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Positive Aesthetic Assessment of a Product Design Based on the Approach Neotonic Design

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Abstract

Positive assessments from consumers on the products offered are a significant element for creative industry players. Several studies have shown that the main factor determining the decision to buy a product is not the function but the aesthetic appearance of the product. One method of assessing the aesthetics of product design is neotonic design.research was Neotonic design conducted to show how product design characteristics can objectively display a positive aesthetic. This study aims to provide input to creative industry players how consumers give a positive assessment of the outer appearance/aesthetics of product design. To achieve this goal, the research explores the question of how can neotonic design be an important factor in a positive assessment of the aesthetics of a product design? Based on these research questions, two hypotheses were made H1: The cuteness shown will be more visible if the object is smaller than the larger object (H1a), rounder than pointed (H1b), simpler than complex (H1c), brighter than darker (H1d), and wider than taller (H1e). H2: The cuteness that is displayed is related to the positive assessment of aesthetics as an attractive element in the design. The study involved 50 respondents with 34 product design research objects and 28 geometric shapes. The results showed that the complicated dimension was considered funnier than simple. So that the small, round, wide, bright, and complex dimensions become the main markers of consumers' positive (funny) assessment of product design. The five dimensions above show that funny/neotonic designs are an important factor in positive evaluation of the aesthetics of a product design.

Keywords
aesthetics, neotonic design, creative industry

I. Introduction

Purchasing decision making of a product design is examined from various aspects. Gordon's research (1996) sees that although aesthetic judgments with their subjective nature are rarely used as a significant factor in decision making, aesthetic judgments can be objective if there are external stimuli. When the market provides many product design choices with various attractive appearances, the aesthetic assessment becomes objective because it becomes a significant factor in the decision-making process of purchasing a product design. Similar studies were also conducted by Solomon (1983) and Veryzer & Hutchinson (1998). The results of their research show that the main factor determining the decision to buy a product is not the function but the aesthetic appearance of the product. Results were to break modern design philosophy of "form follows function" /form follows function (Sullivan, 1896). So it can be concluded that the aesthetic assessment of a product is an important factor in decision making.

As a critic of the power of judgment, Kant (2001) argues that aesthetic judgment should be able to relate the way we behave with the knowledge base we have. Kant's opinion about this aesthetic assessment is the basis for writing this scientific work. The main purpose of this scientific work is to examine the model axiological of aesthetic assessment of product design. The product design to be researched is a product design that has a plain and cute appearance like a baby's appearance (neotonic design).research was Neotonic design conducted to show how product design characteristics can objectively display a positive aesthetic. This study aims to provide input to creative industry players how consumers give a positive assessment of the outer appearance/aesthetics of product design.

The research questions try to explore:

How can neotonic design be an important factor in a positive assessment of the aesthetics of a product design? To answer the research question, an empirical study of norms is needed that looks at the relationship between neotenic design and positive aesthetic appraisal systems.

II. Review of Literature

2.1 Norm Study that Looked at the Relationship between Neotenic Design and Aesthetic Positive Assessment System

This study was conducted using the eight-dimensional method neotenic design adopted from the characteristics of infants (Lorenz, 1970). The eight dimensions of neotenic design include size, shape, structure, color, section, layout, metaphor and boundaries. These eight dimensions correspond to the formal characteristics of the human judgment system.

a. Size - Small

Objects that are smaller in size are considered funnier than large ones. So the meaning of the word "funny" has changed to describe small objects (Barratt, 2009). The positive association between cuteness and small size can be seen in the term marketing technique, namely mini branding. This technique focuses on selling miniature versions of the full product. For example, miniature M&M bags, cupcakes mini, and the DoCoMo mini phone icon (Lindstrom, 2000). The success of this product has a positive effect on the small size of the design. It is a cute design.

b. Shape–Round

Objects with rounded ends are considered funnier than objects with pointed ends (Bar & Neta, 2006). Round characteristics are the main features in infants, such as round cheeks and round bodies (Lorenz, 1970). In industrial design, the first example is the 2000 Volkswagen Beetle. This car looks cute because of its rounded outer contour (Angier, 2006). This car was then redesigned in 2012 with the aim of giving a more mature impression by reducing the round elements and adding a more pointed tip (Patton, 2011). The next example is the graphical user interface (GUI) design for Apple brand computers. The rounded icon design looks funnier than the icons on Microsoft Windows. So that Apple computers still maintain a round shape design style (Lang, 2009).

c. Structure – Simplicity

Simple objects are considered funnier than complex objects. From the point of view of developmental biology, young creatures are simpler than adults. Simple shapes show immaturity with the potential to develop into complex shapes (Harris, 2000). So it can be understood that simplicity is associated with a cute young form. For example, Hello Kitty, a character from Japan, is considered cute because of the simple shape of her neck and mouth and her height (Roach, 1999).

d. Color and Texture – Light and Soft

Objects with colors and textures are considered funnier than objects with rough textures and strong colors. Light colors are considered cute because babies have paler skin tone and thinner hair than their parents (Etcoff, 1999; Frost, 1989). Pale colors are often found in newborn products, referred to as “baby pink” or “baby blue”. On the other hand, dark blue and dark gray are considered far from funny (Wright & Rainwater, 1962). With regard to texture, Lorenz (1970) proposed that the soft skin of infants is associated with the perception of cuteness. water.The difference in the value of the color obtained is likely caused by the presence of organic substances in the number of different or the state of the geology (Manalu, 2021). From the observation data, all leaves have a relatively good color (Zailani, 2019).

e. Section - Width

Objects with a round body shape are considered funny (Lorenz, 1970). The greater the ratio of width to height, the more cute it is compared to the thin and narrow shape. When Glocker and colleagues (2009) tried to change the width-to-height ratio in infants' faces, narrow faces were less funny than round faces. Certain parts of the body can also increase the perception of humor such as a wide head connected to the body (e.g. bobble-heads), or eyes that are in a lower position (Lorenz, 1970).

f. Layout – Tilted

Objects with irregular shapes will look funnier than regular objects. For example, letters arranged in zigzags will look funnier than letters arranged in straight lines. This is related to the understanding of the zigzag line with the clumsy nature of adolescents (Lorenz, 1970). Logo design trends in some brands also show cute character settings. For example, Baskin-Robbins ice cream and Cheer detergent have changed their logo to a more cute and friendly zigzag character (Silvia & Barona, 2009).

g. Metaphors – Anthropomorphic

Objects that show anthropomorphic metaphors will look funnier than objects that are not anthropomorphic. Anthropomorphic traits influence people to see objects as if they are alive (Chandler & Schwarz, 2010). So that an object is considered funny if it looks alive because the characteristics of cuteness are inherent in children.

h. Boundary - Thickness

Objects with thick edges will look funnier than objects with thin edges. For example, pictures in children's books are often shown in bold lines, making them look even funnier. Thickness can be a funny offering feature (Lorenz, 1970). One reason is that thick lines are associated with protection. Another reason is that bold lines contrast with the inner area which looks smaller. The initial hypothesis that can be drawn from the funny perception is that it is called funny if it has the following characteristics: small, round, simple, light and soft, wide, zigzag pattern, anthropomorphic, and thick lines.

The hypothesis will be tested through the study of norms. This study assesses whether the playful traits in infants, when linked to the design language used to create visual forms, will retain the same mental representations?

The eight cute dimensions, only five dimensions will be examined, namely small, round, light, wide, and simple. Thick dimensions are not included because they are closely related to small. The clunky dimensions are also excluded because they are not directly related to the specific characteristics of the design, but rather to the style of appearance. The metaphorical dimension is also excluded because of the wide relationship with semantics which makes it difficult to see the influence of the main dimensions. This dimension reduction aims to make it easier for respondents to assess the criteria.

2.2 Hypothesis

H1: The cuteness shown will be more visible if the object is smaller than the larger object (H1a), rounder than pointed (H1b), simpler than complex (H1c), lighter than darker (H1d) , and wider than taller (H1e).

H2: The cuteness that is displayed is related to the positive assessment of aesthetics as an attractive element in the design.

To summarize, the hypothesis is that the perception of cuteness is related to the following features of an object: small, round, simple, light and soft, wide, zigzag pattern arrangement, anthropomorphism, and boundary thickness. It should be noted that these dimensions are not orthogonal and may interact with each other or influence the perception of cuteness in a hierarchical order. In addition, anthropomorphic analogies can contribute to the objective perception of cute objects in the characteristics of infant mammals. The above features are extracted from neotenic features that seem to contribute to the perception of inanimate cuteness, but it is difficult to ascertain the extent to which we can generalize about these features. Small, round, simple in shape, light in color, chubby, slanted, anthropomorphic, or heavily bordered are more likely to be seen as cute objects, but they don't necessarily have to represent babies.

Therefore, it is questionable whether this feature of cuteness is an objective attribute revealing the presence of innate automata (innate release mechanisms) elicited by infants. To investigate the psychological effects associated with neotenic features in inanimate object design, we conducted an initial norming study. This study tests whether features of infant cuteness, when translated into design language and used to create visual forms, evoke similar mental representations and cognitive processes. To explore mental representations of cuteness, norm studies examine whether or not an object's perceived cuteness will correlate with positive influences associated with aesthetic judgments such as attractiveness. This study also tested the hypothesis that participants would rate the cuteness of each artifact by the particular formal visual characteristics reviewed above.

The eight dimensions of cuteness, the following five were selected to examine their contribution to the perception of cuteness: small, round, light, broad, and simple. The reduction to five was to make the task more manageable for participants and to control extraneous variables. The thickness of the border is closely related to the perceived smallness of the inner area. The slope is also removed from the study because it is not directly related to the formal characteristics of the design itself; rather it is related to the viewing style or point of view of the observer. Furthermore, anthropomorphic metaphors were excluded because of their wide network of semantic associations, which would make it difficult to observe the effects of other dimensions dimension.

III. Research Methods

Total respondents were 50 people with the criteria: 10 students, 10 high school students, 10 designers, 10consumers mid class, and 10consumers upper class. The 50 respondents: 60% of respondents (30 people) are female, and 40% of respondents (20 people) are male.

The five dimensions tested were: 1) small vs. large, 2) round vs. pointy, 3) simple vs. complicated, 4) bright vs. dark, 5) wide vs. narrow/slim. The research object was chosen randomly/random sampling (Arikunto, 2006: 124) in the form of product design images that we often see and geometric shapes found on the internet.

1) 34 product design drawings: 8 for the small/large test, 10 for the round/tapered test, 6 for the simple/complicated test, 6 for the light/dark test, and 4 for the slim/narrow width test.
2) 28 geometric shapes: 8 for the small/large test, 6 for the round/pointed test, 4 for the simple/complicated test, 6 for the light/dark test, and 4 for the slender wide/narrow test.

All research objects were edited to get the same size and displayed on a white background. Respondents were asked to rate each image on a 7-point measuring scale that measures attractiveness, cuteness, comfort, and complexity. Assessment takes less than 3 minutes. Respondents were given 34 product design drawings and 34 geometric shapes randomly out of order.

IV. Discussion

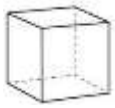
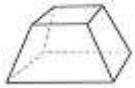
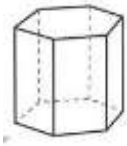
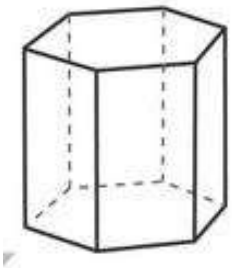
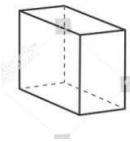
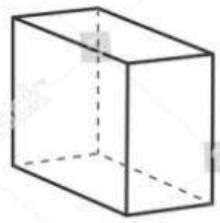
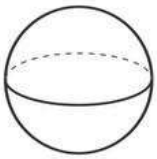
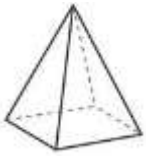
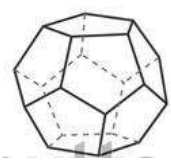
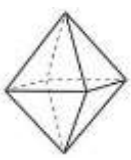
Besides the background of the students, the results of the needs analysis that underlie the need for the development of a basic Environmental Education module that is oriented to HOTS that most students consider Environmental Education courses as a scourge. Keraf (Supriadi, 2017) suggests that ecoliteracy means a situation in which a person is enlightened about the importance of the environment.

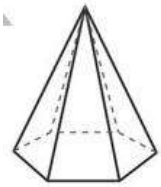
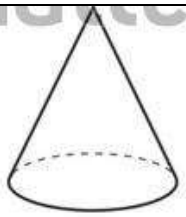
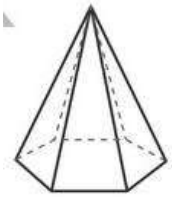
Table 1. Comparison Product Design Approach Neotonic Design

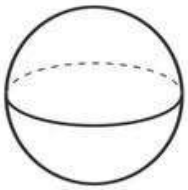
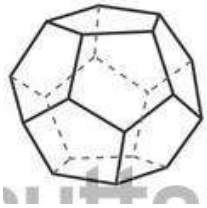
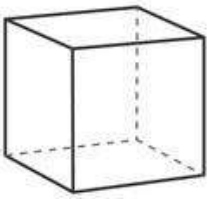
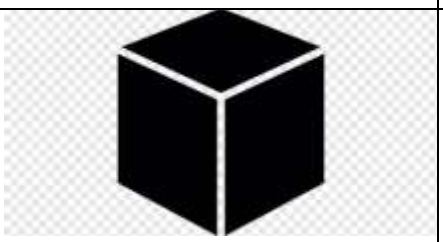
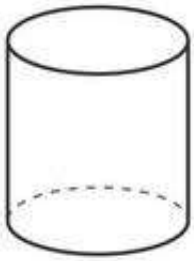
		Dimen sions	**Yield (%)**
vs. Small large (H1a)	 Type: Car https://www.otoflik.com/mobil-small-murah/	 Type: Car https://detailmobil.com/harga-mobil-toyota-hiace-dan-specification/	80 % : Small 20%: Large More than 50% of female respondents chose small

 Type: Car https://www.otoflik.com/mobil-small-murah/	 Type: Car https://www.otosia.com / news / humm er-6-tire-claim-modifikator- jepang.html
 Type: Small Mug https://id.aliexpress.com/item/4000761023602. html	 type: large mug https:// www.blibli.com/amp/p/besar--andante ceramic mug-great-color- mug -large-ceramic-530ml/pc--MTA-10431609
 Type: Travel Bag https://www.lazada.co.id/products/tas-travel- polo-size-small-black-sedia-travel-bag-tas-	 Type: Travel Bag https://www.tokopedia.com/rekomen dasi/1966439499?ref=google shopping &c=10565233359&m=466490740 &p=1

Table 2. Comparison of Geometric Shapes Approaches to Neotonic Design

		Dimensions	**Yield (%)**
vs. Small large (H1a)			85 %: Small 15 %: Large More than 50% of female respondents chose small
			
			
			
Round vs. pointed (H1b)			75%: Round 25%: Sharp More than 50% of female respondents chose round
			

			
Simple vs. complicated (H1c)			80%: Complex 20%: Simple

			More than 50% of female respondents chose complicated
Light vs. dark (H1d)			60%: Light 40%: Dark More than 50% of respondents maclehose dark
			
			

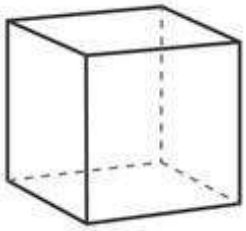
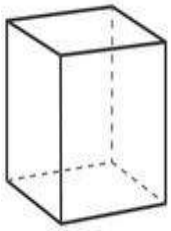
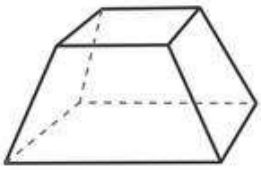
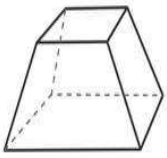
Width vs. narrow **/slim (H1e)**			70%: Wide 30%: Narrow More than 50% of female respondents chose small
			

Table 1 and Table 2 show that the first hypothesis (H1) is not fully proven. Differences in perception of cuteness are found in various dimensions. Small objects are considered funnier than large objects (H1a); round objects are considered funnier than pointed ones (H1b); wide objects are considered funnier than tall ones (H1e); light colored objects are considered funnier than dark ones (H1d); but complex shapes are considered funnier than simpler ones (H1c).

The results of testing the first hypothesis are then used as the basis for testing the second hypothesis (H2) where cute shapes support a positive assessment of the aesthetic appearance of the product which is focused on small, round, wide, bright, and complicated dimensions.

An interesting fact is in the H1d test: light vs dark. There are differences of opinion between women and men. In the final result, the majority stated that light is funnier than dark, but compared to other tests, the number of male respondents who chose dark was more than women (more than 50% of the number of men). This is interesting to investigate further.

V. Conclusion

Research shows that small, round, wide, bright, and complex dimensions are the main markers of consumers' positive (funny) evaluation of product design. The five dimensions above show that funny/neotonic designs are an important factor in positive evaluation of the aesthetics of a product design. The results of the study also show that there are differences in the assessments between women and men on light and dark elements. This can be the basis for further research.

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