Emotional Design of Printed Fabrics Using the Aesthetics of Arabic Calligraphy

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ABSTRACT

This paper is concerned with emotional design, which can influence user experience and combine it with happiness and enjoyment. Emotions have a crucial role in human ability to understand the world.

Today, users buy a product, not only for functional aspects of it, but also they are attracted to emotional usability of the product. Therefore, designers are more focused on emotional aspects of design. The products that are designed based on emotional design are more desirable and bring more satisfaction to the user.

The research is based on the experience of the Arabic calligraphy units, letters and words with new formulations of artist 's innovation for Arabic calligraphy in new varieties, and then use it in the designing of printed fabrics with different repetition ways, based on the new styles are available in which aesthetic elements. These elements are achieved as a result of the designer's ability to use vocabulary design from decorative units, materials, the relationship between the place and product and the impact of colors and lights. which based on the theories of human factors design (human emotion).

It has been conducting a survey using questionnaire that contained a range of items measuring the user's reaction against the proposed designs and their impact on the behavior. The sample size reached 45 person.

Keywords: Emotional Design - human behavior- Arabic calligraphy- printed fabrics.

INTRODUCTION

Traditionally, human factors have tended to concentrate on making products 'usable'- focusing on utilitarian, factional product benefits. Manufacturers increasingly see usability

as an area where they can gain advantages over their competitors. This contrasts with the technical side of product development. Many manufacturing processes have now become so sophisticated that any advantages to be gained over competitors in terms of, say, price or product reliability are likely to be marginal .It could be argued, then, that as the users' representative in the product creation process, the human factors specialist should consider not only usability, but also other issues that effect how pleasurable a product will be to use.

Science design is Evolved, so as to reach the most degrees of accuracy in the development plan of artistic design with the technical knowledge and know-how the impact of each detail on the receiver, either the line or color, rhythm or texture ... Where the design will be placed, its relationship to the lighting, the surrounding elements and the rest of the place. This is the environment in which design will be available in its Applied in fact... Human factors Take into account in design implications of the design on the receiving state which present in that environment, and it is estimated through studies of each of the used elements, color groups, design style in terms of lines rhythm and truth textures of material or textures used in the area of artistic design.. At the end the impact of What all of this on guiding and shaping the character, behavior of the user who is in this environment.

The research is based on the experience of the Arabic calligraphy units, letters and words with new formulations of artist ′s innovation for Arabic calligraphy in new varieties, and then use it in the designing of printed fabrics with different repetition ways, based on the new styles are available in which aesthetic elements. These elements are achieved as a result of the designer's ability to use vocabulary design from decorative units, materials, the relationship between the place and product and the impact of colors and lights. which based on the theories of human factors design (human emotion).

EMOTIONAL DESIGN AND ITS ASPECTS

In our time “the enjoyment of use” is followed as a design target. Products that can bring the enjoyment of use facilitate interactions and lead to better results. It could be said “Emotional aspects of products are more important than their functions” (Norman, 2004). People do not choose products only for their functional specifications. They expect that a product act as a live creature and have emotional aspects (Govers , 2002, pp.345-349). In order to obtain attention of the users in the competitive market, a product needs to be different among its category (Chhibber, 2002, pp.298-302). The emotional design audiences are specifically designers, programmers, engineers, inventors and manufacturers who intend to enhance the effectiveness and emotional content of the

products for users all around the world. It could be mentioned that emotional design is neither a style, nor a method, which specified for a certain group. It is an approach to stimulate users' sensations and attentions to change human beings' needs and expectations.

Designers consider emotions as a pivotal aspect of their works, due to the importance of its influence on the purchasing decision (Desmet, 2002, pp.8-12).

Considering emotions in design, gives opportunities to producers and designers who are able to focus on users as stack holders. Therefore, designers can use the emotional factors as a profit element in the products. It seems that in future the design will mostly focus on the appearance of the product to stimulate the users' senses and their feeling.

Emotional design method is mainly based on four aspects; form, function, texture and colour. Form as a one of the most poetic and rhetorical factors in design, is seen in countless variations from cubist simplicity to metaphorical ambiguity. Form plays the role of an informative messenger that attracts consumers through devices, offering a unique sensibility. The message of emotional design would pass via both geometric and non-geometric forms (Kim, 2003).

In emotional design, designers have translated functions into emotion through human senses. In fact emotional design generates psychological effects through physical devices to transform the nature of function. Functions can be visible or invisible, physical and psychological (Kim, 2003).
Material stimulates human sensations by vision and touch. Touch is the most analytic of senses (Manzini, 1989).

Today designers use different materials and technologies such as the transparency of composites and the incredible quality of elastomers to develop the aesthetics, functions and the emotional quality of their products. However, using of the natural materials is more effective and practical than artificial and synthesis ones.

Colour is one of the most significant stimuli that could be interpreted via the physical world around us.

APPLIED STUDY

A researcher sees that the use of Arabic letters with all its artistic forms can confirm the Arab cultural identity and gives pleasure in dealing with the product, where in Arabic

calligraphy there's a duplication of meanings and forms, the wisdom harmonize with art, and the interest meets beauty.

The Arabic writing are not just symbols and technical specifications, in addition to that it is an intellectual approach and attitude, imagine a whole version with a unique civilized experience, whoever speaks a language thinks in it, as it carries out in it experience, expertise, wisdom, foresight of its own people, and also their life philosophy. It is a mean of thinking as it is a mean of expression.

The Arabic font has fascinated the pioneers of the East all over the world, it is characterized with good shape and beauty of its architecture, that's why this calligraphy has been used in different purposes, most notably in writing the holly Quran and decorating mosques, shrines, and building, the Islamic civilization was the most prominent factor in strengthening its inception and developing it.

The aesthetic influence of Arabic calligraphy art was moved to some of the Egyptian contemporary artists as a source of new inspiration and fertile field to the work of art, and it was the cause to raise their creativity to innovate artistic works with new formative formulas.

Wherefore this research relied on letters and words, then organize them in combinations and new formations. It has been used to make printed designs for fabrics in different repeated ways, based on new patterns with aesthetic elements, these elements are achieved as a result of the designer's ability to use designing terms like decorative units, raw materials, and the product relation with the place and the right effects and color.

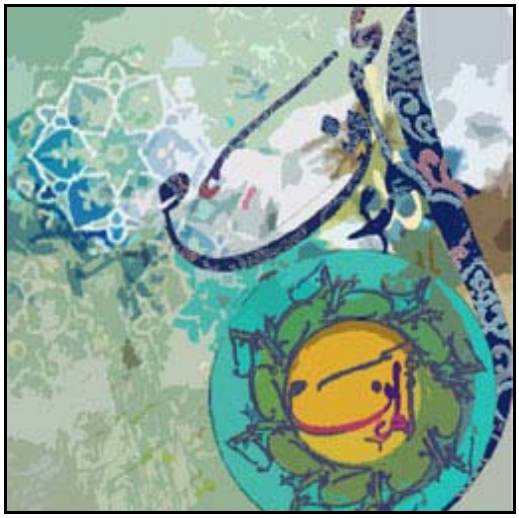
Design No. (1):

The design depended on magnifying the main unit أمان (Aman=safety) as a sort of sovereignty in the design, this sovereignty also appeared in the Islamic Star by putting it in an isolated part from the design with many other parts of the rest of the design, so the isolated part prevails visual sovereignty achieved by the spatial isolation.

The distribution of the word (Aman) came on a circular curve with diversity in space and direction, which gave a kind of centralized distribution, the lighting came from the center of the circle assured this centralization.

The design give psychological pleasure resulted from the use of traditional unit like the Islamic Star and the patchwork of the letter (أ) (A) in the word (Aman), which added an

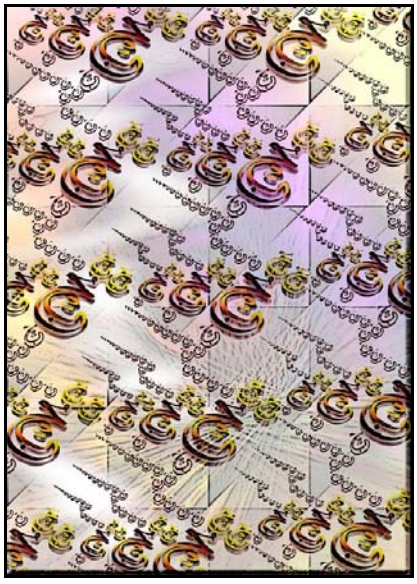
ideological and cultural meaning to the design. These units express nostalgia, it also may cause pleasure. No doubt that the feeling of pleasure have a significant impact on the human behavior and his psychological balance.



Design No. (1)

Design No. (2):

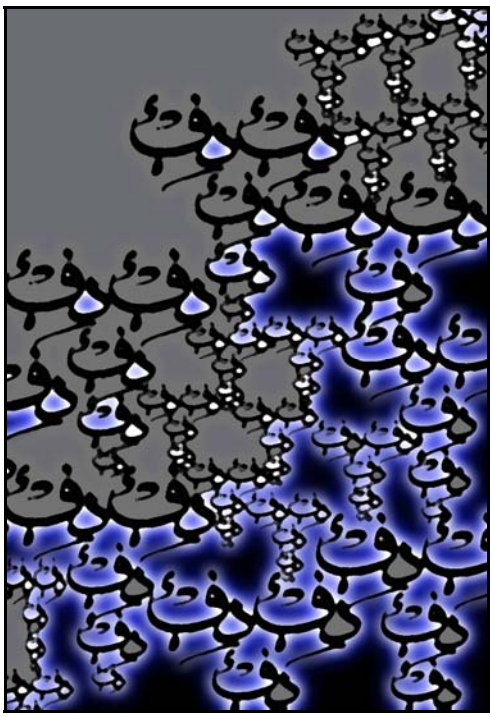
The word (Hob=Love) was distributed gradually in the workspace in diagonal direction on a background of mixed colors which gave the feeling of free space, and worked on strengthening the sensory effects. The colors served as a very important part of the sensory perception and contributed in assuring the rhythm and gave the illusion of depth through the hierarchy of colors, between dark colors and lights colors. This design is one of the designs that give physiological pleasure to the user by the contrast of textures between prominent and hollow.



Design No. (2)

Design No. (3):

This design relied on the contrast that resulted from the black color, which gives the feeling of depth , distance, and the white color, which gives the feeling of widening , closeness, which achieve color balance in technical formation. The increasing of lighting whenever approaching the word (Daffa=Warmth) دفء , the way of handling the ground with textures and effects worked on clearing it and achieving artistic beauty. The physiological pleasure can be achieved in this design by the contrast in textures, between prominent and hollow, and the feeling of pleasure and physiological pleasure in furnishing fabrics is through finishing the textiles with aromatic substances such as lavender, roses and Jasmine.

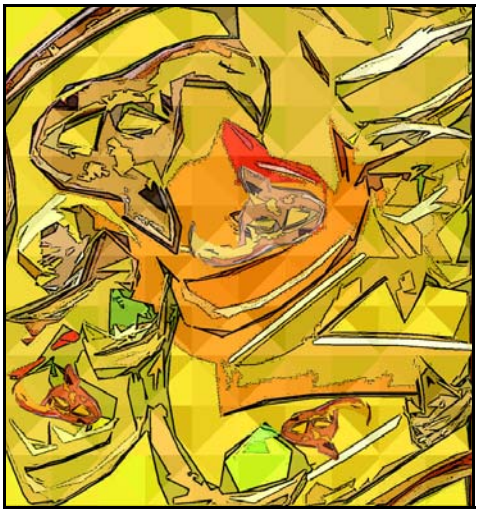


Design No. (3)

Design No. (4):

This design depended on the change of letters space besides overlapping and transparency which gave the feeling of diversity between the work parts. The diversity also appeared between the line spaces, its colors, and the background of each part which increased the sensory effects when reading the artistic work . Realizing the part visually through realizing the tentacles without the need to assure the tentacle through the sense of touch with hands.

The design combined between the soft and the coarse touch, a positive emotion between the user and the design generate of this, and by repeating visual perception the positive emotion increased between them.

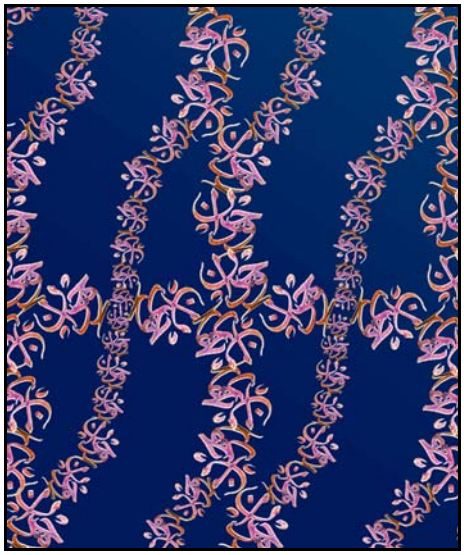


Design No. (4)

Design No. (5):

The word (wajdan= sentiment) وجدان is distributed as a wavy ribbons and characterized with shadowy soft texture as a result of color gradation. Changing in its direction caused unusual kinetic energy. The use of dark colors in the background give the opportunity to draw the word in light colors which gave the feeling of high variability between the form and the background. The overlapping value that gives significant of the depth, because the part that overlaps on the other is closer to the spectator than the part in which a side of it disappear.

The design can also achieve social pleasure resulted from the rich shapes and colors which moves the user to look forward a higher social standard. The relationship between the design and the place, the colors effects, the lighting, and the contrast between the violet color and the white helps that.



Design No. (5)

Design No. (6):

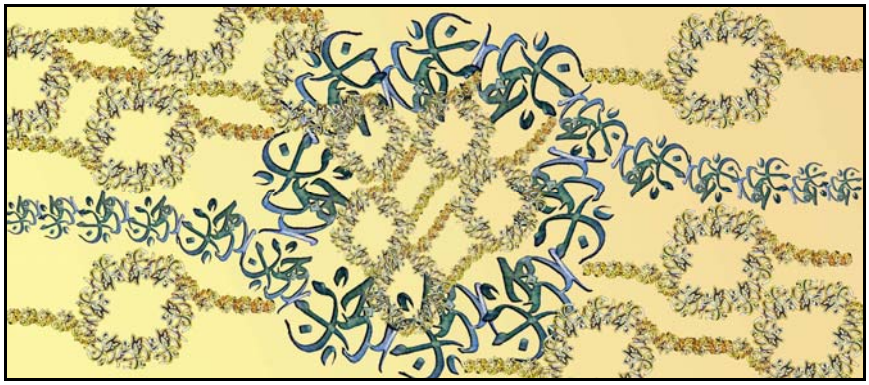
The individual letter ﻫـ is used and formed with different formations to preserve the value of the letter and its circular lines wrapped around itself. The feeling of depth appeared as a result of using shadows around some of the (Alha) letter, which gave the illusion of the emergence of some of it, diversity, and artistic richness. The design achieves aesthetic pleasure through the colors, the shapes and its repetition, and the way of treating the background.

The aesthetic pleasure is considered as one of the most pleasures that addresses the passion and the sentiment of the user, that is due to the nature of the shapes and colorimetric formulas which moves the feelings of the user, so it can organize his behavior in a way that benefits him and push him to good incentives.

Design No. (6)

Design No. (7):

The construction of the design depended on the distribution of the word (wajdan= sentiment) gradually in both directions, vertically and horizontally, according to the serial or sequential arrangement, meaning that one of the elements' features either decrease or increase regularly in one of the directions, this type of repetition gives change ,movement and the illusion of depth. The colors also give the feelings of joy , pleasure and it can be used as behavior guidance. The colors with its characteristics and different values gives suggestive and sensuality meaning to the vocabulary and design elements.



Design No. (7)

Design No. (8):

The word (Aman=safety) has been distributed gradually in the space in vertical direction from bottom to top and from top to bottom but with less transparency, and the font in the word is like an idea that give energy and moves through it, that movement gives flexibility. The design achieves the physiological pleasure by contrasting between prominent texture and hollow. In addition to that, the color used in the design gives special feelings.

Design No. (8)

It has been conducting a survey using questionnaire that contained a range of items measuring the user's reaction against the proposed designs and their impact on the behavior. The sample size reached 45 person.

RESULTS:

For the first criterion, a color coordination, is evident from Table (1) that the average consumer degrees and the percentage of the weighted average was (% 82.7), including emphasizes the importance of coordination between the colours in the design to achieve feelings of pleasure and influence the behavior and balance to the user.

By reference the weighting Degrees of the sample in the designs the highest weighting came of Design No. (4) by (% 97.2), followed by design No. (8) by (% 96.1), while the less percentage weighting came of Design No. (3) by (57.2%).

Table No. (1)

Color Coordination	Ex. (4)		V. G. (3)		G. (2)		L. (1)		Total	Weighted total	Weighted average	%	Rank
	No.	%	No.	%	No.	%	No.	%					
Design 1	19	42.	16	35.	10	22.	0	0.0	45.0	144.0	3.2	80.	**6**
Design 2	25	55.	20	44.	0	0.0	0	0.0	45.0	160.0	3.6	88.	**4**
Design 3	0	0.0	23	51.	12	26.	10	22.	45.0	103.0	2.3	57.	**8**
Design 4	40	88.	5	11.	0	0.0	0	0.0	45.0	175.0	3.9	97.	**1**
Design 5	35	77.	4	8.9	6	13.	0	0.0	45.0	164.0	3.6	91.	**3**
Design 6	25	55.	5	11.	15	33.	0	0.0	45.0	145.0	3.2	80.	**5**
Design 7	8	17.	21	46.	16	35.	0	0.0	45.0	127.0	2.8	70.	**7**
Design 8	38	84.	7	15.	0	0.0	0	0.0	45.0	173.0	3.8	96.	**2**
	19		**10**		**59**		**10**		**360.**	**1191.0**	**3.3**	**82.**	

For the second criterion, different textures, is evident from Table (2) that the average consumer degrees and the percentage of the weighted average was (80.8%), which confirming the importance of the availability of different textures in the design to achieve feelings of pleasure and the organization of user behavior.

By reference the weighting Degrees of the sample in the designs the highest weighting came of Design (6) by (98.3%), followed by designs numbers (4,8) by (% 96.1) each, while the less percentage weighting came of Design No. (7) by (53.3%).

Table No. (2)

Different Textures	Ex. (4)		V. G. (3)		G. (2)		L. (1)		Total	Weighted total	Weighted average	%	Rank
	No.	%	No.	%	No.	%	No.	%					

Design1	25	55.6	18	40.0	2	4.4	0	0.0	45.0	158.0	3.5	87.8	4
Design2	23	51.1	10	22.2	12	26.7	0	0.0	45.0	146.0	3.2	81.1	5
Design3	0	0.0	20	44.4	16	35.6	9	20.0	45.0	101.0	2.2	56.1	7
Design4	38	84.4	7	15.6	0	0.0	0	0.0	45.0	173.0	3.8	96.1	2
Design5	5	11.1	40	88.9	0	0.0	0	0.0	45.0	140.0	3.1	77.8	6
Design6	42	93.3	3	6.7	0	0.0	0	0.0	45.0	177.0	3.9	98.3	1
Design7	0	0.0	6	13.3	39	86.7	0	0.0	45.0	96.0	2.1	53.3	8
Design8	38	84.4	7	15.6	0	0.0	0	0.0	45.0	173.0	3.8	96.1	2
	17		**11**		**69**		**9**		**360.**	**1164.0**	**3.2**	**80.**	

For the third criterion, Finishing with aromatic substances shown in Table No. (3) that the average consumer degrees and the percentage of the weighted average was (71.1%).
By reference the weighting Degrees of the sample in the designs the highest weighting came of Design (1) by (81.1%), followed by designs numbers (4,6) by (77.8)% each. while the less percentage weighting came of Design No. (3) By (49.4%).

Table No. (3)

Finishing with aromatic substances	**Ex. (4)**		**V. G. (3)**		**G. (2)**		**L. (1)**		**Total**	**Weighted total**	**Weighted average**	**%**	**Rank**
	No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**					
Design 1	22	48.9	12	26.7	11	24.4	0	0.0	45.0	146.0	3.2	81.1	1
Design 2	10	22.2	20	44.4	15	33.3	0	0.0	45.0	130.0	2.9	72.2	5
Design 3	6	13.3	0	0.0	26	57.8	13	28.9	45.0	89.0	2.0	49.4	8
Design 4	5	11.1	40	88.9	0	0.0	0	0.0	45.0	140.0	3.1	77.8	2
Design 5	3	6.7	39	86.7	3	6.7	0	0.0	45.0	135.0	3.0	75.0	4
Design 6	17	37.8	22	48.9	0	0.0	6	13.3	45.0	140.0	3.1	77.8	2
Design 7	5	11.1	23	51.1	17	37.8	0	0.0	45.0	123.0	2.7	68.3	6
Design 8	2	4.4	35	77.8	0	0.0	8	17.8	45.0	121.0	2.7	67.2	7
	70		**19**		**72**		**27**		**360.**	**1024.0**	**2.8**	**71.**	

For the fourth criterion, a distribution method of design elements shown in Table No. (4) That the average consumer degrees and the percentage of the weighted average was (80.6%), which confirming the importance of the distribution of design elements to achieve feelings of pleasure and the organization of user behavior.

By reference the weighting Degrees of the sample in the designs the highest weighting came of Design No. (4) By (100%), followed by design No. (2) by (97.2)%. While the less percentage weighting came of Design No. (3) By (63.9%).

Table No. (4)

Distribution method of Design Elements	Ex. (4)		V. G. (3)		G. (2)		L. (1)		Total	Weighted total	Weighted average	%	Rank
	No.	%	No.	%	No.	%	No.	%					
Design 1	21	46.7	18	40.	6	13.	0	0.0	45.0	150.0	3.3	83.3	**4**
Design 2	40	88.9	5	11.	0	0.0	0	0.0	45.0	175.0	3.9	97.2	**2**
Design 3	12	26.7	1	2.2	32	71.	0	0.0	45.0	115.0	2.6	63.9	**8**
Design 4	45	100.	0	0.0	0	0.0	0	0.0	45.0	180.0	4.0	100.	**1**
Design 5	7	15.6	35	77.	3	6.7	0	0.0	45.0	139.0	3.1	77.2	**5**
Design 6	33	73.3	2	4.4	10	22.	0	0.0	45.0	158.0	3.5	87.8	**3**
Design 7	4	8.9	23	51.	18	40.	0	0.0	45.0	121.0	2.7	67.2	**7**
Design 8	24	53.3	3	6.7	0	0.0	18	40.	45.0	123.0	2.7	68.3	**6**
	18		**87**		**69**		**18**		**360.**	**1161.0**	**3.2**	**80.6**	

For the fifth criterion, Ground treatment style shown in Table No. (5) that the average consumer degrees and the percentage of the weighted average was (77.8%), including emphasizes the importance of ground treatment style in the design to achieve feelings of pleasure and the organization of user behavior.

By reference the weighting Degrees of the sample in the designs the highest weighting came of Design No. (4) by (96.1%), while the less percentage weighting came of Design No. (3) by (56.7%).

Table No. (5)

Ground Treatment Style	Ex. (4)		V. G. (3)		G. (2)		L. (1)		Total	Weighted total	Weighted average	%	Rank
	No.	%	No.	%	No.	%	No.	%					
Design 1	8	17.	21	46.	16	35.	0	0.0	45.0	127.0	2.8	70.6	**6**
Design 2	25	55.	20	44.	0	0.0	0	0.0	45.0	160.0	3.6	88.9	**2**
Design 3	0	0.0	17	37.	23	51.	5	11.	45.0	102.0	2.3	56.7	**8**
Design 4	38	84.	7	15.	0	0.0	0	0.0	45.0	173.0	3.8	96.1	**1**
Design 5	20	44.	8	17.	15	33.	2	4.4	45.0	136.0	3.0	75.6	**5**
Design 6	34	75.	2	4.4	9	20.	0	0.0	45.0	160.0	3.6	88.9	**2**
Design 7	9	20.	23	51.	0	0.0	13	28.	45.0	118.0	2.6	65.6	**7**
Design 8	25	55.	5	11.	15	33.	0	0.0	45.0	145.0	3.2	80.6	**4**
	15		**10**		**78**		**20**		**360.**	**1121.0**	**3.1**	**77.**	

- From the above the order of importance of the criteria comes as follow

-The First criterion is Color Coordination by (82.7%).

-The second criterion is Different Textures by (80.8%).

- The Third criterion is the Distribution Method of Design Elements and his rate was (80.6%).

- The fourth criterion, Ground Treatment Style and his rate was (77.8%).

- The fifth criterion and the latter was Finishing with aromatic substances came by (71.1%).

RECOMMENDATIONS

- We need more studies for human factors specialists to become involved in new ways with other disciplines. For example, with marketing and sales, in order to address the issue of pricing products or with those on the technical side of product development in order to assess what the user would regard as acceptable levels of reliability.

- The link between particular emotions experienced during product use and the properties of products is also an important direction, i.e. given that it is an aim that a product induces specific emotions in a user, to what aspects of the product must particular attention be paid? This type of research could move towards developing both sets of general principles and sets of low level guidelines for creating pleasurable products.

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