The Role of Pleasure Criteria in Product Design: An Integrated Approach in Ergonomics and Hedonomics (A Review)

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Abstract This review article aims at analyzing the newest articles about product pleasure that expanded underneath of hedonomics subject. Hedonomis encounters product and environmental designers, services designer with new and efficient process that is expected to presenting an effective and favorable product or services. In this review article 4382 articles were extracted from the Emerald, Ebsco, Elsavior, Pubmed search engines in last decade published papers. By initial inclusion and exclusion criteria and abstracts reading twelve articles as the final ones were selected for in depth reading and analyzing. The main keywords for our search were "product", "design", "hedonomics" and "ergonomics". Our findings show the significance of interaction of ergonomics and hedonomics to achieve the functionality of pleasure and pleasant emotion in product design besides, with regarding recent review article, literature research, experiences about evaluating and ergonomic design, we suggest a model for pleasurable products design according to an integrated approach on ergonomics and hedonomics. In this model the triple engagement of design- product-consumer was regarded, and interface of these three subjects is showing the importance of ergonomics, hedonomics and the necessity of solidity conflation in product perception, needs, safety, desired, and consumer morality, with consideration aesthetic principal. Undoubtedly, the joy in use and product pleasure is center hub in relationship between product design and consumer, Which should be considered by designers.

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1. Introduction

Nowadays, user friendly and usable products, sustainable production, reliability and also marketing efficiency are known as some main factors in terms of product design and manufacturing. In this regards, the effective communication between product designers and employers are so prominent. Designers emphasize on aesthetes and also usability concepts and employers consider productivity and marketing competition, however both of them effort to make some effective conditions to have a valid situation for consumers. One of the main concepts which make an appropriated bridge between manufacturing bodies and costumers are products' feature and characteristics in which pleasure has a critical role. It means the pleasurable products might create a favorable condition for costumers and under this condition; some economics efficiency would be gained. In this regards the role of consumers and costumers are known as important factors for designers and manufacturers' bodies, however users' requirements and expectations about quality and usability make challengeable conditions for producers [1].

Many factories and manufacturers of consumer products, i.e. vehicles, household appliances, electronic devices and sport industries are working on quality to produce comfort and pleasurable products.

In fact, the growth and diversity of people's needs, people with different tastes and different array of products, has created a challenging conditions for growers Establishment of design and production, particularly from the perspective of market competition and attract customers. Today product manufactures are involving marketing, industrial design and product ergonomics more than before, in order to gather input on customers' needs, desires and buying intentions [1]. Customer satisfaction will be related to customers purchasing behavior, feelings and impressions. Meanwhile, the importance of "feelings" is more visible with entrance of "pleasure". In fact, customers purchase decisions are driven based on two types of needs, their functional needs and emotional needs. Product performance is achieved with the functional needs and emotional needs are associated with the psychological and product ownership aspects. Emotions are distinctive elements that should be added to product or service to bring it preference [2]. On the other hand given these factor can introducing better products, it will lead to

competitive advantages too [1]. In support of this important, Damasio (2001) has stated that, "most decisions are choices based on emotions"

The measurement of customers emotion is difficult, the assessment should be based on an understanding of how emotions occur in the context of daily life and how they can be measure, in this case customer satisfaction in product design are essential [3]. In this respect, peoples like Demirbilek and Sener discover concepts in products in order to convey a sense by design which aims to detect positive emotions in a product [3].

1.1. Definition of Pleasure

Scope and concept of "pleasure" in product is not easy and proves to be a comprehensive task as concept is a set of subjective experiences depends on our past experience, expectations, education and personality factors that make up our intimate character [4]. based on Oxford encyclopedia "a feeling of satisfaction or joy: sensuous enjoyment as an object of life" [5]. According to the Stanford dictionary definition,

"Pleasure in important applications, including behavioral psychology, ethical theory and the study of the mind, includes all joy and happiness and all our good feelings, or happy" (Stanford dictionary, 2013, http://plato.stanford.edu/entries/pleasure/).

It is often contrasted with similarly inclusive pain, or suffering, which is similarly thought of as including all our bad feeling. Jordan (1996) stated, "The emotional and hedonic benefits associated with product use", and in turn, 'displeasure' in product use, "The emotional and hedonic punishment associated with product use" [6].

1.2. Hedonomics

Hedonomics as a new branch of science has been defined by Hancock that facilitates and helped pleasurable or enjoyable aspects of human interaction - technology. Surly there is a firm connection between Hedonomics and Ergonomics. Also, It seems that hedonomic with Micro Ergonomics aims to reduce the damage, the injuries and physical symptoms are somewhat different, and perhaps contradictory, but hedonomy with other branches of modern ergonomics including cognitive ergonomics and perception are directly related [7,8] and [3]. Hedonomics, derived from two Greek roots, hedon [1] (e) meaning pleasure; and nomos meaning law-or rule [4,9].

Knowledge of Hedonomics is needed for several reasons. The first and most important, technology is that the rapid growth of technology making it nearly impossible in today's day and age for humans to escape from interacting with machine. We must ensure that human-machine interaction is not antagonist but synergistic and pleasurable (Hancock, 1997b). The second reason is creating a pleasurable and enjoyable experience are crucial for continued interaction and learning [4,6]. A science of hedonomics is focused on the positive impact of design on the user [4,10].

From Recent perspectives, the aims of ergonomics and Hedonomics from customer interaction perspective and product or functional interpretation of the product are the important interface of these two. The authors of this article believe that hedonomics with ergonomics has a close and double communication and this interaction, especially after the formation of new domains, including cognitive ergonomics, cultural and social ergonomics became much more serious and deeper [2]. Perhaps we can know the modern form of hedonomics growth through the development of new areas of ergonomics. The hedonomic hierarchy of needs (HH of N), presented in Figure 1, is a theoretical Framework aimed at promoting pleasurable interaction based on a design priority hierarchy. Based on Maslow's (1970) model of the optimization of human satisfaction through a hierarchy of needs that specifies that higher level needs can only be fulfilled after lower level needs are satisfied. This framework which is presented in Figure 1 specifies that the system must first be designed to be safe, functional, and usable before it can be designed to be pleasurable and uniquely designed for the individual. One of the key features of the framework is Individuation, and the initial principles suggested for achieving this goal which include: Hedonomic Affordances, Aesthetic Longevity, and Seamless Interaction [4]. "Usability", "pleasurable experience" and "individuation" are the hedonomic aspects in this system.
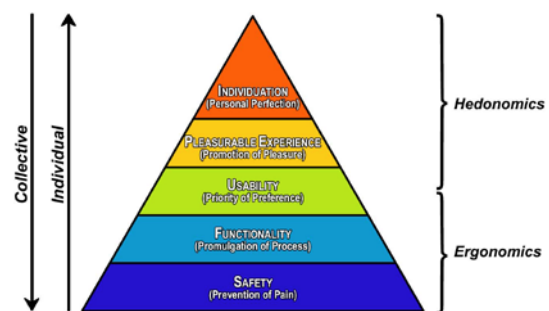

Figure 1. Hierarchy of hedonomics Needs (Hancock, Pepe, and Murphy 2005)

From this perspective there is little difference between hedonomics and ergonomics. The difference is that the hedonomic is more "personal" and is more focused on each person demands of interacting with the system while in ergonomic generally the emphasis is on legal aspects in product design. The authors believe that whatever the cognitive ergonomics and cultural ergonomics make more closely the distinctions are low[3].

1.3. Definition and Background Review of Emotion

For Descartes (1649), emotions were a collection of automatism and human behaviors different than cognitive processes. But many philosophers for the separation between reason and emotion put the emotions inside the materialism of the behavior. Following the studies of Charles Darwin, the Canadian psychologist named Paul Ekman (2007) has proved that an important feature of basic emotion is that they are universally expressed, by

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[1] in some sources it came as nomia or nomos, meaning "study" that is more preferred by authors.

[2] Sadeghi Naeini (1391). "from Hedonomics to ergonomics" Work Health and Safety Conference, Association of occupational health, Iran., May, University of Qazvin.
[3] Sadeghi Naeini (1391). "from Hedonomics to ergonomics" Work Health and Safety Conference, Association of occupational health, Iran., May, University of Qazvin.

everybody in any, time and culture, through similar method [2], Recently cognitive scientists conclude now that emotion is a necessary part of life, affecting how you feel, how you behave and how you think.. Indeed, emotion makes you smart without emotions; your decision-making ability would be weekends [11]. Evidence shows that attractive objects broaden people thought –action repertoires, encouraging them to discover novel lines of thought or action. So using products and structures that make you feel good, seem easier and caused similarity.

Nowadays isn't the product to be sold but focus is on relationship that is established between the client and the product. Fabris (2009) is stated that "the customer has changed skin or skin is changing, looking experiences rather than products or sensations and emotions rather than use values" [2].

Recently in the field of sales there are some trends showing that instead of stimulating consumption by oriented functions, products should pulled out user personal preferences and touch people's minds undoubtedly in practical application, properly apply emotional elements to product can help problem solving practically [12]. Jaasko & mattelmaki (2003) provides a framework for user experience which pleasure must satisfy two levels: the first level involves appearance (aesthetics) and user interface (usability). The second level extends to user personality (socio-cultural context), product meaning (time, historic context), environment (physical context), interaction (use context) and product novelty (market context) [13]. It is difficult to define pleasure because it is related to experiences, subjective perceptions and past experiences, education, hidden personality traits. Pleasure and painful are cross concepts, that there is no one without the other. pleasure can be satisfaction feeling, well-being and pleasant [4].

1.4. Continuing Pleasure

Helander (2006) offer a five assortment for pleasure:
1. Phisyio-pleasure: pleasures of the body. Sights, sounds, smells, taste, and touch. Phisyio-pleasure combines many aspects of the visceral level with some of the behavioral level.
2. Socio-pleasure: social pleasure derived from interaction with others. Jordan points out that many products play an important social role, either by design or by accident. All communication technologies-Whether telephone, cell phone, email, instant, messaging, or even regular mail- play important social roles by design.
3. psycho-pleasure: this aspect of pleasure deals with peoples reaction and psychological state during the use of products.
4. ideo-pleasure: this is where one appreciate the aesthetics, or the quality, or perhaps the extent to which a product enhance life and respects the environment
5. reflection pleasure: reflection of experiences and knowledge is created. The value of the product is its aesthetic and quality [9,11].

The most important features that contribute to the enjoyment of short-term pleasure use of the product include functionality, aesthetics, feel/ touch, product control, quality, safety, construction, Feedback, fun and

usability. That's why finding a complete set of principles for pleasure in product use is not possible. Traditional methods of the human factors use different ways for studying pleasure in product using [6].

The reality is that consumers enjoy from having or using a product is a transitory state. Today's favorite is that valuable product will be found in tomorrow's. The greatest challenge for product developers (PPR) is, not only to enhance the pleasure of person product relationship (PPR), but also ensure long-lasting enjoyment that will be created. Pleasure have as much to do with the character and needs of the individual, as with the design of the product, as a result not everyone experiences the same level of pleasure from the same product. Although there are many differences in how people respond to products, PPR is one of the factors that have significant impact on time. There is no guarantee that the pleasure felt at the beginning of the PPR will continue throughout the life of the product [9].

2. Material and Method

in this review article four search engines were used e.g:" Emerald", "Elsevior", "Pubmed", "Ebsco" with "product", "ergonomics", "hedonomics", "design" key words. which are presented in the 1, 2, 3, 4 tables in Appendix.

3. Results

As noted above, this article seeks to explore the relationship between product design and pleasure parameters With regard to what was mentioned in the Methods section, several articles were reviewed and analyzed by the search engine. That summary Publications is as follows:

A	**TITLE:** ethical products and consumer involvement: what s new? Authors: Valéry Bezençon, Sam Blili, 2008 **Aim:** the main aims in this articles were to understand who this ethical consumer is and what his motivations and attitudes toward ethical products are. attitudes and motivations along with antecedent socio-demographic variables converge into the notion of involvement is often considered as a "motivational state" (mittal, 1989) or unobservable "state of motivation" (Rothschild) The objectives of this research were the following: -to adapt and test a measurement model of consumer involvement in ethical products; and -to analyze several behavioral effects of consumer involvement with regard to ethical consumption The second objective follows the first in that the model developed beforehand will be used to measure the impact of involvement on selected behavioral variables related to ethical products. A third objective is, based on the findings related to the model on fair trade business models: -to understand the role of consumer involvement on fair trade business models and product competitiveness

METHOD:
All constructs, except ethical product adhesion, were easily operationalized by revisiting and adapting Mittal and lee s questionnaire items to the context of ethical products. The same five -point likert-type response formats from "fully disagree" to "fully agree" is used.

CONCLUSION:
The literature review showed that there was no best way to measure consumer involvement and its antecedents. Thus the key contributions of this research can be summarized as follows: first, the model developed distinguished product involvement from involvement in ethical augmentation providing a better understanding of ethical consumers. Then, the model combines the advantages of the multi- and uni- dimensional conceptions of involvement in order to explain its effects and its causes on the basis of a level. finally, from a practical perspective, the result provide the axes on which retailers should focus their communication about ethical products. in order to increase the robustness of the result, the model should be tested on product categories from different quadrants of the FCB grid, for example, organic products could be analyzed with this model, using an organic adhesion construct as an antecedent of the organic-decision involvement construct. organic adhesion would have other indicators representing the adhesion to the different principles of organic food(e.g. environment-friendly, healthy, etc)

B   **TITLE:** a framework for effective customer needs in product design
Authors: Halimahtun M.Khalid, Martin G Helander, 2004

AIM:
Authors of this article suggested that customer needs for a product are perceived in a similar way: however, the importance of the three levels will vary depending on the customer s experience of the product and the task environment in that it is used. also the study aims to investigate what product characteristics are preferred by customers in terms of good design based on their imagined or anticipated satisfaction with the product.

METHOD:
Rating instrument :a questionnaire was designed to gather customer information on ;demographics, car use, opinions of devices and attribute ratings. the rating scale applied the semantic differential (SD) technique to obtain subjective preferences of electronic device (ED) on product on product attributes, relating to holistic design (overall shape, overall design, overall size, color combination), functional design(size of button, information display, arrangement) and product styling (color, form, size),the scales used in this study are contrasted in terms of relevant attributes that define design.

CONCLUTION:
There is a great need to conceptualize a scheme for CN that can be used for data collection as well as for product design. This study showed that CN for electronic devices can be conceptualized along three dimensions: holistic design, product styling and functionality. For unfamiliar devices, the holistic and styling aspects seem to be more important than functionality- the latter is difficult to comment on for a naive user. Customer needs for other products are most likely different. for example, clothes and shoes do not have many functionality features(yet).one must recognize the distinction between CN for functional satisfaction and CN for emotional satisfaction. while functional needs can be broken down in abstraction hierarchies and design details, emotional needs operate more as decision -making heuristics.

C   **TITLE:** human factors for pleasure in product use
Authors: Patrick W. Jordan, 1998

AIM:
this study was a first pass at investigating the issue of pleasure in product use. there were three main aims:
1. To identify the emotions that is engendered by the use of particularly pleasurable or particularly displeasurable products.
2. To identify the properties of a product this can contribute to making it particularly pleasurable or particularly displeasurable to use.
3. To identify behavioural correlates to pleasure in product use.

METHOD:
18 participants (10 female, 8man) responded to a semi structured interview. The vast majority of these were students of less than 25 years. All participants were resident s of Glasgow in Scotland. a few days before the interview the participants were contacted and asked to consider two products which they owned or used (or had previously owned or used) one of which was particularly pleasurable to use and the other of which was particularly displeasurable. in the interview which lasted about 1 h, they were asked a series of questions about these -these questions covered the feeling engendered by the products, the aspects of design which made the products particularly pleasurable or displeasurable, and the effects of pleasure or displeasure on usage patterns and future purchase behavior.

CONCLUTION:
Usability is a central factor in whether or not a product is pleasurable to use.however, the issue of pleasure in product use also goes significantly beyond usability the emotions felt when using pleasureable/displeasurable products are potentially more wide ranging than just satisfaction /dissatisfaction,and the properties of a product which influence how pleasurable/displeasurable it will be to use do not only include the property of usability. in order to fully represent the user in the product creation process,the human factors specialist should look both at and beyond usability in order to create products that are a positive pleasure to use. This might mean wider role for the human factors specialist in product creation than simply being involved in the design of products. E.g. Working with marketing and those involved with the technical aspects of products.it may also mean that human factors specialist s will have to evaluate a wider range of issues than they have traditionally.

D   **TITLE:** what is beautiful is useable
Authors: A.S Katz, D Ikar, N Tractinsky, 2000
AIM:

Authors first goal in this study was to test whether the initial correlation of perceived aesthetic and usability reflect more general tendencies to associate aesthetics with other system attributes.

Their second goal is to explore what happen to users perceptions of aesthetics and usability after they use the system. Their study is designed to test whether the initial perceptions of aesthetics-usability relationships hold after a period of system use, and whether these perceptions are affected by the degree of the interfaces perceived aesthetics and/or by the actual usability of the system.

METHOD:

Perceptions were 132 third year industrial engineering (IE) students who participated in the experiment for class credit. The average age of the participants were 25. about 67% of the participants were males.

The experiment used a 2*2 between groups factorial design. One factor, the aesthetic level of the interface, had three levels:low,medium,and high. The other factor, usability, included two levels: low and high. The experimental session included three stages. In the first stage, the experimental program displayed the nine ATM layouts. each layout was presented three times. every time a layout was presented, participants were asked to rate it on one of three dimentions: 1) aesthetics, 2) ease of use 3)amount of information on the screen.

CONCLUSION:

This study demonstrated once again the tight relationships between users initial perception of interface aesthetics and their perceptions of the systems usability. more - over, they showed that these relations endure even after actual use of the system, they believe that these results shed new light on the role of aesthetic in HCI design and its effects on how users experience their interaction with computerized systems, the results of this study are commensurate with social psychology findings that people associate a person's physical attractiveness with other personal attributes. Similarly , research in the areas of marketing and consumer behavior indicate that aesthetic features of the shopping environment are perceived as related to other, seemingly independent attributes (e.g. functional) of that environment.

E **TITLE**: pursuing pleasure :consumer value in leisure travel

Authors: Rennie Vanessa A, Cynthia M. Webster, 2011

AIM:

This study find consumers value intense experiences that provide opportunities for personal growth, freedom from the ordinary and integration with both nature and others. Our aim is here to extend the work on experiential consumption by exploring the value gained from the pleasurable pursuit of leisure travel.

METHOD:

Given that the value of pleasurable experiences is shaped by the subjective evaluation of the interaction between the individual and the experience (Addis and Holbrook, 2001) the methodological technique of the photo essay is used in combination with Holbrook s subjective personal introspection (SPI) to examine the subjective meanings of experiences captured in holiday photographs. a brief description of each follows.

CONCLUTION:

Analysis identifies all eight consumer value types with play, aesthetics and, surprisingly, spirituality the most evident. pleasure is shown as much more than immediate self-gratification. issues of competency, both active effort and appreciation of others abilities individual growth and development as well as sharing and feelings of relatedness are all important components of pleasure.

F **TITLE**: pleasurable products: public space furniture with user fitness

Authors: Kin Wai Michael Siu, 2005

AIM:

Since 2000 a research and design project on public space furniture has been conducted in Hong Kong. In the project, furniture provided in public spaces (including all public areas such as public housing estate walking lanes. ground floor open areas, and open spaces such as parks. Gardens, playgrounds, and small sitting - out areas) is the key product to be studied. the project aims to investigate Hong Kong people s practices in interacting with these products and how designs can fit the drivers needs and preferences of people living in this modern era in a city rooted in Chinese traditions and cultures. More specifically, one of the key objectives is to study how the design of public space furniture can provide different pleasure to different city users.

METHOD:

They have reviewed documents and interviewed government officers, designers, and landscape architects in the Hong Kong leisure and cultural services department, the architectural services department and the housing department in order to understand their concerns and general practices, and policies. they have also conducted unobtrusive observations in open and public spaces in order to understand how people "interact" with such common daily -life design objects and, as some people think , simple city products.

CONCLUTION:

They come to an understanding that design is a professional practice not only related to physical objects and systems. it is more about users' needs and preferences(Jordan and green 1999, Prudhomme et al. 2003, Clarkson et al. 2004, Siu 2004). In particular, it is about human behavior and the reasons behind such behavior. they notice that design is not only a matter of answering a true- and - false question. it is more about lives that are full of individual , diverse and ever changing variables :traditions, religions, customs, experiences, habits, needs, wants, preferences, desires, fantasies, and dreams. In particular regarding public space furniture, different users themselves are also variables, and this increases the difficulty in achieving designs with a high degree of user fitness, interaction among different individuals such as conflicts arguments and compromises, also increase the difficulty.

To conclude, the good intentions of policy-makers and the creative imaginations of designers are rarely, in themselves, able to fulfil the actual needs and is

also not a correct and long term approach in design. Only through in-depth and continues studies on cultures and daily -life practices of the users can we achieve designs with a high degree of user fitness.

G **TITLE**: female consumers evaluation of apparel quality :exploring the importance of aesthetics
Authors: Helena M. Deklerk, Stephna Lubbe, 2006
AIM:
The aim of this research was therefore to investigate the role of aesthetics in female consumer's evaluation of apparel quality during the decision- making process. In highlighting the problem, theoretical focus is placed on two aspects namely, the quality of apparel products and the role of aesthetics in apparel products.

Three questions served as specific aims for the research:
1) What is the role of the sensory dimensions of the aesthetic experience, brought about by the formal qualities of apparel products, in female consumer's evaluation of apparel quality?
2) What is the role of the emotional dimensions of the aesthetic experience, namely pleasure, arousal and dominance in female consumer's evaluation of apparel quality?
3) What is the role of the cognitive dimensions of the aesthetic experience, namely reality, fantasy, and entertainment in female consumer's evaluation of apparel quality?
METHOD:
The researchers decided on a qualitative research style with unstructured interviews and focus group interviews as data-collecting techniques. The participants were female consumers.
CONCLUTION:
From the findings it is clear that two main conclusions can be made namely, first that from a consumers point of view the quality of apparel products does not only concern the functional behavioral qualities, but definitely also the aesthetical behavioral qualities, and, secondly, that the sensory, emotional and cognitive dimensions of the aesthetic experience play a major role when female consumers evaluate the quality of apparel products.It can be concluded from this research that the aesthetical behavioral qualities of apparel products play an important role in female consumers evaluation of the quality of apparel products at the point of sale to the extent that it seems as if their needs with regard to the aesthetical qualities of a product probably overshadow most of the functional needs that they may experience when wearing the item.

H **TITLE**: Kansei/affective engineering design
Authors: Jens J. Dahlgaard, Simon Schutte, Ebru Ayas, Su Mi Dahlgaard-Park, 2008
AIM:
the aim of this paper to introduce the background of kansei engineering, its methodology , potentiality and limitation for designing and building new products with a profound affection, and to suggest a new framework in the form of a structural model, which can be used systematically in understanding the potential enablers of profound affection which may be used for building new innovative and attractive products (=attractive quality creation)
METHOD:
The research methodology is a combination of desk research (literature analysis), data collection, reflections and model building.
CONCLUTION:
The paper suggests a structural model as a possible expanded framework for future kansei/affective engineering research studies. According to the model profound affection is a result of the following six enabler factors: sensing experiences; emotional experiences (kansei); behavioral experiences/action; social experiences/interactions and relations; spiritual experiences/moral, ethics; intellectual experiences /cognition.

I **TITLE**: fundamental dimensions of affective responses to product
Authors: Huai-Te Tsang, Chi-Fu Wang, Lin-Lin Chen, Kun-An Hsiao, 2006
AIM:
In this research they selected three product categories-automobile, sofas, and kettle -representing large, medium and small products, and conducted three parallel studies to uncover fundamental dimensions of affective responses to product shapes. these fundamental dimensions underlying affective judgments of product shapes could provide a common framework for studies on affective responses to product shapes.
METHOD:
they collected a large number of product images to cover, as much as possible, the range of variations in product shapes, in total, 117 images of automobiles, 74 images of sofas and 64 images of kettles were collected for the first. Clustering method was then applied to analyze the card sorting data. the results from the three surveys were analyzed using factor analysis for each of the three product categories.
CONCLUTION:
The results of this they uncovered four fundamental dimensions in the affective responses. The four dimensions are: the trend factor (T), the emotion factor
(E), the complexity factor (C), and the potency factor
(P). The typical affective adjective pairs for four main dimensions are: "contemporary- traditional" for factor T, "rational- emotional" for factor E, "simple- complex" for factor C, and "strong- weak" for factor P. These fundamental dimensions underlying affective judgments of product shapes could provide a common framework for studies on affective responses to product shapes

J **TITLE**: user pleasure in product concept prospecting
Authors: Andre Cayol, Patrick Bonhoure, 2004
AIM:
They suggest improving marzano s approach by creating a well-articulated vision of the future that is based not on trends but also on forecasts and integrates them into family activity scenario that is as realistic as possible and that will be used afterwards in multidisciplinary work shop. This approach provides more contextual and background information to experts involved in Imagineering engineering the future through imaging (marzano,

1998)

METHOD:

The first step in our approach was to create a multidisciplinary experts panel, in the light of marzanos concern that "design in a world of high complexity should no longer be a case of clever individuals or teams creating products in splendid isolation" the second step is to draw on information from forecasting and different types trends. The next step involves the constitution of a work group, where all members collaborate in creating and describing realistic family scenario based on forecast and trends illustrated previously.

CONCLUTION:

This approach combines design, product marketing, human factors and sociological knowledge: therefore, it requires an interdisciplinary approach involving many participants. They assume that future development of products require much interaction between these fields. Our results have been very practical, but it's still need more in order to determine whether the products created using our method have a better chance of succeeding in the market than other similar products and given them a better chance of being developed.

K **TITLE**: The interaction effect of ego involvement on the relationships between aesthetics, usability and commitment
Authors: Manuel J. Sanchez- Franco, Fleix A Martin-Velicia, 2011

AIM:

This study aims to investigates how ego involvement and the design of online services may be associated with effective commitment making the distinction between hedonic and utilitarian services

METHOD:

This research used partial least squares t estimate the parameter of the research model

CONCLUTION:

This research provide an insight into the complex interrelationship the exist between user heterogeneity, web atmosphere and commitment, though its analysis of the different purposes of WIS. The measurement models were valid, with acceptable convergent and discriminant validities, the results demonstrate that the model predicts that user commitment and ego-involvement have an important quasi-moderating effect on the relationship between web atmosphere and commitment between design dimension and users involvement in effective commitment across diverse WIS. In summery designers should customize the WIS by taking into account ego-involvement and the sites intended purpose.

L **TITLE**: personas and user-centered design: how can personas benefits product design process?
Authors: Tomasz Miaskiewicz, Kenneth A. Kozar, 2011

AIM:

This research first identifies and gains consensus on the importance of specific benefits of utilizing personas as part of user-centered design. After panelists reach consensus, the importance of the most significant benefits are elaborated upon. The findings also provide a starting point for further empirical

examination of the effectiveness of personas and the process through which they influence product designers.

METHOD:

In this study, the Delphy method was used to examine personas and to provide a stronger foundation for future research on personas field such as information systems (e.g.,brancheau&paulussen,2004), operations managements (e.g. mallhorta stele, & grover. 1994) and product design (denton, 1997) have use the Delphi methodology to lay a foundation for and spur new research. The Delphi method is a group process used to seek, aggregate, and gain consernsus on the opinions (Schmitt, 1997)

CONCLUTION:

Based on the results or this study, the many benefits of incorporating personas into user centered design processes were evident. Through the ranked list of benefits this study also provides a foundation for future research examination of persona use. Further, they hope that this study build further awareness and increased research focus on the personas method. Personas potential to buy the product that they selected from the larger assortment (ilyengar & lepper, 2000)

4. Discussion

Micro ergonomics is a basic in creating a product or environment that is compliant with the minimum requirements of the user. The minimum requirement are related to the physical structure of the body and issues such as anthropometry, strength, metabolism energy and physiology but, other determining factors that have role in the use, consumption or purchase of a product that are beyond micro ergonomics and are back to cognitive ergonomics as well asocial-cultural ergonomics. In this regard, from this vision to the development of the ergonomic features, Hedonomics arises that state the sensation, pleasure and graceful. Beauty and the feeling of pleasure from product and environment are important factors that not only in product design but also in terms of economy and successful sales of goods are important.

Moreover, pleasure and desirability of a product can affect the efficiency or emotion of the user in using the product. From the perspective of product design, industrial design professionals designing and producing products should involve pleasing in use of the product similar to micro ergonomics, cognition and cultural, and noticed it practically, scientifically and documentary. And to accompany pleasure integration process with other ergonomic features, integratelly and illustrate a framework that authors believe perhaps the most important parts of this framework are:

1. Defining customer needs
2. A systemic review of human interaction and product
3. Review customer experience in product application
4. Aesthetic criteria in the design of ergonomic products
5. Design considerations in product usability

It is worth to noting that emotions are distinct from pleasure, emotions have transient process that mainly is physiological, while pleasure is the result of joy and

feeling good, and its lasting is more than physiological emotion and even in some cases (depending on the design type) is continues until the end product life.

And it is here that the role of industrial design is clearly indicates. That to which extent it can could be effective in pleasant continuation use of the product, when we speak of the beauty and desirable of appearance in the products with conformity and micro ergonomics adaptation. Its important that Care must be taken that the degree of acceptance of the product or its design, and the outcome of this attitude that it's the spark of some interest in environment or product, is the qualitative and subjective factors. An interesting is an instinctive phenomenon that related to the reaction that arises from seeing the appearance of an object, but the beauty is related to the thought level, and not appearance but the inner part is consideration, and is gained from conscious thought and experience and is influenced by culture.

Sometimes it also creates additional challenges that their interpretation is beyond the scope of this brief like objects that aren't attractive in appearance, but a variety of factors, including feeling joy and happiness is giving to us. The answer of this dichotomy apparent is hidden in the pleasure. A threshold cannot be defined for pleasure, but a threshold of tolerance can be offered, like when the headache got well, the person feel satisfied. Certainly the most pleasure cause as well as a higher satisfaction. It is believed that between performance and comfort and pleasure there is an analog relationship [14].

This suggests that those who seek the hedonic benefits of the product are looking for performance satisfaction. It is also important to note that products which are similar in performance and the prices, the customers choose the ones that attracted the most. (Bamossy et al, 1983) many researchers have attempted to determine product features in set of aesthetic in this regard have provided criterias, including the unity (such as the efficiency in the items) ratio (eg, golden ratio) as well as symmetry. To encounter the recent challenges the needs of our customers whether they are available and which ones that are not obtainable in the product and environment in the designer view, these must have been discovered in the form of a system (eg a human- system machine) being analyzed along with the interactive system, the customer and the customer past experience should be scrutinized , so as to also discover the root of customer emotion towards a product that is designed to responding a person needs. And in fact a pleasure product be introduced, of course from an intellectual and emotional view, it can be noted that there are different basis feeling.

That varies from person to person, such as happiness, sadness, anger, fear, sadness (Ekman, 1994), but the mental pleasure according to Kubovy, (1999) Basic emotions are different for some reasons. First, emotions have internationally expression and appearance and are recognized ones. Second, the basic feelings are existing; in other being while pleasure is not in this way. The second point is that feelings have distinctive physiological response, while such thing is not defined about pleasure yet. Another case is that feelings have early start and their enduring is short because it happening before the person becomes aware of it [4], but pleasure it is not in this way, however what is important from the perspective is how to inject some level of subjective and qualitative factors, that

the product or the environment would be desirable, despite being intellectual and qualitative of pleasure concept, design should create Concrete factors in the product or environment, that their perception should become the level of happiness and pleasure.

5. Conclusion

The meaning of pleasure in use of product is complex and cannot be completely separated from taste, value, culture and personal work area. Human factor experts have done a large effort to find valid theories in the pleasure of using the products [9]. With regarding to the recent cases, if the application of feeling the joy and the pleasure of using the products is considered, the integrated interaction of hedonomics and ergonomic become a necessity.

The authors with regarding to review article, literature and experiences related to evaluating and product ergonomic design suggested following model Figure 2 to integrated hedonomics principles with ergonomic design process. Doubtless in future studies, the evaluating of the model should be done. In this model the triple integration of designer-product-customer has been considered and common point of these three areas presented the importance of hedonomy and ergonomy and necessity of unified integration: Product perception, needs, safety, ergonomy, demands, customer behavior with observing aesthetic principles. Doubtless joy of using and pleasure of product is a strong link between designer and customer.
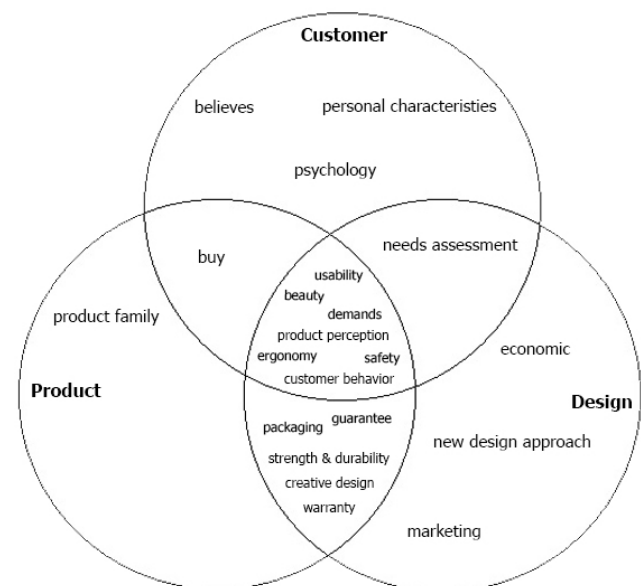
Figure 2. suggested model for integrated hedonomic principles with ergonomic design process

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Appendix

Table 1. search results from Elsevior search engine
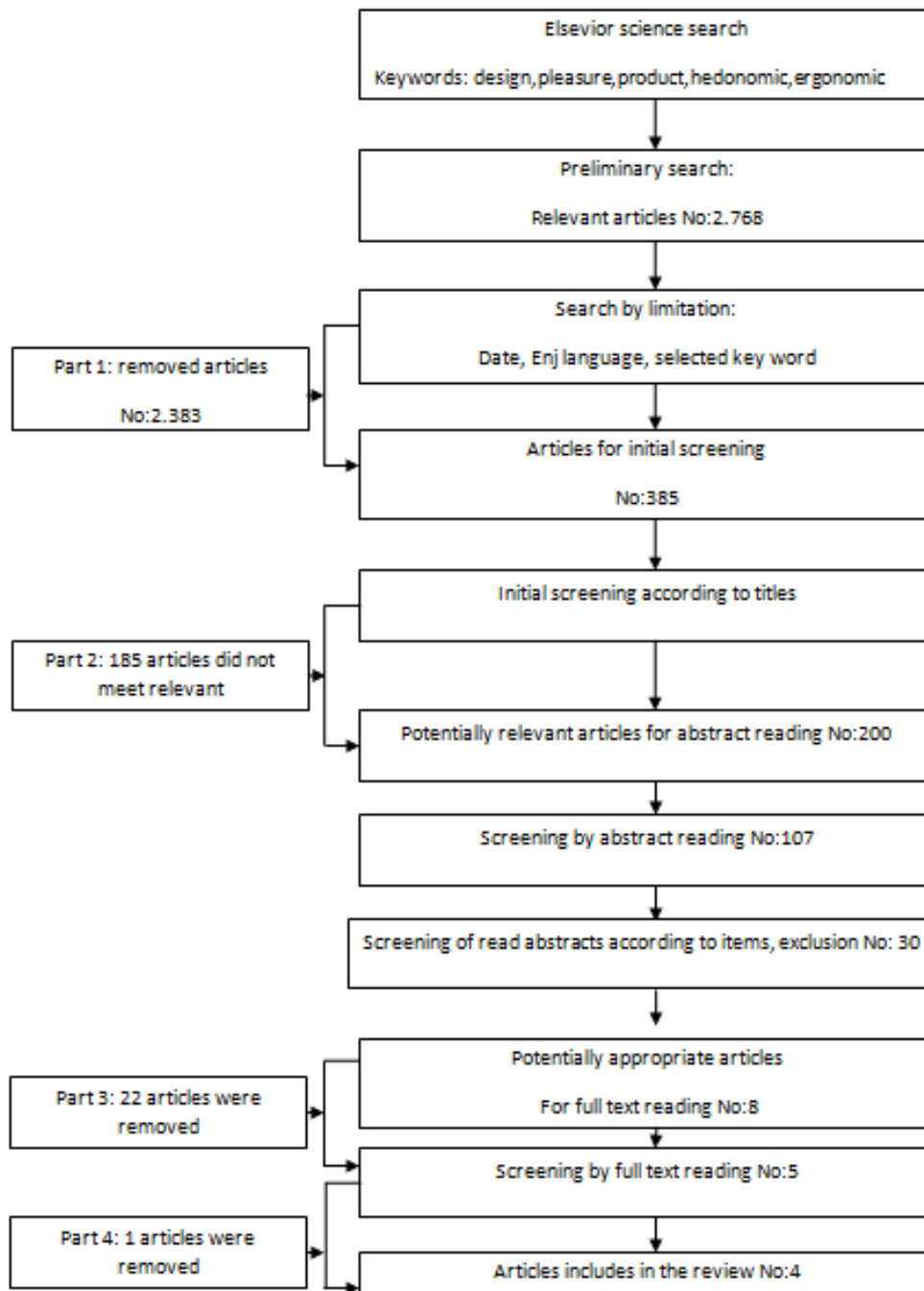
Table 2. search result from Ebsco search engine

Ebsco search

Keywords: design, pleasure, product, hedonomic, ergonomic

↓

Preliminary search:

relevant articles No:253

↓

Search by limitation:

Part 1: removed articles

No:137

Articles for initial screening

No:116

↓

Initial screening according to titles:

Part 2: 113 articles did not
meet relevant

Potentially relevant articles for abstract reading No:3

↓

Screening by abstract reading

↓

Potentially appropriate articles

for full text reading No:3

Part 3: 0 articles were
removed

Screening by full text reading

Part 4: 0 articles were
removed

Articles includes in the review No:3

Table 3. search result from Emerald search engine

```
┌─────────────────────────────────────────────────────┐
│                  Emerald search                     │
│                                                     │
│  Keywords: design,pleasure,product,hedonomic,ergonomic │
└─────────────────────────────────────────────────────┘
                          │
                          ▼
┌─────────────────────────────────────────────────────┐
│                 Preliminary search:                 │
│                                                     │
│              relevant articles No:1346              │
└─────────────────────────────────────────────────────┘
                          │
                          ▼
┌─────────────────────────────────────────────────────┐
│                Search by limitation:                │
└─────────────────────────────────────────────────────┘

┌──────────────────────────┐
│  Part 1: removed articles │
│                          │
│         No:1332          │
└──────────────────────────┘
                          │
                          ▼
┌─────────────────────────────────────────────────────┐
│            Articles for initial screening           │
│                                                     │
│                      No:14                          │
└─────────────────────────────────────────────────────┘
                          │
                          ▼
┌─────────────────────────────────────────────────────┐
│         Initial screening according to titles:      │
└─────────────────────────────────────────────────────┘

┌──────────────────────────┐
│ Part 2: 8 articles did not meet │
│         relevant         │
└──────────────────────────┘
                          │
                          ▼
┌─────────────────────────────────────────────────────┐
│  Potentially relevant articles for abstract reading No:6 │
└─────────────────────────────────────────────────────┘
                          │
                          ▼
┌─────────────────────────────────────────────────────┐
│            Screening by abstract reading             │
└─────────────────────────────────────────────────────┘
                          │
                          ▼
┌─────────────────────────────────────────────────────┐
│           Potentially appropriate articles          │
│                                                     │
│           for full text reading No:5                │
└─────────────────────────────────────────────────────┘

┌──────────────────────────┐
│   Part 3: 1 articles were │
│         removed          │
└──────────────────────────┘
                          │
                          ▼
┌─────────────────────────────────────────────────────┐
│            Screening by full text reading            │
└─────────────────────────────────────────────────────┘

┌──────────────────────────┐
│   Part 4: 0 articles were │
│         removed          │
└──────────────────────────┘
                          │
                          ▼
┌─────────────────────────────────────────────────────┐
│         Articles includes in the review No:5        │
└─────────────────────────────────────────────────────┘
```
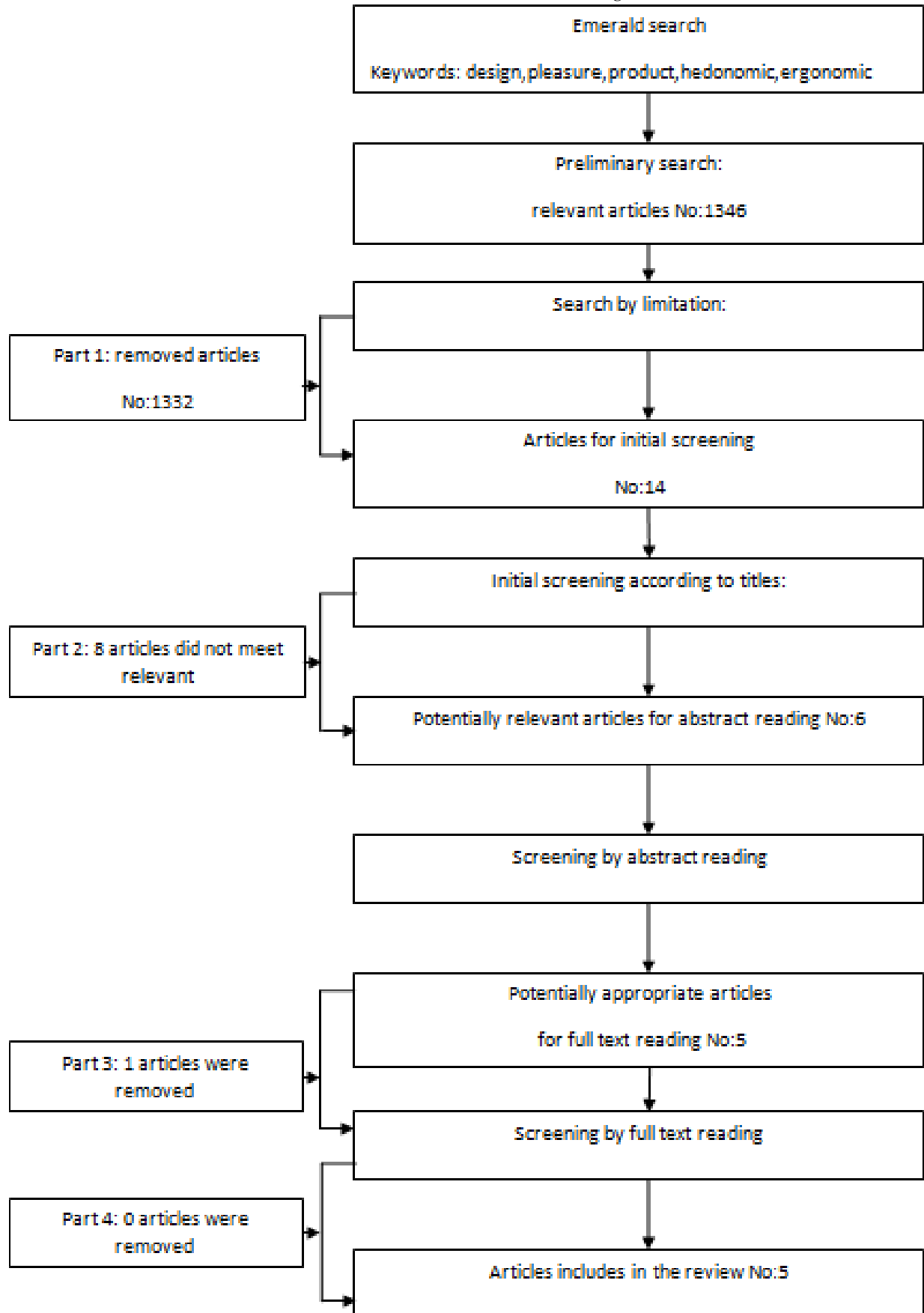
Table 4. search results from pubmed search engine

Pubmed search

Keywords: design,pleasure,product,hedonomic,ergonomic

Preliminary search:

Relevant articles No:15

Search by limitation:

Part 1: removed articles

No:0

Articles for initial screening

No:0

Initial screening according to titles:

Part 2: 0 articles did not meet relevant

Potentially relevant articles for abstract reading No:0

Screening by abstract reading

Potentially appropriate articles

for full text reading No:0

Part 3: 0 articles were removed

Screening by full text reading

Part 4:0 articles were removed

Articles includes in the review No:0