study 5: 53; Study 6: 62; Study 7: 190	The authors proposed and tested a centrality of visual product aesthetics (CVPA) scale to measure individual difference in the significance of visual product aesthetics.	<i>JCR</i>	Aesthetic judgements (sense perception: visual); responses to aesthetics; individual difference

Maner et al. (2003)	General psychology	What role does selective processing (i.e., allocating limited cognitive resources in a way that is most beneficial for surviving and proliferation) play in the perception of physical attractiveness?	Study 1: 149; Study 2: 108; Study 3: 256; Study 4: 151; Study 5: 205	Mating-related motives may guide the selective processing of attractive males and females.	<i>JPSP</i>	Aesthetic judgements (sense perception: visual); physical attractiveness
Koole and Van den Berg (2005)	General psychology	When is wilderness perceived to be beautiful and when it is not?	Study 1: 90; Study 2: 48; Study 3: 60; Study 4: 48; Study 5: 115	Salience of the concept of death reduces the perceived beauty of wilderness, whereas action orientation increases the perceived beauty of wilderness.	<i>JPSP</i>	Aesthetic judgements (sense perception: visual); individual differences
Landau et al. (2006)	General psychology	How does mortality salience (e.g., being reminded of death) influence the evaluation of apparently meaningless art?	Study 1: 25; Study 2: 62; Study 3: 95; Study 4: 92	Mortality salience decreases liking for apparently meaningless art.	<i>JPSP</i>	Aesthetic judgements (sense perception: visual); artwork
Winkielman et al. (2006)	General psychology	Why do people prefer prototypical stimuli?	Study 1: 68; Study 2: 66; Study 3: 21	Prototypical stimuli are fluent to processing and are thus more favoured.	<i>PS</i>	Aesthetic judgements (sense perception: visual); aesthetic judgements (ease of processing); aesthetic affect

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Table 30.1 (Continued)

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Hönekopp (2006)	General psychology	Are facial attractiveness judgement standards private or shared?	Study 1: 31; Study 2: 31; Study 3: 100	Private taste is approximately as powerful as shared taste regarding facial attractiveness.	<i>JEP: Human Perception and Performance</i>	Aesthetic judgements (sense perception: visual); physical attractiveness; individual differences
Häfner and Trampe (2009)	Consumer psychology	How do round and thin models influence the effectiveness of advertisements?	Study 1: 72; Study 2: 34; Study 3: 55; Study 4: 76	For impulsive product evaluations, thin models produce more favourable implicit responses than round models; whereas for reflective product evaluations, this pattern is reversed.	<i>JCP</i>	Responses to aesthetics; physical attractiveness
Eidelman, Crandall and Pattershall (2009)	General psychology	Is the mere existence of something evidence of its goodness?	Study 1: 69; Study 2: 42; Study 3: 60; Study 4: 62; Study 5: 88	The more a form is described as prevalent, the more aesthetically attractive that form will be perceived to be.	<i>JPSP</i>	Aesthetic judgements (sense perception: visual)
Falk, Falk and Ayton (2009)	General psychology	How do aesthetic values influence individuals' behavioural patterns when the individuals are asked to generate random responses?	Study 1: 1676; Study 2: 386; Study 3: 966	Aesthetic value shapes individuals' responses in a way that is consistent with individuals' aesthetic preferences.	<i>JEP: Human Perception and Performance</i>	Responses to aesthetics
Deng, Hui and Hutchinson (2010)	Consumer psychology	What are some rules of the preference for colour combinations in product designs?	142	In a self-design task of the colour combination of sneakers, participants emphasize a colour's hue and saturation more than its lightness. Given this emphasis, individuals tend to combine similar colours and use a relatively small total number of colours.	<i>JCP</i>	Aesthetic judgements (sense perception: visual); colour

Pandelaere, Millet, and den Bergh (2010)	Consumer psychology	How does exposure order influence consumer attitudes and preference?	Study 1: 1364; Study 2a: 78; Study 2b: 114	Stimuli to which individuals are first exposed are more preferred than similar stimuli presented later.	<i>JCP</i>	Aesthetic judgements (sense perception: visual, auditory); music
Kumar and Garg (2010)	Consumer psychology	What is the relationship between aesthetic principles and the subconscious cognitive appraisals associated with emotions?	Pre-test 1: 35; Pre-test 2: 35; Pre-test 3: 38; Main Study: 56	When a design can balance the levels of both attentional resources needed and pleasantness in visually evaluating the design, the design will be more preferred.	<i>JCP</i>	Aesthetic judgements (sense perception: visual); aesthetic affect
Hoegg, Alba and Dahl (2010)	Consumer psychology	How does aesthetic design influence product evaluation?	Study 1: 196; Study 2: 45; Study 3: 99	Individuals will rate a functional product feature more positively if the feature is paired with an unattractive product design than if it is not paired with an unattractive design. However, this effect only happens when individuals encounter a conflict between design and functionality.	<i>JCP</i>	Responses to aesthetics
Reimann et al. (2010)	Consumer psychology; consumer neuroscience	What are the behavioural, neural and psychological properties of package design?	Study 1A: 326; Study 1B: 82; Study 2: 176; Study 3 (fMRI study): 17	Aesthetic packages: significantly increase the reaction time of consumers' choice responses; are chosen over products with well-known brands in standardized packages, despite higher prices; and result in increased activation in the nucleus accumbens and the ventromedial prefrontal cortex, suggesting that reward value plays an important role in aesthetic product experiences.	<i>JCP</i>	Responses to aesthetics; aesthetic affect

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Table 30.1 (Continued)

<i>Author(s) (year)</i>	<i>Discipline</i>	<i>Focal topic</i>	<i>N</i>	<i>Core finding(s)</i>	<i>Journal</i>	<i>Category</i>
Meyers-Levy and Zhu (2010)	Consumer psychology	Of the two meanings music can convey (i.e., referential meanings that consist of descriptive associations and the embodied meaning that is purely hedonic), which will individuals use when forming product perceptions?	Study 1: 98; Study 2: 133	Males with high (low) Need for Cognition (NFC) are sensitive to only referential (embodied) meaning. Females, however, use both meanings regardless of the level of NFC.	<i>JCP</i>	Aesthetic judgements (sense perception: auditory); music; individual differences
Townsend and Shu (2010)	Consumer psychology	Can aesthetic design influence consumer financial decision making?	Study 1: 255; Study 2: 379; Study 3: 55	In hypothetical investment decisions, the aesthetics of a financial document (e.g., an annual report) can influence both stock valuation and financial decision making under certain circumstances.	<i>JCP</i>	Responses to aesthetics
Krishna et al. (2010)	Consumer psychology	How does smell influence touch?	Study 1: 73; Study 2: 116	When the semantic associations of the smell and touch of a stimulus are congruent, this congruence can enhance haptic perception and product evaluation.	<i>JCP</i>	Aesthetic judgements (sense perception: olfactory and haptic)
Yang et al. (2010)	Consumer psychology	How do stylistic properties of visual images (e.g., camera angle) impact the	Study 1: 115; Study 2: 63; Study 3: 171	When a product is depicted employing an upward-looking camera angle, individuals with an ought-self (i.e., those	<i>JCP</i>	Responses to aesthetics; individual differences



		product evaluation of individuals with different self-concepts (i.e., ought-self or ideal-self)?		who are motivated by duties and obligations) evaluate the product more favourably than do individuals with an ideal-self (those who are motivated by hopes and aspirations). When a downward-looking angle is employed, the reversed pattern occurs.		
Lorenzo, Biesanz and Human (2010)	General psychology	Are more attractive individuals viewed more accurately than less attractive individuals?	73	More physically attractive individuals are perceived both more positively and more accurately by others.	<i>PS</i>	Responses to aesthetics; physical attractiveness
Topolinski (2010)	General psychology	Can motor processes (e.g., eye movements) influence aesthetic perceptions?	Study 1: 26; Study 2: 76; Study 3: 30	After training the eyes to follow the movement of a certain stimulus, preferences for trained stimulus movements increase compared to untrained stimulus movements.	<i>PS</i>	Aesthetic judgements (sense perception: visual); aesthetic judgements (ease of processing)
Elliot et al. (2010)	General psychology	How does the colour red influence women's romantic attraction to men?	Study 1: 21; Study 2: 57; Study 3: 33; Study 4: 55; Study 5a: 20; Study 5b: 20; Study 6a: 37; Study 6b: 38; Study 7: 27	When seen on a red background or in red clothing, males are regarded by females as more attractive and more sexually desirable. This effect appears to be the result of status perceptions and seems to be specific to women's romantic attraction to men.	<i>JEP: General</i>	Aesthetic judgements (sense perception: visual); colour; physical attractiveness

(Continued)

Table 30.1 (Continued)

<i>Author(s) (year)</i>	<i>Discipline</i>	<i>Focal topic</i>	<i>N</i>	<i>Core finding(s)</i>	<i>Journal</i>	<i>Category</i>
Patrick and Hagtvedt (2011)	Consumer psychology	Why and how do individuals resolve aesthetic incongruity (i.e., inconsistency that arises from a mismatch between an object and its environment)?	Pilot Study: 125; Study 1: 56; Study 2: 65; Study 3: 65	Incongruity gives rise to regret and thus needs to be solved. Nevertheless, for high (low) design-salience products, the incongruity also creates a higher (lower) level of frustration than regret. This effect gives rise to a higher (lower) likelihood of accommodating the product in the environment by buying more.	<i>JMR</i>	Aesthetic affect; responses to aesthetics
Hawley-Dolan and Winner (2011)	General psychology	Do abstract expressionist paintings really differ from children's scribbles in terms of viewers' perception and evaluation?	72	Individuals prefer professional paintings and judge them more positively than nonprofessional paintings, even when professional paintings are labelled as children's works and children's works are labelled as professional paintings.	<i>PS</i>	Aesthetic judgements (sense perception: visual); artwork
Townsend and Sood (2012)	Consumer psychology	Do aesthetic products serve as a form of self-affirmation?	Study 1: 159; Study 2: 275; Study 3: 326	Aesthetic products enhance self-affirmation.	<i>JCR</i>	Responses to aesthetics
Saad and Stenstrom (2012)	Consumer psychology	How are female consumers influenced by their own menstrual cycles in their consumer behaviour?	470	A 35-day survey shows that appearance-related behaviour (desire, dollars spent and beatification) increases during women's fertile phase, whereas food-related behaviour increases during women's non-fertile phase.	<i>JCP</i>	Responses to aesthetics; physical attractiveness

Hill, Rodeheffer, Griskevicius, Durante and White (2012)	General psychology	Why does economic recession increase women's spending on beauty products?	Study 2: 154; Study 3: 76; Study 4: 64; Study 5: 72	Women's desire to be more attractive to mates drives this effect.	<i>JPSP</i>	Responses to aesthetics; physical attractiveness
Leder et al. (2012)	General psychology	Can aesthetic pleasure in art appreciation stem from body resonances (of the perceiver's body) with the movements that the artist made when producing the artwork?	114	While viewing artwork, if individuals execute hand movements similar to the movements the artist made while producing the artwork, the work will be more highly evaluated compared to when the same movement is executed before viewing the artwork.	<i>PS</i>	Aesthetic judgements (sense perception: visual); artwork; aesthetic affect
Segal-Caspi, Roccas and Sagiv (2012)	General psychology	Do physically attractive females have particularly positive inner traits?	118	Physical attractiveness correlates positively with conformity values rather than independence values and with self-enhancement values rather than universalism values.	<i>PS</i>	Responses to aesthetics; physical attractiveness
Wöllner et al. (2012)	General psychology	Are prototypical motions perceived as more aesthetically favourable than non-prototypical motions?	24	Prototypical human motion in task-related actions (e.g., a professional conductor conducting an orchestra) is judged more favourably than non-prototypical motion (e.g., that of novice conductors).	<i>JEP: Human Perception and Performance</i>	Aesthetic judgements (sense perception: visual); aesthetic judgements (ease of processing)
Sammartino and Palmer (2012)	General psychology	When a picture features the vertical placement of a single object, how does the vertical composition of the picture influence individuals' preference for the pictures?	Study 1: 12; Study 2: 15; Study 3: 17; Study 4: 24	The object's position in relation to the observer's viewpoint and to the centre of the frame influences the perceived aesthetics of the picture.	<i>JEP: Human Perception and Performance</i>	Aesthetic judgements (sense perception: visual)

(Continued)

Table 30.1 (Continued)

<i>Author(s) (year)</i>	<i>Discipline</i>	<i>Focal topic</i>	<i>N</i>	<i>Core finding(s)</i>	<i>Journal</i>	<i>Category</i>
Newman and Bloom (2012)	General psychology	Why are original artworks regarded as more valuable than their identical duplicates?	Study 1: 33; Study 2: 115; Study 3: 150; Study 4: 180; Study 5: 256	The special value of original artwork lies in the assessment of the art object as a unique creative act and the degree of physical contact with the original artist.	<i>JEP: General</i>	Aesthetic judgements (sense perception: visual); artwork
Lee et al. (2013)	Consumer psychology	When individuals are in a negative mood, why do they sometimes prefer mood-congruent (i.e., negative) aesthetic stimuli (e.g., sad music) even when positive alternatives (e.g., cheerful music) are available?	Study 1: 233; Study 2: 76; Study 3: 111	Emotional distress from failed/broken interpersonal relationships (but not non-interpersonal issues) increases preference for mood-congruent aesthetic/emotional stimuli.	<i>JCR</i>	Aesthetic judgements (sense perception: auditory); music; aesthetic affect
White, Kenrick and Neuberg (2013)	General psychology	Why are physically attractive political candidates more likely to win elections?	Study 2: 123; Study 3: 210; Study 4: 66	Leadership preferences are related to disease-avoidance mechanisms, in which physical attractiveness is a cue to health. Activating concerns related to disease leads individuals to prefer physically attractive leaders.	<i>PS</i>	Responses to aesthetics; physical attractiveness

Halberstadt, Pecher, Zeelenberg, Wai and Winkielman (2013)	General psychology	Does the recognizability of faces influence the attractiveness ratings of blended faces compared to unblended faces?	112	When constituent faces are unrecognizable, a blend (i.e., morph) of two faces is perceived to be more attractive than the individual faces; however, when the constituent faces are recognizable (e.g., Barack Obama and George W. Bush), the blended face is perceived to be less attractive than the individual faces.	PS	Aesthetic judgements (sense perception: visual); physical attractiveness; aesthetic judgements (ease of processing)
Cogan et al. (2013)	General psychology	How do extreme context stimuli (e.g., extremely beautiful faces) influence the hedonic contrast effect (i.e., seeing a beautiful face decreases the perceived attractiveness of subsequently presented faces) on perceived facial attractiveness?	Study 1: 28; Study 2: 28; Study 3: 28	Exposure to moderately attractive faces makes subsequently viewed moderately unattractive faces more unattractive. If the order of presentation is reversed, the moderately attractive faces will be perceived as more attractive. Moreover, when the moderately attractive faces are replaced with extremely attractive faces, this contrast effect diminishes.	JEP: Human Perception and Performance	Aesthetic judgements (sense perception: visual); physical attractiveness; responses to aesthetics
Taylor et al. (2013)	General psychology	Are colour preferences and the mechanisms that govern those preferences universal?	Colour preferences: 80; object description: 90; object valence: 62	Patterns of colour preference vary across individuals and cultural groups. Moreover, the underlying mechanisms and dimensions of colour preference also vary across individuals and cultures.	JEP: General	Aesthetic judgements (sense perception: visual); colour; individual differences

(Continued)

Table 30.1 (Continued)

<i>Author(s) (year)</i>	<i>Discipline</i>	<i>Focal topic</i>	<i>N</i>	<i>Core finding(s)</i>	<i>Journal</i>	<i>Category</i>
Fisher and Ma (2014)	Consumer psychology	Does the physical attractiveness of children in need reduce empathy and help from others?	Study 1: 152; Study 2: 138; Study 3: 227; Study 4: 192	Physical attractiveness of children in need reduces empathy evoked and thus the help they receive from unrelated individuals, so long as the need is not severe.	<i>JCR</i>	Responses to aesthetics; physical attractiveness
Shu and Townsend (2014)	General psychology	Can individuals' affiliation with high aesthetics affirm their sense of self and thus encourage their openness to arguments advocating the selection of one option over another?	Study 1: 52; Study 2: 362; Study 3: 370	Affiliating individuals with high (vs. low) aesthetics assists self-affirmation. Therefore, individuals are more likely to select the advocated option regardless of whether or not it is the riskier option.	<i>JEP: Applied</i>	Responses to aesthetics

all identified articles, sorted chronologically and displaying authors' name(s), year of publication, discipline, focal topic, sample size, core findings, journal name and category. Because we initially categorized studies into specific topics (e.g., judgements of aesthetics), we calculated the percentage of each topic from the total number of identified articles. Note that some articles fell into, and were thus categorized into, more than one category.

### *Aesthetic judgements based on sense perception*

Because aesthetic judgements have previously been linked to the psychology of sense perception (cf. Gregor, 1983; Osborne, 1979), we categorized articles according to the sense through which a stimulus was perceived. It was found that 61% of the total number of identified studies dealt with *aesthetic judgements based on sense perception*, which were defined as weighing whether a specific stimulus is aesthetically appealing based on specific characteristics. Of the studies on sense perception, 89 per cent investigated visual aesthetics (i.e., the aesthetics of rectangles, colours, visual artwork and the physical attractiveness of humans), 9 per cent investigated auditory aesthetics (i.e., the aesthetics of music) and only 4 per cent investigated olfactory and/or somatosensory aesthetics (i.e., aesthetics associated with smelling and touching objects). Note that the percentages add up more than 100 per cent because some of the articles concerned more than one sense. Within the studies dealing with aesthetic judgements, none investigated gustatory aesthetics (i.e., the aesthetics of taste).

### Visual aesthetics

Forty-two identified articles investigated aesthetic judgements of visual stimuli, indicating that this subfield strongly dominates articles on aesthetic judgements based on sense perception (42 out of all 47 identified articles). Physical attractiveness represents the largest proportion of this subfield, with 16 identified articles, ranging from the earliest journal article identified by our review, regarding how physical traits affect perceived body attractiveness (Perrin, 1921), to a recent article (Cogan, Parker, & Zellner, 2013). Some of the physical attractiveness studies focus on how specific facial features contribute to physical attractiveness. For instance, Cunningham (1986) found that neonate features (e.g., large eyes, small nose and small chin), maturity features (e.g., prominent cheekbones and narrow cheeks) and the expressive features (e.g., high eyebrows, large pupils and large smile) were positively correlated with female attractiveness ratings. The author argued that such facial features can serve as cues of sexual arousal, health, maturity for mating, fertility and friendliness and sociability. Together, these factors of perceived facial attractiveness to a large extent reflect the individual's adaptive desirability for mating. This argument is also supported by other studies reviewed. For instance, Elliot et al. (2010) demonstrated that females found images of males on red backgrounds or in red clothes more attractive because red colour increases females' perceptions the male's social status – another signal for mating desirability (but also see criticisms of this research by Francis, 2013). Moreover, Langlois and Roggman (1990) maintained that “average” faces are more aesthetically favourable, partially because evolution does not favour extreme characteristics. Therefore, our review summarizes that adaptive factors such as survival, mating and reproducing play a crucial role in physical aesthetics.

Some other studies in the subfield of visual aesthetics concern topics such as what proportion makes a rectangle more attractive. For instance, Thompson (1946) showed that college students prefer rectangles with width-to-length ratios from 0.55 to 0.65 (note that this ratio is close to the multiplicative inverse of the golden ratio 1.618). Preschool children, however, showed no consistent preferences. Moreover, Shipley, Dattman and Steele (1947) discovered that children prefer larger rectangles, whereas adults prefer more medium-sized rectangles for any given width-length ratio.

Colour is another issue that has drawn the attention of prior investigators. For example, Martindale and Moore (1988) discovered that more “typical” colours (e.g., primary colours such as primary yellow) were more preferred among participants than “atypical colors”. Moreover, Deng, Hui and Hutchinson (2010) showed that participants designing the colour combination of sneakers put more emphasis on a colour’s hue and saturation than on its lightness.

Artwork appreciation also constitutes a topic of interest in the subfield of visual aesthetics. Hawley-Dolan and Winner (2011) demonstrated that abstract expressionist paintings are considered superior to children’s scribbles by their viewers. Landau, Greenberg, Solomon, Pyszczynski and Martens (2006), on the other hand, showed that the positive evaluation of an apparently meaningless artwork decreased when human mortality was made salient compared to when it was not made salient. This is because, according to terror management theory (Greenberg et al., 1990; Rosenblatt, Greenberg, Solomon, Pyszczynski, & Lyon, 1989), maintaining a meaningful view of reality is fundamental in managing the fear and anxiety caused by the thought of death. Meaningless artworks appear to suggest no meaning at all; thus, they are deemed objectionable by a reviewer who is thinking of death.

### Auditory aesthetics

Articles concerning auditory aesthetics make up about 9 per cent of all the reviewed articles on aesthetic judgements (4 out of 47 articles). All articles in this area focused on a specific type of auditory stimuli, namely music. For example, Steck and Machotka (1975) studied the preference for complexity in music (e.g., how many different tones made up a piece of music) and found that the preference for complexity in music was, to a large extent, relative rather than absolute. That is, there is no degree of complexity that individuals will naturally and unconditionally prefer. Instead, the preference for complexity is determined by the range of complexity being judged. Moreover, Lee, Andrade and Palmer (2013) answered the intriguing question of why individuals experiencing negative moods sometimes choose to listen to cheerful music and other times prefer sad music. The authors argued that emotional distress from failed/broken interpersonal relationships increases preference for mood-congruent aesthetic/emotional stimuli (i.e., sad music), whereas distress from non-interpersonal issues enhances the preference for more positive music.

### Olfactory and somatosensory aesthetics

Only two articles in the area of aesthetics judgements studied non-visual and non-auditory aesthetics. Specifically, Moskowitz, Dravnieks and Gerbers (1974) studied how odour intensity influences odour pleasantness and found that pleasantness from smelling butanol correlates inversely with the intensity of the chemical in the case of individual judgements but not group judgements. Further, Krishna, Elder and Caldara (2010) discovered that congruence between the semantic associations of the smell and the touch of a stimulus can enhance haptic perceptions and product evaluations. For instance, if a piece of paper smelled “masculine” (e.g., the smell of men’s fragrances), participants rated it more positive when it also felt rough, because “masculine” and “rough” are semantically congruent. Similarly, a piece of paper that smelled feminine (e.g., the smell of women’s fragrances) was rated more favourably if it also felt smooth.

### *Aesthetic judgements based on ease of processing*

Nine per cent of the total number of identified studies (7 out of 77) dealt with *aesthetic judgements based on ease of processing*, which we defined as how easy or difficult it is for a stimulus to be



psychologically processed. This domain primarily concerns how and why prototypical stimuli are more preferred.

Psychologists have long noticed that prototypicality (sometimes also referred to as typicality) can increase aesthetic responses. For example, Martindale and Moore (1988) found that more typical colours are characterized by more mental representations and are thus more preferred. Further, in their seminal study, Langlois and Roggman (1990) demonstrated that an “average face” (i.e., a face whose “facial configuration is close to the mean configuration of a population of faces”, Langlois, Roggman, & Musselman, 1994, p. 214) is consistently considered attractive. Moreover, in consumer psychology, Veryzer and Hutchinson (1998) showed that prototypicality affects aesthetic response to new product designs such that the design will be less aesthetically favourable the more it is distorted from the prototype. Furthermore, Wöllner, Deconinck, Parkinson, Hove and Keller (2012) observed that more typical human motions (e.g., the conducting of a professional conductor) are more highly evaluated and perceived to be more aesthetic than atypical motions (e.g., the conducting of an amateur conductor).

The identified papers on ease of processing in our review echo a comprehensive review paper by Reber, Schwarz and Winkielman (2004). In this review, the authors effectively summarized a great number of studies on aesthetics to argue that the more fluently an object can be processed by a perceiver, the more aesthetic the object will be regarded to be. This argument reveals an important underlying mechanism of perceived beauty: often, beauty is related to ease of processing. Specifically, Reber et al. (2004) argued that symmetrical objects, stimuli to which individuals are repeatedly exposed, and prototypical forms are aesthetically preferred because they can be more easily processed than their asymmetrical, novel or non-prototypical counterparts. The authors further argued that fluent processing gives rise to positive affective responses, which in turn can produce more positive aesthetic judgements. The basic argument from this review paper – that prototypical stimuli are fluent to processing and are thus more favoured – was empirically tested and supported by Winkielman, Halberstadt, Fazendeiro and Catty (2006), who tested directly the effect of prototypicality on attractiveness mediated by fluency and found that fluency indeed accounts for the preference for prototypicality.

### *Aesthetic affect*

Out of all articles identified, 12 per cent of them (9 out of 77) dealt with *aesthetic affect*, especially in terms of how affective states play a role in aesthetic experiences. Affective states such as aesthetic pleasure (e.g., Leder, Bär, & Topolinski, 2012) often serve as the medium through which aesthetic experiences exert an impact upon downstream processes and behaviours such as additional judgements, decisions, choices and task performance. For example, Strube et al. (1983) demonstrated that aesthetic stimuli can improve task performance by reducing negative affect. Specifically, the authors found that simple, predictable aesthetic melodies had a soothing effect that caused a decrease in negative emotions such as frustration, which in turn could benefit performance in the following tasks. Further, Reimann, Zaichkowsky, Neuhaus, Bender and Weber (2010) observed that individuals are more affectively involved in an object when its appearance is more aesthetic. This research also found that, when experiencing aesthetic object, individuals engage a brain area – the striatum, specifically the nucleus accumbens – that has been linked to the release of the neurochemical dopamine. This finding suggests that affective states such as desiring and yearning for the aesthetic object play an important role in aesthetic experiences and may even trigger downstream aesthetic decision making. Furthermore, Patrick and Hagtvedt (2011) showed that aesthetic incongruity (i.e., inconsistency that arises from a mismatch between an object and its environment, such as a

beautiful object placed in ugly surroundings) could give rise to regret. Finally, the aesthetic value of prototypicality also partially arises from the positive affect that prototypical stimuli elicit (Winkielman et al., 2006).

### *Responses to aesthetics*

In addition to the aforementioned categories, we found that 40 per cent of the total number of identified studies (31 out of 77) dealt with *responses to aesthetics*, defined as studies in which an aesthetic stimulus triggered either judgements on other variables, the choice of the aesthetic object over another object or decision or performance in unrelated tasks. A great number of studies investigate how perceived physical attractiveness can influence judgement towards the individual on variables other than attractiveness. For example, an early study done by Dion et al. (1972) shows that attractive individuals are also perceived as possessing more favourable traits. Moreover, Sigall and Ostrove (1975) examined how perceived physical attractiveness of criminal defendants will influence the sentence assigned to them. The authors discovered that, when the crime was unrelated to attractiveness (e.g., burglary), individuals would assign more lenient sentences to an attractive defendant than to an unattractive defendant; however, when the crime was related to physical attractiveness (e.g., swindling), harsher punishment would be meted out to an attractive defendant.

Works in this category also examine the influence aesthetics exerts on other factors. For instance, Strube et al. (1983) found that simple, predictable aesthetic stimuli increased performance of a frustrating cognitive task for people with Type B personalities (i.e., individuals who live at a generally low stress level) but not for people with Type A personalities (individuals that are more ambitious, impatient, sensitive and prone to coronary heart disease). Moreover, Townsend and Sood (2012) demonstrated that products with high aesthetic value can enhance self-affirmation.

The idea that aesthetics can influence judgements on other variables and decision making has important implications, especially for consumer research. In fact, a large number of identified consumer psychology studies fall into this category. For example, the earliest consumer psychology article in our review (Baker and Churchill, 1977) shows that the attractiveness of the model in an advertisement positively influences the evaluation of the advertisement. More recently, Townsend and Shu (2010) provided evidence that the aesthetics of a financial document (e.g., an annual report) might influence both stock valuation and financial decision making. Further, in our own work, we have demonstrated that products in aesthetic packages were chosen over well-known branded products in standardized packages even when the aesthetic packages had higher prices (Reimann et al., 2010).

### *Individual and cultural differences in aesthetics*

Due to the subjective, idiosyncratic nature of the aesthetic experience, one can expect that individual differences play an important role in aesthetics. 21 per cent of the total number of identified studies (16 out of 77) dealt with *individual differences in aesthetics*, defined as differences in aesthetic judgements based on personality traits. In as early as the second decade of the twentieth century, Gordon (1923) noted the highly divergent opinions in aesthetic judgements of pictures of oriental rugs, which showed great diversity between individuals. Such variation in aesthetic judgements was also found by recent studies on facial attractiveness (Hönekopp, 2006). More specific individual differences were identified over time. For instance, Bryson and Driver (1972) demonstrated that introversion and extraversion could influence the aesthetic preference for complex designs. Further, Wilson, Ausman and Mathews (1973) argued

that liberalism and conservatism influence preferences for paintings: Conservative individuals preferred paintings with simple representations and disliked complex and abstract paintings, whereas liberal individuals showed the opposite pattern in their preference.

Apart from the individual level of differences, aesthetic appreciation also varies at a cultural level. Admittedly, a number of identified papers reveal that there exist universal patterns in certain types of aesthetic appreciation. For instance, Child and Iwao (1968) reported that the positive relationship between aesthetic sensitivity and cognitive independence/openness they found with American students were also observed with Japanese students. Also, Cunningham et al. (1995) found that ratings of physical attractiveness towards Asian, Hispanic, Black and White photographed women are to a large extent consistent across cultures. This universality of certain aesthetic experience is not surprising, because we are, after all, *homo sapiens* sharing similar if not identical physiological structures and evolutionary drives. Therefore, if a certain type of aesthetic experience depends greatly on a certain cognitive structure (e.g., the activation of specific brain areas in face of certain aesthetic stimuli) or serves evolutionary adaptive purpose (e.g., the evolutionary psychological basis of physical attractiveness addressed above), it is possible to observe universal patterns across cultures.

That being said, humans are also cultural beings dwelling in their particular sociocultural environments. These distinct environments can influence or even define what is epistemologically, morally or aesthetically good and what is bad, often in very different ways. Since aesthetics judgements and preferences can be rooted in cross-cultural differences and shaped by cultural meanings, one can reasonably expect cultural differences in aesthetic judgements. For instance, not only did Cunningham et al. (1995) report the universal patterns in the physical attractiveness of females; they also discovered some differences in some aspects of ratings which the authors attributed to cultural factors. For instance, the authors hypothesized that Asians appreciated female sexual maturity and expressive features less than their Western counterparts because of the cultural emphasis on female submissiveness in Asia. Sometimes the cultural differences can be great. In a recent study, Taylor, Clifford and Franklin (2013) examined the colour preferences of 42 British participants and 38 participants from the Himba tribe in northern Namibia and discovered totally different patterns in the colour preferences of the two groups, especially in the chroma (i.e., perceived intensity) and lightness of the colour. According to the authors, chroma and lightness accounted for virtually none of the colour preferences of the British participants (0 per cent for males and 2 per cent for females) but explained a huge proportion of variance in the colour preferences of the Himba participants (57 per cent for males and 47 per cent for females).

## Towards a unifying framework of aesthetics

This chapter provided an overview of some antecedents, mechanisms and consequences of aesthetics from several decades of empirical research in mostly general psychology but more recently also consumer psychology. Figure 30.1 illustrates a framework based on the article categorization in our review.

In summary, our identified aesthetics studies fall into five major categories. In our review, a substantial number of articles examined the question of what makes a specific stimulus aesthetic; these articles constitute two of our major categories related to aesthetic judgements. The first category, namely aesthetic judgements based on sense perception, investigates how individuals regard visual, auditory, olfactory and haptic stimuli as aesthetic or unaesthetic. Visual aesthetics studies dominate this category and extend to subfields such as physical attractiveness, ratios in rectangles and colours. Notably in physical attractiveness, evolutionarily adaptive features signalling the advantages of survival, fertility and social status are also aesthetically preferred, suggesting that the

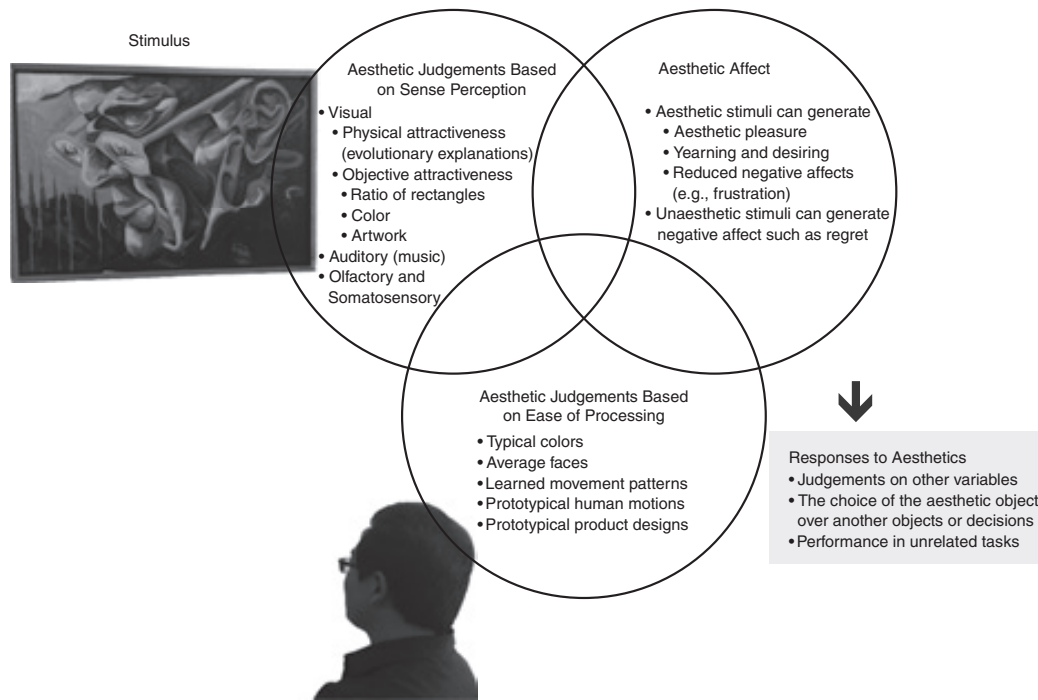


Figure 30.1 Framework of aesthetics.

nature of aesthetics lies partially in our biological features. Another category of aesthetic judgements, namely aesthetic judgements based on ease of processing, demonstrates another important aspect of aesthetics. A large body of research shows that prototypical stimuli (e.g., face, colour, geometrical shape, motion, etc.) are aesthetically favourable, and it has been argued (e.g., Reber et al., 2004; Winkielman et al., 2006) that this effect is due to the fluency of processing associated with prototypes. The basic idea here is that the more fluent a stimulus is to process, the more aesthetic it is regarded to be. In other words, beauty also lies in the ease of processing. Our third category, aesthetic affect, refers to the fact that aesthetic perception can give rise to emotional responses. Aesthetic stimuli engage individuals in affective states such as yearning and desiring (Reimann et al., 2010) or aesthetic pleasure (Leder et al., 2012). Aesthetic experience also helps to mitigate negative affect such as frustration (Strube et al., 1983). Moreover, a lack of aesthetic congruency (i.e., a mismatch between an object and its environment, such as a beautiful object placed in ugly surroundings) can also result in a negative affect, such as regret (Patrick & Hagtvedt, 2011). The fourth category, namely responses to aesthetics, investigates the consequences of perceived aesthetics. Reviewed studies show that aesthetic stimuli exert an influence and cause biases subsequently following decision-making processes and in the performance of unrelated tasks. Lastly, due to the subjective nature of aesthetic perception, aesthetic judgement and decision making are subject to individual differences, such as individual tastes, personality traits, genders, political stances and cultural factors, which can influence aesthetics in many different ways. Our review has led to a few follow-up questions that future research could attempt to answer.

### Has prior work “over-focused” on visual aesthetics?

Baumgarten coined the word *aesthetics* in 1735 on the basis of the Greek word *aisthēsis*—that is, the perception from the senses, feeling, hearing and seeing. Based on this understanding

of aesthetics, Baumgarten subsequently refined the definition of aesthetics by referring to the *perfection of sensate cognition* (cf. Osborne, 1979). Our literature review shows that, while important groundwork to understand “sensate perfection” has been conducted, prior research has excessively focused on the visual sense – that is, how we judge the beauty of visual stimuli. Based on the existing empirical work alone, one could therefore strip down the definition of aesthetics to the visual sense alone, as most researchers seem to do. One reason for this excessive focus on visual aesthetics could be rooted in the early philosophical conception of aesthetics, especially the Kantian notion that vision and audition are the more interesting, “higher” senses, while smell, taste and touch are less relevant, “lower” senses (Osborne, 1977). Arguably, however, aesthetics is much broader than this idea suggests. Undeniably, smell, taste and touch all have aesthetic qualities. Also, because humans tend to holistically view stimuli in their environments (e.g., Eysenck, 1942), a visual stimulus may be perceived to be more beautiful if it is embedded in a context that also speaks to the other senses (compared to when viewed alone). For example, imagine the visit to the lobby of a grand hotel such as the Waldorf Astoria in New York City. Experiencing the lobby not only “perfects” the visual sense through beautiful architecture, artworks on walls and fluently arranged seating area but also speaks to the auditory sense through appealing music from a live piano player, the wonderful smell of flowers that were arranged in the center of the lobby and the touch of leather, wood and marble throughout the room. It is often such combinations and related spillover effects between senses that trigger a *holistic* perfection of sensate cognition, and an overall feeling of awe upon perception. When viewed alone, each stimulus (e.g., the flower centrepiece, the painting on the wall) may be appealing but in combination they are *perfect* (to borrow Baumgartner’s terminology). Indeed, with closed eyes and covered nose, Mozart’s *Eine Kleine Nachtmusik* is still beautiful, but viewing a pianist perform this piece on a Steinway grand piano at the philharmonic in Salzburg elevates more than just one sense towards such holistic sensual perfection. Similarly, classic oil paintings from the old masters are often perceived to be more beautiful than abstract paintings, possibly because they speak to more than one sense; for example, the realistic style in Joseph Mallord William Turner’s landscape paintings (see an example in Figure 30.2) attracts mainly the visual sense but may also stimulate the other senses, as one can “hear” the river flowing through the meadows, “feel” the warm autumn sun on one’s skin and “smell” the grasses and trees. Is it because abstract art speaks only to the visual sense that that many individuals perceive abstract paintings to be less appealing than realistic artworks?

In an example from the marketing context, retailers such as Abercrombie and Fitch stimulate consumers through more than one sensual dimension to achieve such perfection: Its stores not only feature appealing fashion complemented by physically attractive human models on walls but also create an environment that speaks to the olfactory sense (refreshing perfume), auditory



Figure 30.2 Joseph Mallord William Turner: Bolton Abbey, Yorkshire (1809).  
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sense (invigorating music) and haptic sense (rich materials and an elk over the register). Such multisensory stimulation obviously triggers behavioural effort in consumers, which are often willing to wait in line, pay a price premium and/or drive a substantial distance to get to the next store. Some firms, however, do not achieve such sensual perfection: Microsoft's flagship stores, for example, do not feature the same rich materials that Apple stores do (e.g., thick wooden tables, glass and concrete storefront); moreover, the lighting of Microsoft stores and the staging of products is different (e.g., price information and product description right next to tablets and phones) compared to Apple stores (e.g., focus on the product). As such, a better understanding of the interaction between aesthetic judgements, emotions, fluency and the different senses should be the goal of future marketers and psychologist.

### *Is there a dark side to aesthetics?*

Arguably, there is much that is positive to say about aesthetics. Humans like to be stimulated by beauty in their environment: We desire a physically attractive partner, we visit and soak in the beauty of our natural environment and we seek, purchase and treasure aesthetically appealing products to reward ourselves. However, aesthetics may have a dark side, in that a focus on aesthetics can possibly lead to discrimination and manipulation. For example, an overemphasis on slim and symmetrical human models in advertising can lead to stereotyping and discrimination against individuals who do not resemble the advertised physique or do not meet the "aesthetic standard". Further, aesthetics can lead to manipulation: a technically bad product in an aesthetically appealing package is still a bad product; however, the aesthetic package suggests otherwise because of the notion that "beauty is good". For example, can a firm in financial distress look better to its investors simply by enhancing the aesthetics of its financial report? Or, along the same line of thought, can a technologically obsolete product survive longer in the marketplace because its package is aesthetically pleasing? The answer to these questions, in some cases, is yes.

### *Do investments in aesthetics pay off?*

For practitioners, one question may be whether investments in aesthetics pay off. Aesthetic principles can be applied in many different areas, from store environments to the design of aesthetically appealing products and packages. Clearly, aesthetics are highly relevant to consumer psychology; the design of products has been acknowledged as a key success factor in marketing and sales, because aesthetic appeal has been shown to effectively differentiate a firm and its products from its competitors (Bloch, 1995; Patrick & Peracchio, 2010; Schmitt & Simonson, 1997). However, not every product may be suited to be "aesthetics-enhanced". Of course, there are obvious product categories in which such enhancement is likely not a good fit because it stands in the way of practicality and technical goodness, such as trying to make a Caterpillar Backhoe Loader look aesthetically appealing. Yet even for product categories for which aesthetics seems appropriate, bad investment decisions can be made. For example, Apple – known for its design capability – tries to position its Apple wristwatch as a direct competitor to Swiss luxury wristwatches by manufacturing a version of the watch with precious materials such as gold and offering it for a price of up to \$17,000. However, like all technological devices, the Apple Watch will become obsolete in the near future, and being technologically obsolete will arguably decrease the aesthetic properties of the Apple Watch as well as its value. If a 1999 flip phone, for example, were made of gold, today it would likely be melted down and sold for the value of the gold. On the other hand, Swiss watches, if properly maintained, will last many decades and maintain their aesthetic value because they do not

become technologically obsolete. In sum, investments in aesthetics will have to be analyzed in terms of product category fit and cost.

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