

THE EFFECT OF VISUAL SIMPLICITY IN PRODUCT DESIGN ON THE QUALITY AND AESTHETIC OF THE PRODUCT

^aBushra AbdulHamza Abbas

College of Administration and Economics University of Al-Qadisiyah, Iraq

Email: Bushra.abbas@qu.edu.iq

^bTaher Hameed Abbas Bahia

Al-Dewaniyah Technical Institute, Al- Furat Al-Awsat Technical University, Iraq

Email: dw.tah@atu.edu.iq

^cYousif Mousa Sabti

PhD Scholar, Al Muthana Provincial Council,

University of Al-Qadisiyah Faculty of Administration & Economics Department of Businesses Administration, Universiti Utara Malaysia

Email: 71yousifs@gmail.com, yousif_mousa@oyagsb.uum.edu.my

Abstract

Consumer' intention regarding purchasing the product has been varying day by day. There are so many factors to make positive intention in purchasing the product, so, in this regard; the main purpose of the study is to examine the positive effect of aesthetic product on product quality and also the positive effect of visual simplicity in a product on product quality. There were 250 individuals who took part in this study (41% female and 49 % male from Vegetable Oil Industry/AL-Mamoun Factory Iraq. Primary data through questionnaire has been used. Consumer purchase intention has three items, aesthetic of product has three items and visual simplicity has also three items. The findings show that aesthetic product has positive and significant effect in enhancing product quality. Similarly, visual simple in product has positive and significant effect product quality. The study has used cross-sectional design, in future; interview should be taken to obtain deeply responses from the consumers.

Keywords: Visual Simplicity, Product Design, Quality and Aesthetic of the Product.

Introduction

In order to complete assignments, immersive products support consumers. Using a user interface that enables users to tap pads, push buttons, or switch buttons on a control panel to enable different things to happen, the association between some of the user and those items is. The items, in turn, show their status, warn users regarding future actions, and request additional information, typically via displays. Home appliances, TVs, and smart phone apps are typical examples of these items. The effect of packaging of product as the most significant vehicle for communication about product quality to prospective consumers has been established by marketing research at the point of purchase (Garaus and Halkias 2019). On the other hand, since the essence of interactive goods is mostly software-based, in their reviews, the packaging of

the products does not represent consumers. The graphic design of the products, particularly their UI, which instead serve as the medium for communicating the quality of the product (Eytam et al . 2017). Product UIs allow consumers to assess the quality of the technologies contained in a product and how to utilize it, close to how elements of packaging design such as colour, form, and texture impact customer tastes (Garaus and Halkias 2019). The UI architecture communicates, or "signifies" (Norman 2008), pre-purchase details to prospective consumers regarding the app. A significant significance of the sophistication is the amount of elements used in the UI of a product (Mollerup, 2015), which we suggest has a huge impact on how consumers view the product (Eytam et al . 2017). In immersive product projects, this is the explanation why experts also recommend convenience. Because of our restricted information processing capacity (Zhao and Meyer 2007), they say that VS eases cognitive burden and increases processing fluency. On the other side, complicated architectures confront the consumer with unnecessary details, reducing productivity in processing (Mazzoni et al. 2014). Anecdotal data, however, indicates that individuals can actually favor designs that seem more abstract (Norman 2007). In the online marketplace, for example, because the search engine ads results page shows product photos, often advertisers actually have extra details, increasing sophistication to cater to prospective buyers (Wu et al. 2016). McFadden (2001) indicates that people's articulated desires are characteristics of their taste, understanding, and personal features. Friedmann and Lowengart (2013) illustrated that the use of personal traits in the purchasing consideration study enables advertisers to adapt their efforts to best meet the desires of particular buyers.

“Design plays an increasingly larger role today in creating consumer desire for products. However, the psychological processes involved are only partially understood” (Batra et al., 2016). In addition, Wang (2013) stressed that our knowledge of "how visual packaging influences the resulting commodity and brand judgments and expectations of customers is scant." This thesis centered on packaging design and sought to explore the fundamental process of the impact of visual simplicity in label design and product aesthetics on the intention of the customer to buy the product from the AL-Mamoun Factory General Company for the Vegetable Oil Industry in Iraq. So, the main purpose of the study is to examine the positive effect of aesthetic product on product quality and also the positive effect of visual simplicity in a product on product quality.

Literature Review

A potent interface factor is the VSL. It contributes to a concept's graphic sophistication or simplicity and is sometimes determined by a quick count of various design components. With simplicity in design at one end and sophistication at the other end, VSL may be represented as a spectrum. Initial impressions, feelings, and aesthetic tastes were found to be affected (Jang et al. 2018). While the researchers did not find agreement about how to quantify an interactive product's VSL (Wu et al . 2016), so, not only the number of items displayed, but also the visual diversity or knowledge rate of the visual stimulus are commonly specified (Deng and Poole

2010). So, Nadkarni and Gupta (2007) claim that VSL is an instance of individuals evaluating a design factor dependent on personal perspective and discriminating between objective and perceived VSL. Thus, there is a need to move beyond an analytical study and recognize the emotional impact goods create on prospective buyers in order to explain how this interpretation is created.

In addition to functional application (Hassenzahl 2004), since items such as interactive items (Tractinsky and Zmiri 2006) have been designed to satisfy hedonic motivations, the subjective interpretation of a concept is highly relevant (McFadden. 2001). This distinction of objective difficulty and its subjective perception relates to the difference between the concepts difficult and complicated by Norman (2010). He argued that although the word "complex" determines a condition of the universe, a state of mind is defined by the expression "complicated." This technique indicates the relevance of the viewpoint beholders have while measuring VSL.

The influence of VSL on customer reaction to virtual store designs has been discussed in some studies (Jang et al . 2018). We may draw parallels from such studies to the possible impact of simplicity or sophistication on reaction to interactive goods. In both instances, to conclude regarding the shop (Jang et al . 2018) or product (Eytam et al . 2017), customers focus on graphic design. Jang et al . (2018) propose that when researching VSL effects, the interaction of customers with the product form should be taken into consideration. Eytam et al . (2017) demonstrate that perceived VSL is inferred from either a systemic or interpersonal interpretation of the design study. Both viewpoints focus on evaluating the amount of controls used in the product design that enable a consumer to interface with the goods (keyboard and push buttons). The assumed VSL is completed from a clear count of the amount of these characteristics in the architecture, centered on a structural viewpoint. It is judged from a behavioral viewpoint by mapping behaviors to the controls. Because the type of research relies on a particular viewpoint, from identical product designs, various persons may infer distinct attributes.

Therefore, in human distinctions (heterogeneity), a potential answer to the paradox of simplicity resides. For example, although certain people, particularly because these goods are creative, are drawn to technical products, others might be hesitant to use them (Thompson et al . 2006). Thus, while certain people can view a complicated product design as challenging to use because there have been so numerous controls, others, that have been more technology oriented, might consider it different since, as per their viewpoint, many controls were mapped to many behavior, and the product, as indicated by Norman (1988), is therefore simpler to use.

Dillon and Watson (1996) suggested that secure features that affect contact with technology are human variations. The understanding of product characteristics and specific preferences is influenced by these variations. Some people are motivated to acquire new skills and do not like directions which were too explicit so they want to work out problems themselves, and if help is offered, they may also get frustrated (Mun et al . 2006). "A" Aid "function may be appreciated

by those who prefer to pursue assistance in completing the task (Nurkka 2008). Although some people pay greater attention to realistic uses, others emphasize hedonistic factors (Ahmad 2012). Some people appreciate simplicity of use, whilst others, often at the expense of more complex use, want higher efficiency (Thompson et al . 2006).

H1: The effect of visual simplicity on product quality

Visual Product Aesthetics

In evaluating aesthetic attractiveness, Visual Product Aesthetics (VPA) is a potent element (Mollerup, 2015). Within the same couple of seconds of seeing the concept, the impact on aesthetic evaluations takes place (Lindgaard et al., 2006). Since VSL has aesthetic effects, the amount of controls used in the design of a product affects the aesthetic experience of that product (Karvonen, 2000). Since the aesthetic value from either complexity or simplicity is impacted by cultural meaning, based on the beholder 's mindset and experience, both complexity and simplicity may be viewed as having strong aesthetic value. Minimalism, for instance, is an art and architecture movement that claims that the greatest influence is generated by the easiest and fewest components (AsencioCerver, 1997). In several societies, most especially in Japan and (Scandinavia (Mollerup, 2015), the notion of the strong aesthetic importance of simplicity emerges. In comparison, it is ambiguity and dense visual movement that are deemed aesthetic in some societies, such as certain Asian cultures (Wroblewski, 2006). Around the globe, Reinecke and Gajos (2014) researched visual perceptions. They report substantial cultural diversity in the choice of VSL for users. Nevertheless, in most countries have observed, an inverted U-shape will better describe the relation between visual appeal levels and VSL. Berlyne (1974) agrees with this inverted U-curve, showing that people always perceive medium VSL to be the most aesthetic.

Nasar, (1994) stated that in making a sense of physical objects in general especially in digital goods, aesthetics is a vital factor (Tractinsky, 2013). Tractinsky and Zmiri (2006) indicated that beauty was the foundation of their preference for more subjects than functionality. The interpretation of product qualities is often influenced by the sensual sensation a product elicits (Mahlke et al., 2007). For instance, researchers have found that if they find it aesthetically appealing, consumers are likely to view a product as more in working condition, both before (Tractinsky, 1997) as we;; as after (Tractinsky et al . , 2000) the encounter. Since it is such a significant factor in product selection, and since VSL has aesthetic consequences, in our study of the simplicity paradox, we provide aesthetic evaluations.

Consumer aesthetics are a valuable factor and not only a product, but also value and knowledge are bought by many customers. Inferred product design by customers is largely linked to how they communicate with the product. In general, the principle of VPA plays a central role in ideas regarding the product's sensory disposition (Workman and Caldwell, 2007). Moreover, visual aesthetics are one of the most significant influences that in several cases influence user experience. An excellent product concept tends to separate brands from their competition and

encourages the market to create a distinction (Bloch et al., 2003). In addition, product design may have a positive effect on the individual's quality of life (Crilly et al., 2004). Further, visual aesthetics with a symbolic function and can influence product appraisal. Visual consumers can overshadow aesthetic factors greater than other consumers during the processing of product selection (Workman and Caldwell, 2007).

In line with this data, in order to understand customer buying decisions, the importance of aesthetics in goods is important. The significance of VPA refers to overall degree of importance of the visual aesthetics relation between consumers and products (Bloch et al., 2003). The importance of visual product aesthetics often demonstrates that the cosmetic benefits offered by the product are of enduring importance. Four associated components comprise the importance of VPA (Bloch et al., 2003):

- 1) Meaning given by the presence of the commodity.
- 2) The acumen, identification ability, description and assessment of product design.
- 3) Level of response to graphic design types of goods and types of visual design.
- 4) Concept of visual aesthetics that affects the choice of product and the feeling of happiness in the buying phase.

Brand architecture is both a central part of the marketing mix and the consumer's first point of touch. A lasting image of a commodity may also be effectively generated through product design (Kumar and Garg, 2010). Product design influences the decision-making process of customers (Veryzer, 1999) through feelings (Kumar and Garg, 2010). In addition, aesthetic product design variables may be difficult because aesthetics play a crucial role in product interpretation, product identity and product use (Veryzer, 1995). A successful concept improves the experience of use; it thus brings value to the object and draws buyers (Bloch, 1995).

H2: The impact of product attractiveness on product quality

Methodology

Sample

There were 250 individuals who took part in this study (41% female and 49 % male, age 21-57). Respondents were selected by applying a convenience sample through employees for a data analysis course at General Company for Vegetable Oil Industry/AL-Mamoun Factory Iraq. Volunteered employees were to complete a questionnaire with an extra surveys accomplished by their family and friends to collect the data for completing a research. Simple random sampling technique has been used to collect the data.

Instrument

Product quality has three items, aesthetic of product has three items and visual simplicity has also three items.

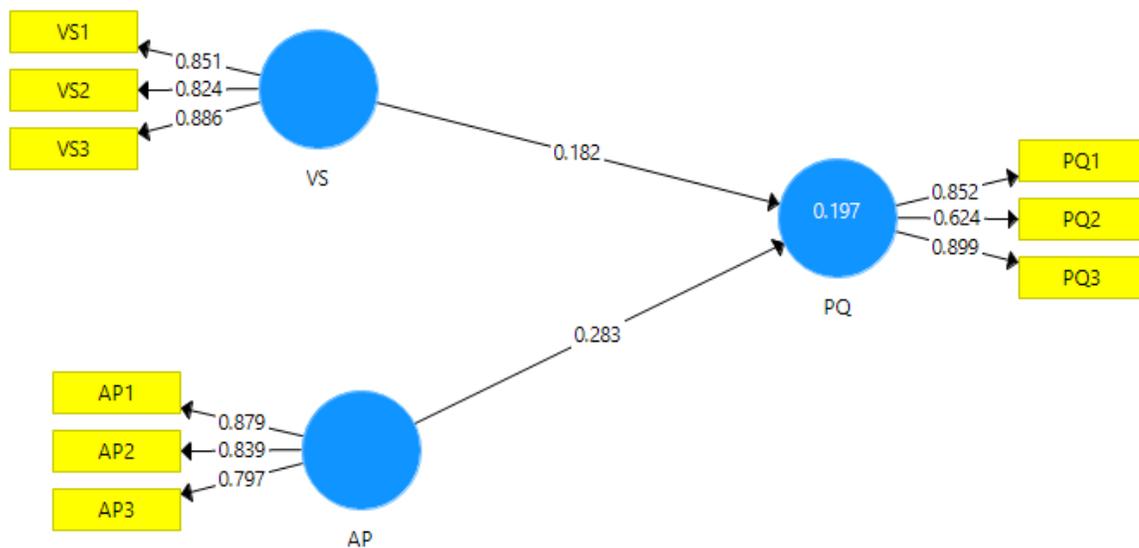
Measurement

The composite reliability value should have been at least 0.70 and AVE should be at least 0.50. In Table 4.1, provided below, all the constructs include high reliability and the value of AVE is higher than threshold point 0.50, indicating the reliability. Alpha value; 'alpha > 0.9- Outstanding, alpha < 0.8- Fine, alpha < 0.7 is appropriate.' Table 1 reveals that all Cronbach's Alpha build values are > 0.7. In addition, external accuracy is calculated by discriminant validity, the similarity between the latent variables. In factor loading, the value of all elements is greater than 0.5 and others removed. Furthermore, Table 4.1 displays the similarities between the values of each vector, bolded in diagonal, of all constructs < square root.

Table 4.1

Internal Consistency

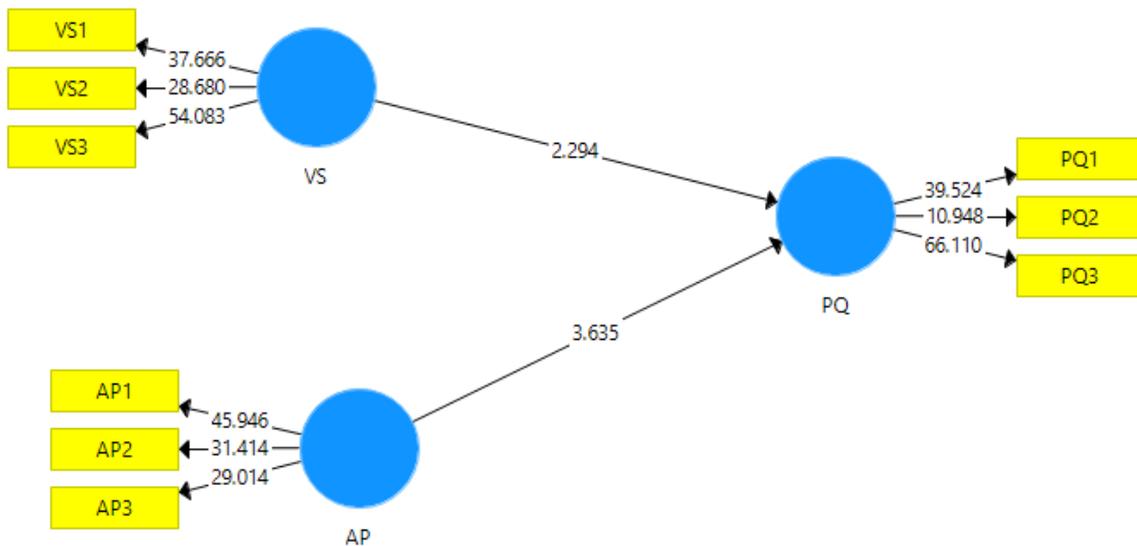
Constructs	Cronbach's Alpha	CR	AVE
AP	0.789	0.877	0.704
PQ	0.721	0.84	0.641
VS	0.815	0.89	0.729



This analysis presumed discriminant validity to assert the external consistency to establish discriminant validity, based on the relation with the latent variables as seen in Table 4.2, which summarizes the AVE of the variables: aesthetic product =0.839; product quality =0.801; and virtual simplicity is 0.854.

Table 4.2
Discriminant Validity

Constructs	AP	PQ	VS
AP	0.839		
PQ	0.431	0.801	
VS	0.816	0.413	0.854



At the outset, table 4.3 shown that hypothesis 1 predicted that aesthetic product has positive effect on product quality ($\beta=0.283$, $t=3.629$, $p=0.000$) supported hypothesis 1. Hypothesis 2 predicted that virtual simplicity in a product has also positive effect on product quality ($\beta=0.182$, $t=2.321$, $p=0.02$) supported hypothesis 2.

Table 4.3
Direct Effect

	Original Sample	Sample Mean	Standard Deviation	T Statistics	P Values
AP -> PQ	0.283	0.284	0.078	3.629	0
VS -> PQ	0.182	0.182	0.078	2.321	0.02

Table 4.4 has shown the predictive relevance of 0.113 for the product quality demonstrated predictive relevance of the model. If Q^2 value is > zero the model would be predictive relevance.

Table 4.5

$Q^2 (=1-SSE/SSO)$

	SSO	SSE	$Q^2 (=1-SSE/SSO)$
AP	1,170.00	1,170.00	
PQ	1,170.00	1,037.40	0.113
VS	1,170.00	1,170.00	

Discussion

The main purpose of the study is to examine the positive effect of aesthetic product on product quality and also the positive effect of visual simplicity in a product on product quality General Company for Vegetable Oil Industry/AL-Mamoun Factory Iraq. Hypothesis 1 predicted that aesthetic product has positive effect on product quality ($\beta=0.283$, $t=3.629$, $p=0.000$) supported hypothesis 1. Hypothesis 2 predicted that virtual simplicity in a product has also positive effect on product quality ($\beta=0.182$, $t=2.321$, $p=0.02$) supported hypothesis 2.

Previous experiments have shown that VSL's subjective interpretation (Nadkarni and Gupta 2007) transforms into a perceived product consistency (Eytam et al. 2017). We however anticipated that individual future variation of individual features would contribute to discrepancies in the virtual product assessment method. In order to evaluate their effect on quality of perceived product and on choice development, we used demographic factors (age and gender) and person differences. The general assessment of VSL is mentioned below, and then we address the impact of human variations on product attribute decisions and choice creation.

Our aggregate data study with the basic stimulus showed that all commodity characteristics were taken into account by respondents. Functionality was never an essential trait per se, but as part of a holistic approach, it was judged instead. Participants paid attention to ease of usage and aesthetics when evaluating the dynamic stimulus, lacking functionality concerns. For respondents with transactions, but not with consumption plans, Eytam et al. (2017) stated about related assessment trend. In complex stimulus assessments, overlooking functionality concerns may suggest how the paradox of simplicity was created. Goodman and Irmak (2013) claim that before buying multifunctional goods, customers frequently struggle to predict their functionality utilisation rate. Thus, with all their virtues, basic goods are meticulously scrutinised. In addition, simplistic products are believed to have strong quality because sophistication is synonymous with elevated product capability (Thompson et al. 2005); these things are also less rigorously tested.

Ease-of-use and aesthetic aspects were comparatively relevant in the study of both basic and complex stimuli, as indicated by a previous comprehensive body of research (Tractinsky and Zmiri 2006). There was a high association between the scores of both values (Eytam et al. 2017). We argue that these similarities indicate the insightful function of aesthetics, and that

aesthetic assessments may serve as a guideline for instrumental decisions (Tractinsky 2012). In the assessment of complex stimuli, the associations between ease of use and aesthetics were particularly strong. Our respondents may have depended on their aesthetic assessments to reaffirm their perception of the ease of use of these stimuli without believing the ease of use of the dynamic designs that are sometimes correlated with challenging use (Thompson et al . 2005).

As Eytam et al .(2017) have already stated, respondents did not necessarily prefer complex over basic stimuli. Still, when the study involved personality distinctions, attribute assessments, the relative value of attributes in the appraisal method, and choice for the numerous VSLs were affected. Based on individual distinctions, assigning participants to experimental groups helped us to distinguish certain profile of respondents who have a more positive experience of the complex stimuli. In the subsequent sections, we address the influence on the assessment method of assigning participants to experimental categories on the basis of their personality traits.

Managerial Implications

The more comprehensive description of the implementation of a graphic design approach for digital goods applies to the immediate marketing consequences that can be taken from this analysis. The modulation of the degree of VSL used suggests that as advertisers create a new interactive product, they should pay attention to the amount of design controls to communicate the product 's ideal appearance to cater to various classes of customers. Although a more comprehensive package with several controls is favoured by some customers, others choose a more "lean" figure. Accounting for market heterogeneity is also a significant consideration to address in the successful usage of VSL architecture.

Marketers can first find ways to recognize their audience to navigate this heterogeneity. For instance, age is a significant precursor to preferences in design. Although younger consumers can see some benefits to a simple design, like automation, their aesthetics evaluate a design. Older consumers are more concerned about considerations of ease of usage. It may also be helpful for advertisers to be able to determine the inclination of customers towards technology. For eg, since goods are meant for technology-savvy users (e.g., players, programmers), "more is more," in general. That is, a larger range of controls will increase the acceptability and choice of the product. In comparison, "more" becomes "less" for customers who are not technically adept or for novices in the context that more controls are viewed as difficult to use, daunting, and, as a consequence, less effective.

References

- Ahmad N (2012) Utilitarian and hedonic values of mobile services: a preliminary analysis from the users' perspective. *Bus Acc Rev* 9:69–83.
- Batra, R., Seifert, C. and Brei, D. (2016), *The Psychology of Design – Creating Consumer Appeal*, Routledge, New York, NY.

- Bloch, P.H., (1995). Seeking the ideal form: Product design and consumer response, *Journal of Marketing* 59, 16-29.
- Bloch, P.T., Brunel, F.F., Arnold, T.J., (2003). Individual differences in the centrality of visual product aesthetics: Concept and measurement, *Journal of Consumer Research* 29, 551-565.
- Crilly, N., Moultrie, J., Clarkson, P.J., (2004). Seeing things: consumer response to the visual domain in product design, Elsevier - *Design Studies* 25, 547-577.
- Deng L, Poole MS (2010) Affect in web interfaces: a study of the impacts of web page visual complexity and order. *MIS Q* 1:711–730.
- Dillon A, Watson C (1996) User analysis in HCI—the historical lessons from individual differences research. *Int J Hum Comput Stud* 45(6):619–637.
- Eytam E, Tractinsky N, Lowengart O (2017) The paradox of simplicity: effects of role on the preference and choice of product visual simplicity level. *Int J Hum Comput Stud* 105:43–55.
- Friedmann E, Lowengart O (2013) Gender differences in the effects of a product's utilities and identity consumption on purchase intentions. *J Bus Manag* 19(2):5–19.
- Fukuda K, Vogel EK (2009) Human variation in overriding attentional capture. *J Neurosci* 29(27):8726–8733.
- Garaus, M., & Halkias, G. (2020). One color fits all: product category color norms and (a) typical package colors. *Review of Managerial Science*, 14(5), 1077-1099.
- Jang JY, Bæk E, Yoon SY, Choo HJ (2018) Store design: visual complexity and consumer responses. *Int J Des* 12(2):105–118.
- Kumar, M., Garg, N., (2010). Aesthetic principles and cognitive emotion appraisals: How much of the beauty lies in the eye of the beholder?, *Journal of Consumer Psychology* 20, 485-494.
- McFadden DL (2001) Economic choices. *Am Econ Rev* 91(3):351–378.
- Mollerup P (2015) *Simplicity: a matter of design*. BIS Publishers, Amsterdam.
- Mun YY, Jackson JD, Park JS, Probst JC (2006) Understanding information technology acceptance by individual professionals: toward an integrative view. *InfManag* 43(3):350–363.
- Nadkarni S, Gupta R (2007) A task-based model of perceived website complexity. *MIS Q* 31(3):501–524.
- Norman D (2004). Affordances and design. Unpublished article. <http://www.jnd.org/dn.mss/affordances-and-design.html>
- Norman DA (1988) *The psychology of everyday things*. Basic Books, New York.
- Norman DA (2010) *Living with complexity*. MIT Press, Cambridge, MA.
- Nurkka P (2008) The role of values and emotions in user experience. In: Demset PMA et al (eds) *Proceedings from the 6th conference on design and emotion*, 6–9 Oct 2008, Hong Kong.

- Thompson R, Compeau D, Higgins C (2006) Intentions to use information technologies: an integrative model. *J Org End User Comput (JOEUC)* 18(3):25–46.
- Veryzer, R. (1995), “Product design, aesthetics, and consumer research”, *Advances in Consumer Research*, Vol. 22, pp. 641-645.
- Wang, E. (2013), “The influence of visual packaging design on perceived food product quality, value, and brand preference”, *International Journal of Retail and Distribution Management*, Vol. 41 No. 10, pp. 805-816.
- Workman, J.E., Caldwell, L.F., (2007). Centrality of visual product aesthetics, tactile and uniqueness needs of fashion consumers, *International Journal of Consumer Studies* 31, 589–596.
- Wu K, Vassileva J, Zhao Y, Noorian Z, Waldner W, Adaji I (2016) Complexity or simplicity? Designing product pictures for advertising in online marketplaces. *J Retail ConsumServ* 28:17 27.
- Zhao S, Meyer RJ (2007) Biases in predicting preferences for the whole visual patterns from product fragments. *J ConsumPsychol* 17(4):292–304.