

The Necessity of Theoretical Foundations for Understanding and Designing for Empirical Aesthetic

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Abstract

Aesthetics serves as a psychological necessity and plays a critical role in design. The perception of beauty is important since it leads to aesthetic experience and helps make an aesthetic preference. The recognition of a beautiful aspect in an object is known as artistic sensitivity. Aesthetic-sensitive customers tend to have richer experiences with a given stimulus than the ordinary consumer. A common question is whether ordinary consumers are sensitive to aesthetics or not since attention to aesthetics is a crucial aspect of human beings, essential to artists and designers, and positively correlated with creativity. The critical issue is that everyone doesn't have good taste. Some people are equipped with higher levels of aesthetic sensitivity. Due to the lack of theoretical, methodological, systematic and scientific studies in empirical aesthetics, the psychology of aesthetics is in its early stages of development. Furthermore, a few investigations resulted in limited measuring instruments such as the Esthetic Appreciation Test, The Meier art test I, Art Judgment, Design Judgment Test, A Figure Preference Test, Child's Experiment, Visual Aesthetic Sensitivity Test, The Assessment of Aesthetic Judgment Ability and neuro-aesthetics. These instruments have failed to deliver pure aesthetic judgment due to inappropriate stimulus material. The present review paper describes the need for scientific investigation, theoretical foundation, and challenges in instrument design for the measurement of aesthetic sensitivity. Identification of aesthetic-sensitive individuals, groups, cities, states or countries through an instrument design would be valuable for designers to understand market needs and for marketers to grasp investment opportunities in design.

Keywords

Aesthetics Design, Aesthetics Sensitivity, Aesthetics Judgement, Stimuli Design, Empirical Aesthetics, Consumer Behavior.

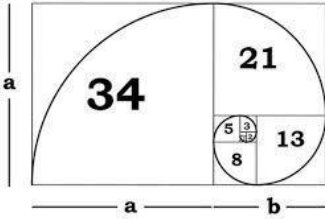
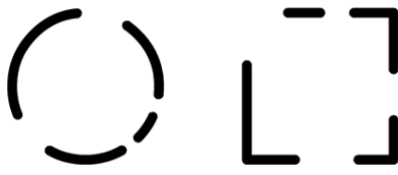
Introduction

Aesthetic experience is a quality, highly subjective, non-worldly experience often compared with spiritual experiences differing from religious practice (Mishra, 2006). It is described as the *feeling of everything accomplished through shared human sense* — or in Immanuel Kant’s words *common sense* (Atalay, 2007) not necessarily through properties of an object. Aesthetic experience gives one pleasure by simply looking at it *for its own sake*; it is an experience of *an end in itself* and *rewarding in itself* (Bamossy et al., 1985; Leder et al., 2004; Liu, 2003). It is a kind of untouched, distanced, disinterested and different from emotional and meaningful experience which moves you and pleases you (Hekkert & Leder, 2008; Bamossy et al., 1985; Leder et al., 2004; Desmet & Hekkert, 2007; Liu, 2003). It is also without purpose, political concerns and utilitarian aspects (Liu, 2003). Aesthetic experience is recognized as beyond aspects such as purpose, the experience of safety and usability, material, culture, time (Dutton, 2005; Hekkert & Leder, 2008; Mishra, 2006; Reich, 1993) and species (Papanek, 1984; Ramachandran & Hirstein, 1999). The presence of aesthetics is everywhere, and it also manifests in material. Furthermore, most people think they know the beauty and also *know what they like or dislike* and let it go as it is (Papanek, 1984). Aesthetics is challenging to understand, hard to quantify, extraordinarily complicated and rich subject (Dutton, 2005; Reich, 1993).

Determinants of Aesthetic Pleasure

The term aesthetics is designated to both *behavioral science* and *objective feature of the stimulus* such as color and shape of a product (Sonderegger & Sauer, 2010) as discussed in humanities, philosophy and art history (Bamossy et al., 1985; Jacobsen, 2010; Papanek, 1984; Veryzer, 1993). These two views may be grouped into two categories: rationalistic and romanticist view as given in Table 1 and Figure 1.

Table 1: Rationalism and Romanticism Views of Aesthetics.

Rationalism	Romanticism
Reason is the source of judgment and must be there.	Immediacy: we do not reason if we like something.
Sensory based judgment.	Memory based judgement
Reduced phenomena to principles.	Taste has its own law; we cannot capture aesthetics through rules.
Objective view of aesthetics.	Subjective view of aesthetics.
Constructivist school of psychology.	Gestalt school of psychology.
Emphasis on mathematics as science of beauty, related to experimental psychology.	Studies art philosophy.
Beauty lies within the quality of the object.	Beauty lies in the eye of the beholder.
Concept of cognition.	Concept of affect.
An object is beautiful as far as it is functional.	Beauty is a psychological function.
Derived aesthetic principles such as balance, redundancy and unity of form.	Derived aesthetic principles such as Principle of organizations & Golden ratio.
	
<i>Both views agree that beauty is measurable.</i>	

The rationalistic view is a scientific view of beauty. Beauty lies in the quality of the object itself (Jacobsen, 2010; Pham, 2000; Reich, 1993). According to this view, aesthetic judgment requires sensory pleasure, since aesthetic experience is built upon pure sensory pleasure. Thus, general laws such as the law of proportion and the rule of symmetry can be formulated to understand an aesthetic phenomenon.

The romanticist view argues that beauty solely exists in the mind of the observer (Jacobsen, 2010; Reich, 1993); or as Pham (2000) declared, beauty exists in the eye of the observer. It lies within the idea of the object and on philosophical arguments about concepts and description of experience with arts (Bamossy et al., 1985). Romanticism is a memory-based judgment (Jacobsen, 2010). Therefore, a sensory component of aesthetic processing can be simulated using imagination. According to this view, aesthetic experience is very subjective and cannot be captured by rules, since the idea of different people from a different culture at a different time can be completely diverse. Moreover, some perceptions cannot be explained by appealing to elementary imagination. The main principle used in romanticism is closure.

Both views agree that an aesthetic judgment develops either from learning experiences such as the enclosure principle (romanticism) or through reasoning (rationalistic view). Thus, aesthetics is measurable and this view is known as a reductionist view (Reich, 1993).

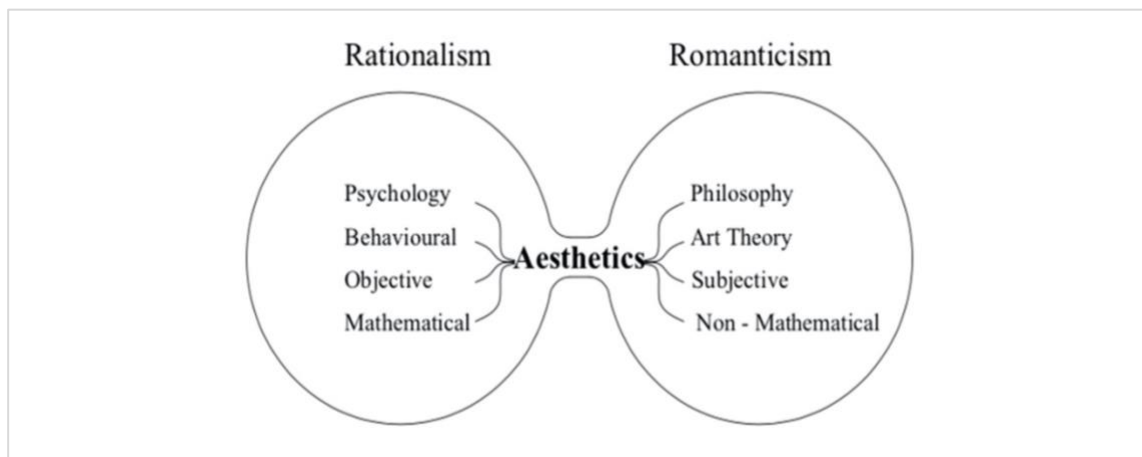


Figure 1: Representation of Rationalism and Romanticism Views on Aesthetics.

Aesthetics Judgment

In 1790 Immanuel Kant formulated two necessary basic conditions for a decision to be an aesthetic judgment, i.e., Subjectivity and Normativity (Zangwill, 2019). Subjectivity determines what pleases or displeases one only through feelings, not through concepts. The aesthetic judgment must have a subjective principle; for example, disinterested attitude with normativity such as *universal validity or thinking from others* perspective.

Disinterested means different attitudes towards emotions and meanings. It is possible only through common sense, which is based on how everyone judges. There is a belief that common sense surrounds everyone because humans all have the same cognitive capacities on how far the normativity in the aesthetic judgment in terms of pleasure and displeasure goes. Aesthetics can be measured by whether most people share the same feeling or not. Mathematically, it can be represented by the *idea of average*. For example, there is an effect called the Most Average Facial Appearance (MAFA). People tend to find the MAFA of the population more attractive than the face that deviates from the average (Lidwell et al., 2003).

Correspondingly, Ramachandran and Hirstein (1999) consider the peak shift or supernormal stimulus as an important principle underlying our aesthetic experience. Peak shift is a well-known phenomenon in terms of behavior. A supernormal stimulus is an exaggerated imitation by variation of a similar stimulus that elicits stronger responses than the real thing. The peak shift effect describes stronger responses to objects that somehow exaggerate the essential or unique features of the stimulus.

For example, people’s attraction towards caricatures and cartoons is due to the peak shift effect. Also, a Cuckoo’s egg gets special attention due to its larger and brighter appearance than other eggs by the mother (Lidwell et al., 2003). Furthermore, male birds with brighter plumage are more attractive to female birds than a bird with dull plumage. A female bird will show an even higher preference for males with supernormal or above-average brightness. All the above are examples of the peak shift effect that give an aesthetic experience — as in the mathematical or empirical concept of peak shift lying under the *idea of average*.

Aesthetics in Scientific Studies

Not only there is no single definition of aesthetics (Axelsson, 2011), but also there is no general textbook for the psychology of aesthetics either in German or in English and very few journals are devoted to aesthetics and product design (Hoyer & Stokburger-Sauer, 2012). Analysis of product design is only limited to *usability testing* but the ease of use does not merely attribute to product design. Furthermore, there are no instruments available to analyze aesthetics. Therefore, aesthetic design decisions are based on *personal expression coming from personal experience* or rely on an educated guess, trend analysis and intuition rather than thinking from others’ perspectives (Papanek, 1984).

There is an instrument available for the measurement of human abilities such as *intelligence*, but there are no instruments for the measurement of other important aspects of human ability like aesthetic sensitivity. Therefore, artistic design decisions came to us along with surrounded nonsense and filled with mysteries. There is a need for a theoretical, methodological, systematic and scientific framework to organize, communicate and explain ideas and concepts related to aesthetics (Liu, 2003). Instrument design for the assessment of consumer behavior can guide marketers through investment decisions. Moreover, consumer taste is one of the parameters to judge a good society (Hoyer & Stokburger-Sauer, 2012).

Available Measuring Instruments for Aesthetic Sensitivity

Aesthetics in product design is an essential aspect while designing for user experience, user satisfaction and user acceptance. In this paper, the author described below a few available measuring instruments for aesthetic sensitivity with their challenges and future scope.

1. Thorndike’s Test of Aesthetic Appreciation

Thorndike (1916) used the graded series of formal rectangles, crosses and designs based on design principles (Figure 2). The rank ordering of five designs from the most pleasing to the least pleasing is assigned to the participants as for 1 to be the best looking on to 5 being the worst looking. Scoring will be *counting the sum of displacements* Thorndike sought to measure aesthetic sensitivity. Mean evaluation is helpful for both theoretical and practical purposes. Thorndike (1916) suggested *rank ordering* as the most convenient method for the measurement of aesthetic sensitivity.

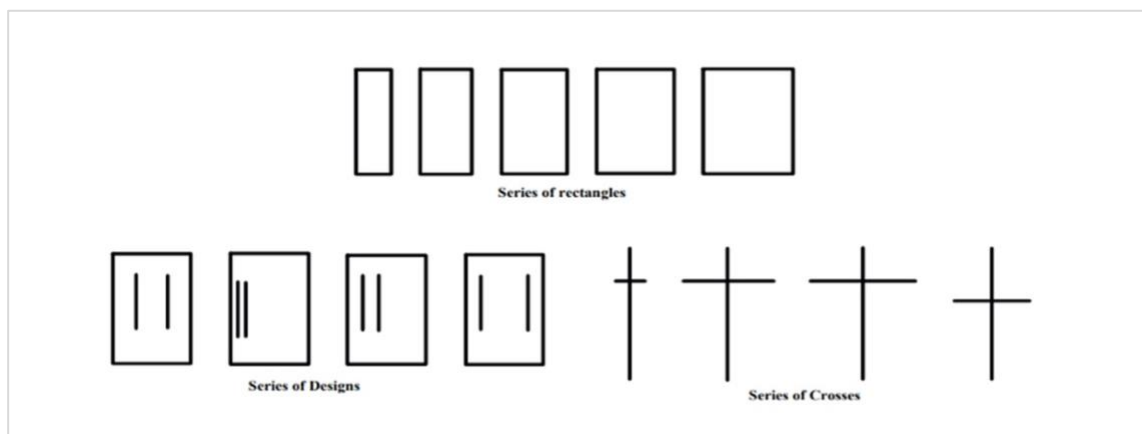


Figure 2: Example of Stimulus Used in Thorndike’s Test of Aesthetic Appreciation (Thorndike, 1916).

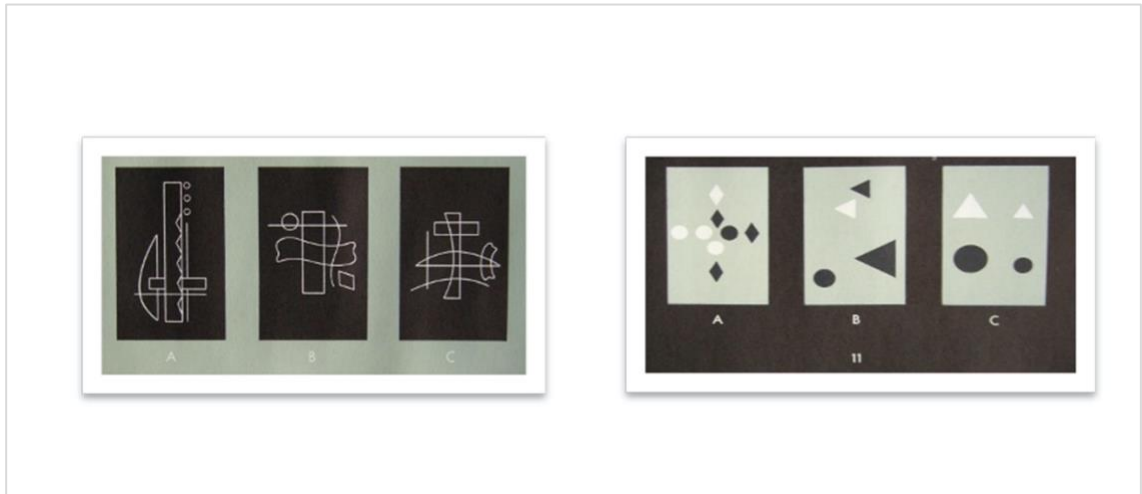


Figure 3: Example of Stimulus Used in Maitland Graves Design Judgment Test in 1948 (Giampietro, 2015).

2. Maitland Graves Test

Maitland Graves Design Judgment Test used stylistic scientific figures which offer qualities such as abstraction, simplicity and linearity as shown in Figure 3 (Graves, 1948; Giampietro, 2015). These figures are suitable both functionally and aesthetically. Evaluation of aesthetic sensitivity shows the degree to which a subject perceives and responds to the basic principles of aesthetic order (Eysenck & Castle, 1971). Subjects have to choose one aesthetically superior to the others in order to score high on the test. Graves (1948) reports that art students achieve a higher score on the test than non-art students; the mean score is used as an evaluation method for group comparison.

3. Meier Art perception Test I and Meier Art Perception Test II

Meier Art Test I asks to choose one which seems like a better image from the given two abstract designs as shown in Figure 4 (Meier, 1940).

Meier Art Test II consists of fifty plates of items. Each item includes four versions of the same art and they vary from ancient to contemporary. The rearrangement and division of an art masterpiece from the altered art of low aesthetic value, such as the ones in the Meier Art Test II, is one of the standard techniques for measurement of aesthetics in Pop art (Meier, 1963; Bamossy et al., 1985).

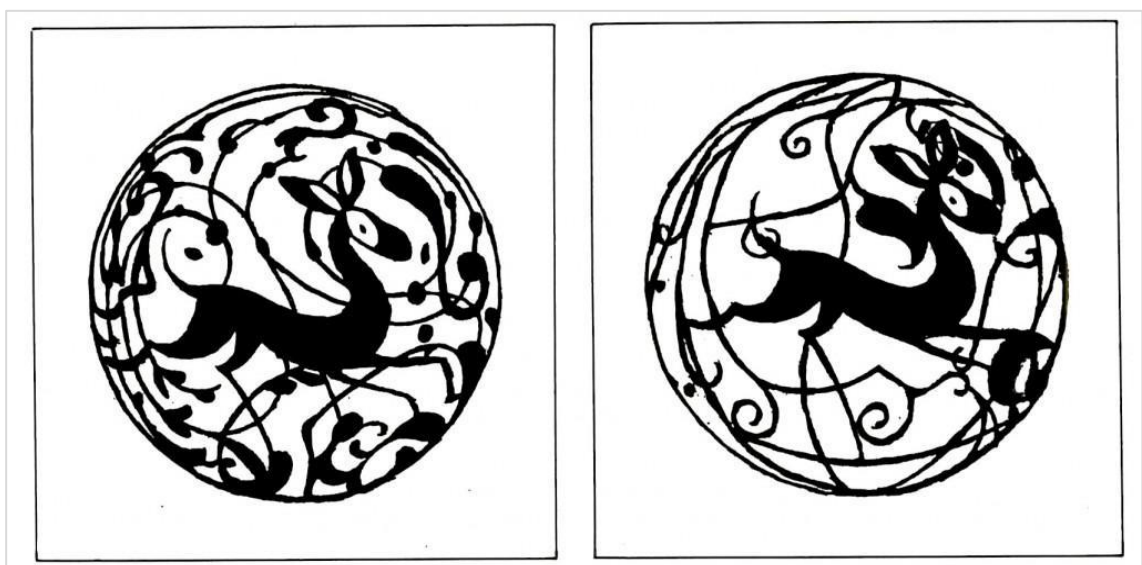


Figure 4: Example of Stimulus Material of Meier Art Test I in 1940 (Meier, 1940).

4. Visual Aesthetic Sensitivity Test (VAST)

Visual Aesthetic Sensitivity Test (Gotz et al., 1979; Eysenck, 1983) consists of 42 pairs of non-representational pictures drawn by an international artist (Gotz et al., 1979; Eysenck, 1983). One of the two images is an altered version, created intentionally. Eight practicing artists validated the construction of stimuli by agreeing 100% in their answer key. The participants' task is to discover which of the two designs is the better one or the more harmonious. The scoring is based on the number of right answers (Figure 5).

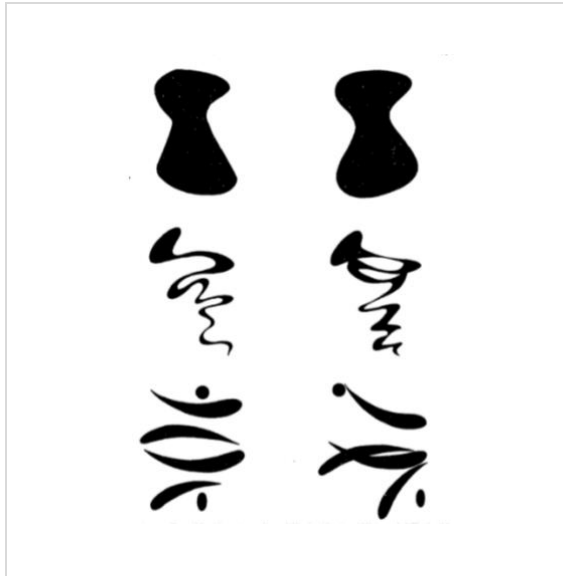


Figure 5: Example of Stimulus Material Used by Eysenck, 1983 in VAST (Eysenck, 1983).

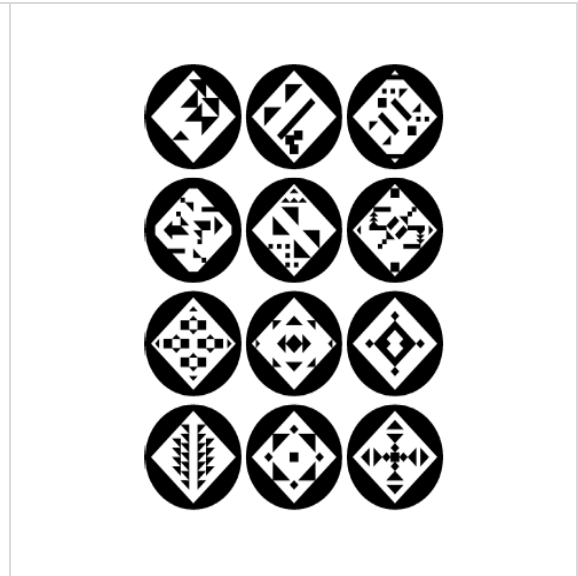


Figure 6: Example of Stimulus Material Used by Jacobsen (2010) in Cognitive Neuroscience Approach to Study Aesthetic Judgment.

5. Neuro-Aesthetic Examination

Jacobsen (2010) used a stimulus material with various symmetry and complexity (Figure 6). A cognitive neuroscience approach such as fMRI was employed to identify the neural correlations of the beauty between geometric shapes. Participants were asked to perform evaluative aesthetic judgment — as in whether it is beautiful or not— and descriptive symmetry judgment — as in whether it is symmetric or not.

6. Aesthetic Judgment Test

This test uses three paintings, Paul Klee's *head of a man*, Francisco Goya's *the horror of wars* and Ivan Albright's *into the world a soul named Ida*. For each painting, there are 10, 9 and 10 statements respectively on the topic of subject matter, expression, representation and form (Bamossy et al., 1985). To score high on the AJ test, subjects must agree with high stage items and disagree with low stage items. The theme was to ask whether they agree strongly, slightly agree, slightly disagree or strongly disagree with each statement after having studied the slide for two minutes.

7. Figure Preference Test

Figure Preference Test used 65 freehand simple symmetrical and complex asymmetrical figures in black ink on 3 to 5 inch cards in order to measure individual differences in aesthetic preferences about personality variables (Barron & Welsh, 1951). 143 subjects, including 6 artists, 79 ordinary people with no distinct features and 64 mentally ill patients, were asked to sort these figures into two classes, those they liked and those they did not. The authors classified them as high positive group — those who preferred simple and symmetrical figure— and high negative group — those who preferred complex asymmetrical figure. Artists along with some of the mentally ill patients preferred complex balanced figures and disliked the simple symmetrical figures.

8. Child's Experiment

Child (1962), used 12 sets of postcard-sized paintings, each set comprising 60 pictures as stimulus material. They included pictures of groups of people, religious pictures, landscapes, abstracts, portraits of men, a second set of pictures portraying groups of people, a second set of religious pictures, pictures which markedly distorted virtual reality, portraits of women, pictures of children, pictures of animals and still lifes. Subjects were asked to concentrate and react to the picture demonstrating whether they liked it or not. Data was collected in individual sessions. Scoring was based on the aesthetic value given by experts and the median correlation was used to determine aesthetic sensitivity.

Structure of Aesthetic Sensitivity Measuring Instruments

These studies on aesthetic judgment are based on either individual differences or group correlation through the expert-naive paradigm, aimed to identify the aesthetic-sensitive person. In other words, the aim is to address the question determining if there are people who are good at judging artworks. Moreover, these studies also examine the relationship between aesthetics sensitivity and personality variables such as age, gender, education and social background of the participants. All these studies are applicable in a real scenario, valuable for designers and marketers.

Stimulus material in these tests is either artwork or geometric figures. Participants were asked either to choose between two given designs or to rank order if there were more than two designs. Furthermore, the scoring of these tests was based on either expert's correct order or design principles such as symmetry, golden ratio, order and harmony. If a participant's liking would have been reasonably close to the expert's correct order, the person was considered as a highly aesthetic sensitive individual.

The scientific investigation of aesthetic judgment is to define beauty empirically, either through an object-oriented perspective — aimed to find universal general patterns through consensus— or subject-oriented perspective —investigating the capacity to perform expert or consensus aesthetic judgment— i.e., artistic sensitivity (Myszkowski & Storme, 2017; Myszkowski & Zenasni, 2016).

Aesthetic sensibility is also defined as the ability to respond to aesthetic stimuli consistently with *external standards* (Child, 1962). In research, external standards are set either theoretically — through objective aesthetic properties like balance, symmetry and complexity— or empirically through consensual and expert judgments (Myszkowski & Storme, 2017). To construct experiments, these tests employed a *controlled alteration paradigm*, or in other words, alteration of stimulus to create one or multiple alternate versions of lesser aesthetic quality than the original. In this approach *content validity* of test items are dependent on the test authors' expertise only. Empirical aesthetics generally employ an expert-naive paradigm to study aesthetic responses. Participants were asked to choose one of the best qualities. To score high on tests, participants must have had to approve as many versions of the best aesthetic quality.

Limitations of Earlier Aesthetic Sensitivity Measuring Instruments

1. Diverse Methodology for the Measurement of Aesthetic Sensitivity

Different kinds of tests used various types of diverse methodology for the measuring aesthetic sense. For example, tests such as VAST (Eysenck, 1983) and Meier art perception test I (Meier, 1940) asked participants to choose the harmonious image from the given two designs, unlike Child's experiment (Child, 1962) Meier art perception test II (Meier, 1963) and AJT (Bamosy et al., 1985). In 1876, Fechner requested the participants to choose one from a series of manipulated versions of the golden rectangle. Moreover, Figure Preference Test (Barron & Welsh, 1952) and Jacobsen's (2010) asked participants to sort out the figures based on symmetry and complexity (Table 2).

Table 2: List of Questions Asked and Scoring Method Used in Earlier Aesthetic Sensitivity Measuring Instruments.

Test Name	Question Asked	Scoring Method
Test of Esthetic Appreciation (Thorndike, 1916)	To be arranged in order.	Sum of subject's deviation from its correct order.
Meier Art Perception Test I (Meier, 1940)	Which seems like the better image to you?	Agreement with external value, 1 point for correct order.
Design Judgment Test (Graves, 1948)	To choose between two simple abstract designs.	Sum of the number of right answers.
Figure Preference Test (Barron & Welsh, 1952)	To sort figures into two classes, those they liked and those they don't like.	
Child's Experiment (Child, 1962)	To react to each set of pictures from the most pleasing to the least pleasing.	Differentiation of the 6 most pleasing from the 6 least pleasing.
VAST (Götz et al., 1979)	Discover the most harmonious one of the two.	Sum of the number of right answers.
Aesthetic Judgment Test (Bamossy et al., 1985)	Likert scale.	2 points for strongly (dis)agree with low or high stage items, 1 point for slightly (dis)agree with high or low stage items

2. Various Types of Stimulus Material for Measuring Aesthetic Sensitivity

Different tests used different types of stimuli but some of them are inappropriate, hence, fail to be pure aesthetic judgment (Table 3). Tests such as Meier Art Perception Test I (Meier, 1940) and II (Meier, 1963) along with Visual Aesthetic Sensitivity Test (Götz et al., 1979) used artworks as stimulus material and employed art experts in construction and scoring the results; whereas, Design Judgment Test (Graves, 1948) used design principles as heuristics for development as well as for storing the results. These tests used objectively measurable, formal or straightforward structural properties of an object as stimulus material such as symmetry or golden proportions.

Artworks, paintings, sculptures or buildings are combinations of various stimulus dimensions such as aesthetics as well as practical elements such as emotions and meanings. Artworks with emotional and meaningful components are inappropriate for aesthetic judgment. Aesthetics is different from emotions and meanings as it has different underlying processes and gives us different experiences (Desmet & Hekkert, 2007) but all of which are highly related and inseparable from each other. Thus, aesthetic judgment based on artworks becomes more complicated. Furthermore, controlled variation is near nonexistent in tests using artwork as a stimulus than a geometric shape (Hekkert & Leder, 2008; Jacobsen, 2010).

The shape is one of the criteria for an experimental setup in which controlled variation calculation is possible while keeping other variables constant. Therefore, geometrical shapes become excellent stimulus material for measuring artistic responses in controlled variations. Earlier in psychological aesthetics, such as Fechner in 1876 (Green 1995), Test of Esthetic Appreciation (Thorndike, 1916), Design Judgment Test (Graves, 1948) and Jacobsen's (Jacobsen & Höfel, 2002) used geometric shapes. Meier Art Perception Test (Meier, 1940) and Child's experiment (1962) used a formal design element for their experiment. These geometrical shapes and random patterns are different from the artwork. However, according to Kant's notion of aesthetics, aesthetic experience is an *experience of distance* or *disinterested*.

An object is aesthetically pleasing when it is approached with an aesthetic attitude. According to this theory, *aesthetic* is not a property of things, but the way of looking at them. Therefore, geometrical shapes can be used for the measurement of aesthetic sense.

Table 3: Types of Stimuli Used in Different Types of Aesthetic Sensitivity Test.

Test Name	Stimuli Used
An experiment by Fechner in 1876 (Green 1995)	Graded series of rectangles.
Test of Esthetic Appreciation (Thorndike, 1916)	Graded series of rectangles, crosses and designs.
Design Judgment Test (Graves, 1948)	Two or three abstract designs.
Meier Art Perception Test I (Meier, 1940)	Abstract designs.
Figure preference test (Barron & Welsh, 1951)	65 hand drawn figures with black ink on 3 to 5 inch cards.
Child's experiment (Child, 1962)	12 sets of pictures, each set consist of 60 pictures.
Meier Art Perception Test II (Meier, 1963)	Images of artworks from ancient to contemporary.
Visual Aesthetic Sensitivity Test (Götz et al., 1979)	42 non-representational pictures drawn by art professionals.
Aesthetic Judgment Test (Bamosy et al., 1985)	3 paintings with 10, 9 and 10 statements of judgment.
Jacobsen's (Jacobsen, 2010)	Geometrical shaped stimulus based on symmetry and complexity.

Issues Addressed

There is a lack of scientific investigation, theoretical foundation and instrument design in the field of empirical aesthetics. Furthermore, research on the measurement of aesthetic sensitivity is more than 30 years old and needs advancement (Myszkowski & Storme, 2017). People's desires and their psychology towards the aesthetic aspect of product design has never been investigated carefully. Most of our aesthetic design decisions on consumer behavior are based on intuition, educated guess and as a personal expression on personal experience rather than thinking from others' perspectives. To think from others' perspectives, to assess consumer psychology on aesthetic designs or to determine the general mindset of an individual, group, city, state or country requires some quantification or an instrument design, although limiting. Instrument design helps designers in the assessment of consumer behavior, and it also helps marketers with investment decisions on particular groups, states or regions. On the other hand, there are limited instrument designs available for the assessment of aesthetic sensitivity with inappropriate stimulus material which leads to impure measurement of aesthetic sense. The greatest challenge in empirical aesthetics is the *selection of stimuli* (Garg & Kumar, 2010). There is no consensus on *stimuli selection*, thus, requires *stimuli selection method*, for instrument design (Axelsson, 2011; Child, 1962).

Method of Stimuli Design

Aesthetic responses are described as different responses to meaningful and emotional experiences, in Kant's words *disinterested* — desire free from our concerns and goals (Leder et al., 2004). Aesthetic judgment is neither an idea nor a concept. According to Immanuel Kant *beauty is cognized without a concept as the object of necessary satisfaction* (Atalay 2007). Further, according to Indian aesthetics philosopher Abhinavagupta, aesthetics is a matter of experience and an aesthetic-sensitive person can have direct aesthetic experience even through implicit determinants, unconstrained from dramatic representation (Mishra, 2006).

This paper posits that the right stimulus to measure aesthetic responses should contain only aesthetic components and be free from emotional and semantic features — colors and meaningful elements such as brand names, brand identity, social, cultural-moral values, symbols, etc. In other words, aesthetic design stimuli should contain only aesthetic components such as aesthetic design principles and be free from emotional components, semantic interpretation and symbolic association. Product experience equals the sum of aesthetic experience, emotional experience and semantic experience (Hekkert & Leder, 2008). Method of stimuli design equals the subtraction of aesthetic experience — the experience of sense gratification— from product experience, emotional experience — dealing with faculty of the human mind— and semantic experience — dealing with the faculty of the human mind. As an example of three different levels of experience during product experience, a word *MAN* written in a style like part a in Figure 7, which consists of all three levels of experience discussed above, can be used. Emotional experience can be described as connection with human beings, meaningful experience of the hard, sharp, pointed edge and aesthetic experience of order, parallelism, etc. For example, the *dramatic representation* of the word *MAN*, such as its emotional experiences (Bhava) concerning human beings as well as the meanings of hard, sharp and pointed edges (Vibhava). Aesthetic components can also give the pleasurable feeling of order, such as in the parallel arrangement of lines. If the emotional component of *MAN* is separated from the same typography, it will look like part b in Figure 7. This typography has no human emotion (Bhava) attached to it but only the meaning of hardness and the aesthetic experience of ordered and balanced lines. Additionally, by carefully removing a significant component of *hardness* from the letterform, a pure aesthetic component responsible for its beautiful appearance will be formed. The result will look like part c in Figure 7, containing only the aesthetic components of parallel order and balance. The author argues that stimuli like part c in Figure 7 can serve the purpose of measuring aesthetic sensitivity, only having aesthetic components and free from emotional and meaningful components, i.e., *disinterested* or *non-dramatic representation*.




a.		Emotional experience (human being), experience of meaning and aesthetic experience
b.		Meaningful experience (hard, sharp and rough) and aesthetic experience
c.		Only aesthetic experience of Parallelism, Order and Consistency, non-dramatic representation..

Figure 7: Representation of All Three Levels of Experiences W.R.T. of the Word 'MAN'.

Designing an *instrument* to measure *aesthetic sensitivity* is possible using *method of stimuli design*, i.e., removing semantic and emotional features from the aesthetic elements. Through the *controlled alteration* paradigm, the author created a *scale* with altered versions of the aesthetic component of the word *MAN*, written in a specific style (Figure 7). Aesthetic sensitive individuals would prefer the original version — containing aesthetic components such as order and symmetry— of aesthetic components of the word *MAN* over its altered version — disordered version of low aesthetic value. There are various scales with different words, images and designs that will lead us towards an *instrument design* for assessing consumer behavior on aesthetic designs with the help of quantified aesthetic sense, although limiting. Via the *method of stimuli design*, the author reported a new instrument for measuring aesthetic sensitivity. Aesthetic sensitive individuals prefer aesthetics above average and give higher weight to beautiful stimuli (Bloch et al. 2003; Munari, 2008). They can discriminate attractive stimuli such as order and symmetry through perceptual analysis (Myszkowski et al. 2014).

They are good at perceiving subtle differences and can discriminate fine demarcation, which remains unnoticed to the untrained eye (Leder et al., 2004). Therefore, by making changes in variation through systematic manipulation of aesthetic stimuli — derived from word *MAN*— the author created four different design dimensions (altered versions) for aesthetic inspirations (Figure 8).

Altered version	Altered version	Original version	Altered version	Altered version
/ / / //	/ / / / \	/ / / / /	/ / / / /	/ / / / /
Layout 1	Layout 2	Layout 3	Layout 4	Layout 5
↓				
Derived from the word <i>MAN</i> , after removal of meaningful and emotional components from the word <i>MAN</i> written in a specific style.				

Figure 8: Example of Stimulus Created for Measuring Aesthetic Sensitivity by Removing Emotional and Meaningful Components from The Word '*MAN*'.

For instance, in Indian aesthetic philosophy, during the aesthetic experience, the permanent mental state has various gradations such as Strong, Stronger and Strongest or Weak, Weaker and Weakest. Similarly, there will be an infinite gradation during the aesthetic experience (Mishra, 2006). For example, there are different kinds of smile and laughter described in Indian aesthetic philosophy, such as a gentle smile (Smita), a smile (Hasita), laughing (Vihāsita), laughter (Upahasita), uproar laughter (Apahasita) and convulsive laughter (Atihasita-atihasita). The author argues that the above method of stimuli design (Figure 7 & 8) can facilitate an instrument to measure aesthetic responses, creating an aesthetic component by removing semantic and emotional features from 2D Geometric shapes. Furthermore, by using a method of stimuli design, a scale for the measurement of aesthetic responses is possible to be constructed towards stimuli through systematic manipulation of the design dimension of design principles.

Future Scope

The scientific analysis of aesthetical form is invaluable for the designers to understand consumer behavior. There is a need for scientific measuring instruments. The presented paper advances the research on aesthetic sensitivity by giving direction for constructing new tests with the help of *method of stimuli design*, i.e., *derivation of disinterested stimuli* to reduce the challenges for the selection of stimuli to measure aesthetic sensitivity. The proposed method of stimulus design will facilitate instrument design for designers to identify an aesthetic sensitive individual, group, city or state. With the help of the proposed method of stimuli design, designers can create their own measuring instrument for aesthetic sense, using various types of words and images. Moreover, various scales will comprise a *measuring instrument for aesthetic sensitivity*, as reported by the author (Bairisal & Kumar, 2019).

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