

Influence of Social Connectedness and Autonomy on Aesthetic Pleasure for Product Designs

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Abstract

In previous research, we found that people use product designs to feel connected to and autonomous from their ‘type of people’ and when product designs do they are aesthetically pleasing. From an evolutionary perspective, product designs provide aesthetic pleasure because they help direct beneficial behavior. We argue that people can fulfill their evolutionary need for safety through product designs that make them feel connected, and the need for accomplishment through product designs that help them feel autonomous. Accordingly, we assessed whether conditions of safety and accomplishment influence the relationships of connectedness and autonomy with aesthetic pleasure. In two studies, we show that regulatory focus and risk manipulation moderate the effects of connectedness and autonomy on aesthetic pleasure for product designs.

Keywords: Aesthetic pleasure; connectedness and autonomy; product design.

Introduction

Products are used as social cues, communicating about the self to others (Belk, 1988; Dittmar, 1992; Kleine, Kleine, Kernan, 1992). For example, a person in a stylish grey raincoat is perceived as being serious while a person wearing a bright and colorful pair of sneakers is perceived as being playful. Similarly, the first person can be perceived as being a businessman while the second person is perceived to be a skater. Hence, group membership can be communicated through product designs. With regard to the latter, personality and social psychology describe an inherent social need that could explain the use of product designs to communicate group membership; the need for connectedness. The need for connectedness is described as an inherent social need that involves the desire to feel connected to others (Deci & Ryan, 2000) and have a sense of closeness with others (Brewer, 1991; Baumeister & Leary, 1995). Feeling connected to people makes the person feel safe within a social position. For example, working on a MacBook Air makes me feel connected to the Design Research community, which consequently provides me with the feeling of safety and comfort. On the other hand, people also have an inherent need to feel autonomous. The need for autonomy (Lynn & Snyder, 2002; Lynn & Harris, 1997b; Snyder & Fromkin, 1977) involves a desire to see oneself as a unique and differentiated being and as being free and in control of one

self (Brewer, 1991; Deci & Ryan, 2000; Bettencourt & Sheldon, 2001; Lynn & Harris, 1997; Lynn & Snyder, 2002). This helps people to stand out and draw attention, but also provides the means to explore new social positions within an ever-changing social world. For example, I will wear a classic jacket to go with my black dress to a conference, but this jacket is bright pink. This jacket makes me feel connected to my colleagues in research, because it is professional looking; however, it also makes me feel autonomous from them, because the color makes it a bit more playful. Hence, product designs can help people to feel connected to people they feel affiliated with (‘my type of people’) or to feel autonomous from that same group of people. Prior empirical work showed that people can indeed feel connected or autonomous through product designs (Blijlevens & Hekkert, 2013). Moreover, both connectedness and autonomy positively influence aesthetic pleasure for product designs. In order to be able to provide an explanation for these relationships we adopt an evolutionary psychological perspective to aesthetic pleasure.

Evolutionary view on aesthetic pleasure

From an evolutionary psychological perspective, aesthetic pleasure directs beneficial behavior for people’s survival (Tooby & Cosmides, 2001; Johnston, 2003; Lindgaard & Whitfield, 2004). More specifically, it is argued that people’s behavior is modulated by aesthetic pleasure through reward systems in the brain that are activated with behavior that is positive for people’s survival (Grinde, 1996; Lindgaard & Whitfield, 2004), which motivates people to conduct such behavior. Previous research has theorized that basic evolutionary needs, such as the needs for safety and accomplishment, still direct people’s behavior today (Griskevicius & Kenrick, 2013) and explain aesthetic pleasure derived from objects of today’s world, including product designs, art and other manmade objects (Hekkert, 2006; Hekkert, 2014). Both relatively opposite goal driven safety seeking behaviors and accomplishment seeking behaviors are marked by pleasurable feelings, because they are beneficial for the survival of the human species. Hence, it is argued that product designs that help optimize safety and accomplishment are the most aesthetically pleasing.

Safety/risk and connectedness and autonomy

People have evolved into social human beings and thus need to survive within this social world (Tooby and Cosmides, 1992). We, therefore, expect that the evolutionary needs for safety and accomplishment are at play on a social level as well. Accordingly, it can be argued the need for safety is, on a social level, fulfilled through fulfilling the need for connectedness and the need for accomplishment is, on a social level, fulfilled through fulfilling the need for autonomy. Consequently, as previous research showed, product designs that fulfill the need for connectedness are aesthetically pleasing while product designs that fulfill the need for autonomy are aesthetically pleasing as well (Blijlevens & Hekkert, 2013). If the basic needs for safety and accomplishment indeed explain the relationships of connectedness and autonomy with aesthetic pleasure for designs then conditions of safety versus accomplishment should influence the relative importance of connectedness and autonomy in explaining aesthetic pleasure. In two studies we set out to assess whether safety versus accomplishment moderates the relationships of connectedness and autonomy with aesthetic pleasure. In the first study we assessed the effect of Regulatory Focus while in the second study we manipulated feeling of safety/risk.

Study 1

Regulatory Focus Fit (Higgins, 1997) is experienced when there is a fit between someone's goal and the means with which someone approaches his/her goal. Some people are more prevention focused and goals thus focus on safety and responsibilities, while other people are more promotion focused and their goals focus more on hopes and accomplishments. When the approach to attain the goals fits with the type of goals, it is marked by a positive experience, which may then be attributed to the approach itself (Avnet & Higgins, 2003). People (sometimes depending on situations) are either prevention or promotion focused. We argue that when it is someone's goal to attain safety, and a product design makes him/her connected, there is a match in goal and approach, which is then marked by a positive experience that is attributed to the product design and thus leads to positive aesthetic pleasure for the product design. Similarly, when it is someone's goal to attain hopes and accomplishments, and a product design makes them feel autonomous, there is a match in goal and approach, which then ultimately leads to positive aesthetic appreciation for the product design. Hence, we expect that for people with a prevention focus connectedness influences aesthetic pleasure more and autonomy influences aesthetic pleasure less than for people with a promotion focus.

Method

Participants

Students of the Automotive Design minor at the faculty of Industrial Design Engineering (Delft University of

Technology, The Netherlands) participated in this study (N = 33, mean age = 23.04, SD = 1.34, 22 male).

Stimuli

We chose to use product designs from the product category sneakers, because they have social relevance. Nine product designs were chosen that together represented the broad range of product designs that are currently found within the market and thus varied on many physical design aspects, such as color, shape and materials used.

Procedure

First, participants rated product designs on aesthetic pleasure with the items: "this is an attractive [sneaker]", "this [sneaker] is pleasing to see", and "I like to look at this [sneaker]".

Before participants were asked to rate product designs on connectedness and autonomy, participants received the following explanation to assure they rate the product designs on connectedness and autonomy with reference to the group of people they feel affiliated with ("type of people"):

"You will be asked to rate product designs on what they mean to you in relation to your 'type of people'. With your 'type of people', we refer to the people to whom you reflect yourself and that you compare yourself with. They are more or less like you and you feel a good fit with them. Sometimes they are easily defined (e.g., businessmen, students), but often you can't. However, you do probably have a clear idea of who your type of people are. When answering the following questions please keep your type of people in mind. Please, take some time to think of who your type of people are."

Connectedness is measured with: "This product design makes me feel connected to my type of people", "This product design shows that I take the opinions into account of my type of people" and "This product design shows that I am similar to my type of people". Autonomy is measured with the items: "This product design helps to emphasize my individuality towards my type of people", "This product design helps to distinguish myself from my type of people" and "This product design communicates to my type of people that I do my own thing".

Functionality was measured to statistically correct for confounds. The items to measure functionality were: "this product design is functional", "this product design is easy to use", "this product design is user-friendly". Finally, participants were asked to fill in a questionnaire measuring Chronic Regulatory Focus by Summerville and Roes (2008).

Results

General Least Squares hierarchical regression model was fitted on aesthetic pleasure as dependent variable with the independent variables connectedness and autonomy and the covariate functionality in step one and dummy variable Regulatory Focus (constructed from difference scores; 0 = prevention focus and 1 = promotion focus) and all interaction terms as independent variables in step two. The second

regression model showed a significant change in ΔR^2 ($\Delta R^2 = .014$, $p < .05$). As expected, the results revealed that both connectedness and autonomy positively influenced aesthetic pleasure for product designs. Moreover, regulatory focus and connectedness showed a significant interaction effect on aesthetic pleasure ($R^2 = .61$, $F(6,245) = 63.477$, $\beta_{connectedness} = .811$, $p < .01$, $\beta_{autonomy} = .150$, $p < 0.05$, $\beta_{functionality} = .136$, $p < 0.01$, $\beta_{RF} = -.01$, ns, $\beta_{connectedness \times RF} = -.152$, $p < .01$, $\beta_{autonomy \times RF} = .001$, ns). As expected, connectedness had a larger effect on aesthetic pleasure for people with a prevention focus, ($\beta_{connectedness} = .815$, $p < .001$, $\beta_{autonomy} = .137$, $p < .01$; $\beta_{functionality} = .138$, $p < .05$) than for people with a promotion focus ($\beta_{connectedness} = .572$, $p < .001$; $\beta_{autonomy} = .163$, $p < .05$, $\beta_{functionality} = .136$, ns).

We were able to replicate the effect that connectedness and autonomy positively influence aesthetic pleasure. Moreover, we found that the effect of connectedness is moderated by regulatory focus. When people are prevention focused, connectedness influences aesthetic pleasure more than for people who are promotion focused.

Study 2

In this study, we decided to manipulate risk to provide additional proof that safety/accomplishment moderates the effect of connectedness and autonomy on aesthetic pleasure. We manipulated level of risk through creating conditions of either safety or risk. In the risky condition, participants were told that their ratings of product designs would be shared with other participants, that the product designs would actually be introduced to the market based on their ratings, and that they would have to justify their ratings afterwards. In the safe condition, anonymity of participation and participation ‘for research only’ purposes were emphasized in the introduction of the questionnaire.

Method

Participants

A total of 200 participants from a consumer panel participated in this research. Participants received reward points for participation that can be exchanged for goods in an online shop when enough reward points are saved; a common compensation for participants from this consumer panel (mean age = 32,8, SD = 7,9, 101 male).

Stimuli

We chose to use product designs from the product category backpacks because they are considered to have social relevance. Six product designs were chosen that together represented the broad range of product designs that are currently found within the market and thus varied on many physical design aspects, such as color, shape and materials used. We chose to use six stimuli, but introduced two practice back pack stimuli, because prior post-interviews informed us that people get a better idea in their head of who ‘their type of people’ are after they have rated two designs.

Procedure

First, participants rated product designs on connectedness and autonomy in the same way as in Study 1. Participants

were randomly assigned to the risk or the safe condition. In the risk condition, the questionnaire had the look as if administered by the fictitious company ‘Allbags’. We created a logo that was visible on each questionnaire page and the overall colors used throughout the questionnaire were in congruence with the brand logo. Furthermore, after having rated the backpacks on connectedness and autonomy, but prior to rating the aesthetic pleasure of the designs, the participants read an introduction explaining that their ratings of product designs would be shared with other participants, that the product designs would actually be introduced to the market based on their ratings, and that they would have to justify their ratings afterwards. In the safe condition, the questionnaire contained the TU Delft logo and colors and anonymity of participation and participation ‘for research only’ purposes were emphasized in the instruction of the questionnaire. They were also told that they would be asked to answer some general questions in essay form after rating of backpacks, in order to keep anticipated workload the same across conditions. After this instruction, participants were asked to rate the backpacks on aesthetic pleasure with the same items as used in Study 1. To reduce confound effects the participants also rated the backpacks on functionality with the same items as used in Study 1.

Results

General Least Squares hierarchical regression model was fitted on aesthetic pleasure as dependent variable with the independent variables connectedness and autonomy and the covariate functionality in step one and dummy variable Risk (0 = safe and 1 = risk) and all interaction terms as independent variables in step two. The second regression model showed a significant change in ΔR^2 ($\Delta R^2 = .003$, $p < .05$). As expected, the results revealed that both connectedness and autonomy positively influenced aesthetic pleasure for product designs. Moreover, risk and autonomy showed a significant interaction effect on aesthetic pleasure ($R^2 = .536$, $F(6,1199) = 229.51$, $\beta_{connectedness} = .191$, $p < 0.01$, $\beta_{autonomy} = .300$, $p < 0.01$, $\beta_{functionality} = .496$, $p < 0.01$, $\beta_{risk} = -.013$, ns, $\beta_{connectedness \times risk} = .02$, ns, $\beta_{autonomy \times risk} = -.094$, $p < 0.01$). As expected, autonomy had a larger effect on aesthetic pleasure for people in the safe condition, ($\beta_{connectedness} = .206$, $p < .001$, $\beta_{autonomy} = .282$, $p < .01$; $\beta_{functionality} = .417$, $p < .05$) than for people in the risky condition ($\beta_{connectedness} = .204$, $p < .001$; $\beta_{autonomy} = .179$, $p < .01$, $\beta_{functionality} = .573$, $p < .01$).

Again, we were able to replicate the effects that connectedness and autonomy positively influence aesthetic pleasure. Moreover, we found that the effect of autonomy is moderated by risk. When people were in the safe condition, autonomy influences aesthetic pleasure more than for people who are in the risky condition.

General Discussion

In this research, we set out to show that the evolutionary needs for safety and accomplishment explain the positive effects that connectedness and autonomy have on aesthetic pleasure for product designs. We managed to replicate the

prior findings (Blijlevens & Hekkert, 2013) that connectedness and autonomy both positively influence aesthetic pleasure for product designs. Because we argue that these relationships are the result of fulfilling basic evolutionary needs for safety and accomplishment, we set out to assess whether safety and accomplishment moderate these relationships. As expected, in Study 1, we showed that people who are prevention focused appreciate connectedness more than people who are promotion focused. In study 2, we found that people in a safe condition prefer autonomy more than people in a risk condition. Hence, we can conclude that, indeed, product designs can fulfill the needs of safety and accomplishment on a social level by feeling connected and autonomous, respectively, through product designs, which consequently leads to positive aesthetic pleasure for those designs.

In Study 1, regulatory focus did not influence the effect of autonomy on aesthetic pleasure, while in Study 2, the risk manipulation did not influence the effect of connectedness on aesthetic pleasure. An explanation can be that the product categories themselves have a certain level of social risk (there are differences between categories in the level to which people find others' opinions on the design chosen within the category important) that influenced the relationships of connectedness and autonomy with aesthetic pleasure, which consequently mitigated the effect of the moderator. In previous research, we found differences in the influence of autonomy and connectedness between product categories that differ in social risk. It can be argued that, because sneakers (or shoes in general) are relatively socially risky, there is a higher overall need to fulfill the need for connectedness than autonomy (indeed the overall beta of autonomy was very low) and therefore an interaction effect with regulatory focus was only shown with connectedness. Similarly, backpacks are less socially risky and therefore people feel safe and are more motivated to express their autonomy rather than their connectedness and therefore an interaction effect of risk was only shown with autonomy. In future research this could be further explored.

This research does not only provide fundamental insights in how product design's social function influences aesthetic pleasure, but also provides designers with guidelines on how they can use product designs' social functions to create product designs that are aesthetically pleasing.

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References

- Avnet, T & Higgins, E.T. (2003). Locomotion, assessment, and regulatory fit: Value transfer from 'how' to 'what'. *Journal of Experimental Social Psychology* 39(5), 525-530.
- Baumeister, R.F., & Leary, M.R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, 117(3), 497-529.
- Belk, R.W. (1988). Possessions and the extended self. *Journal of Consumer Research*, 15(2), 139-168.
- Bettencourt, B.A., & Sheldon, K. (2001). Social roles as mechanisms for psychological need satisfaction within social groups. *Journal of Personality and Social Psychology*. 81(6), 1131-1143.
- Blijlevens, J. & Hekkert, P. (2013). The influence of a product's perceived social function on aesthetic pleasure for visual product designs. *Proceedings of Tagung experimentell arbeitender Psychologen* (conference of experimental psychologists), Vienna, Austria
- Brewer, M.B. (1991). The social self – On being the same and different at the same time. *Personality and Social Psychology Bulletin*. 17(5), 475-482.
- Deci, E.L., & Ryan, R.M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11(4), 227-268.
- Dittmar, H. (1992). *The Social Psychology of Material Possessions: To Have is to Be*. Hemel Hempstead: Harvester Wheatsheaf.
- Grinde, B. (1996). The biology of visual aesthetics. *Journal of Social and Evolutionary Systems* 19(1), 31-40.
- Griskevicius, V., & Kenrick, D.T. (2013). Fundamental motives: How evolutionary needs influence consumer behavior. *Journal of Consumer Psychology*, 23(3), 372-386.
- Hekkert, P. (2006). Design aesthetics: Principles of pleasure in product design. *Psychology Science*, 48(2), 157-172.
- Hekkert, P. (2014). Aesthetic responses to design: A battle of impulses. In T. Smith & P. Tinio (Eds.), *The Cambridge Handbook of the Psychology of Aesthetics and the Arts* (pp. 277-299). Cambridge: Cambridge University Press.
- Higgins E.T. (1997). Beyond pleasure and pain. *American Psychologist*. 52(12), 1280–1300.
- Johnston, V. (2003). The origin and function of pleasure. *Cognition & Emotion*, 17(2), 167-179
- Kleine, R.E., Kleine, S.S., & Kernan, J.B. (1993). Mundane consumption and the self: A social-identity perspective. *Journal of Consumer Psychology* 2(3), 209-235.
- Lindgaard, G., & Whitfield, T.W.A. (2004). Integrating aesthetics within an evolutionary and psychological framework. *Theoretical Issues in Ergonomic Science* 5(1), 73-90.
- Lynn, M., & Harris, J. (1997a). The desire for unique consumer products: A new individual differences scale. *Psychology and Marketing*, 14(6), 601–616.

- Lynn, M., & Harris, J. (1997b). Individual differences in the pursuit of self-uniqueness through consumption. *Journal of Applied Social Psychology, 27*(21), 1861–1883.
- Lynn, M., & Snyder, C. R. (2002). Uniqueness seeking. In C. R. Snyder & S. J. Lopez (Eds.), *Handbook of positive psychology* (pp. 395-410). New York: Oxford University Press.
- Snyder C.R & Fromkin, H. L. (1977). Abnormality as a positive characteristic: The development and validation of a scale measuring need for uniqueness. *Journal of Abnormal Psychology, 86*(5), 518–527.
- Summerville, A., & Riese, N.J. (2008). Self-report measures of individual differences in regulatory focus: A cautionary note. *Journal of Research in Personality 42*(1), 247-24
- Tooby, J. & Cosmides, L. (2001). Does beauty build adapted minds? Toward an evolutionary theory of aesthetics, fiction and the arts. *SubStance, Issue 94/95, 30*(1), 6-27.