

ISBN 978-983-2641-93-3

Product Emotion; A Necessity In Product Development Process And The Role Of CAD

Olalere, Folasayo Enoch

Universiti Malaysia Kelantan (UMK)

ABSTRACT

According to Peter B. (2010), despite the importance of technological capability, technology is not only what it takes to captivate customers. Successful innovations as two dimensions: functionality and emotion. Functionality is what product does while emotion is how products make customer feel. Both are needed to make customers engaged with a product because there is a degree of emotional response to product in consumer behaviour (Norman, 2004). Therefore, this paper investigate the knowledge regarding how emotions are related to products, illuminate on how product emotion can be integrated into product development process and also the role of Computer Aided Design (CAD) tools in achieving this. In order to test the theory, a study was performed using PDD approach by Crossly (2003). This was done to test the viability of the approach in achieving a user centred design. A digital prototype of an ashtray was created and a questionnaire with the image and eight emotions was given to participants (both smokers and non-smokers) so as to know their emotional responses towards the product. The result gave interesting findings such as high values of pleasant emotions and lack of boredom emotion by smokers and also the differences between smokers and non-smokers responses. The chart used also revealed an equilibrium point where both smokers and non-smokers have equal emotional value towards the product.

PAPER NO: R052

PRESENTER(s):

Folasayo Enoch

SESSION:

Session J1,
15:30 – 17:00pm
28th SEPTEMBER 2012



Introduction

Most business think about technology innovation, they focus their innovation efforts and product development processes on new technologies, new capabilities, new functions and efforts that are seen as important to the future of the company (Peter B., 2010). However, captivating a market place is the ultimate want of a business; because when customers are captivated by a product, the business gets higher margins instead of further cost cuts. This makes customers not simply loyal purchasers, but passionately committed to that product and company.

According to Peter B. (2010), despite the importance of technological capability, technology is not only what it takes to captivate customers. Successful innovations as two dimensions: functionality and emotion. Functionality is what product does while emotion is how products make customer feel. Both are needed to make customers engaged with a product because there is a degree of emotional response to product in consumer behaviour (Norman, 2004).

While companies have a process to develop and deliver technology and functional capabilities, they lack a process to develop and deliver emotion in a product. This is because designers lack a shared understanding of emotion within the context of design, and information on how to think about emotion during a new product conception (Forlizzi et al, 2003 p28). Products are meant to satisfy some functional requirements such as; aspiration, cultural, social, and emotional needs. This is because, customers need products that don't just do the right things but also make people feels the right ways.

Therefore, this paper illuminates on the influence of product emotion on consumer behaviour, review how designers can apply this knowledge in building emotion in design during a new product conception. It also reveals the role of CAD tools in the process of achieving emotions in design and then, tests the theory by performing a study using PDD approach by Crossly (2003).

Method

This study adopted the 5 overlapping stages of PDD's approach by Crossly (2003). These stages are: Immersing, storytelling, observing, creating and communicating.

Immersing: There was a close look into the community (Pengkalan Chepa) in order to gain clues regarding anticipated behaviours of the community dwellers. From this, it was discovered that higher percentage of men in the community are smoker.

Storytelling: This stage gives more close interaction and discussion with the people in the community and this helped to get some details about their culture, belief, norms etc. Here, it was noticed that, as part of their culture, people give or collect something with their two hands as a sign of respect. Also, people look down or disregard lady smokers therefore; lady smokers are very rare in the community.

Observing: At this stage, people smoking are watched closely when in action and it was noticed that most times, smokers stay close to dustbin when smoking. Further observation revealed that they do this to avoid littering the environment with the ashes from the cigarette, therefore at every interval; they shake the ashes of the cigarette into the bin.

Creating: At this point, a prototype of a ceramic ashtray was created using CAD (Solid works software). The prototype was created inform of an abstract figure holding the tray with the two hands, this was done in-line with their culture as a sign of respect (See fig. 2 for the image of the prototype). In order to make the prototype user-centred design, a questionnaire was given to a group of participants. This questionnaire consists of the previously mentioned eight (8) emotions (desire, satisfaction, admiration, pleasant surprise, disgust, dissatisfaction, contempt and boredom) and the image of the ashtray. The participant was asked to rate each of the emotions 0, 1 or 2 against the product (ashtray). These rating referred to the following:

- 0- I do not feel this emotion (low emotion)
- 1- I feel some of this emotion (medium emotion)
- 2- I do feel this emotion (high emotion)

The participants were asked to rate all of the emotions, to be impartial, not to dwell on their response and to leave a comment for the product. The participants include both smokers and non-

smokers. Twenty people participated which includes ten smokers and ten non-smokers. This enabled the opportunity to compare the two sets of results and to analyse any differences.

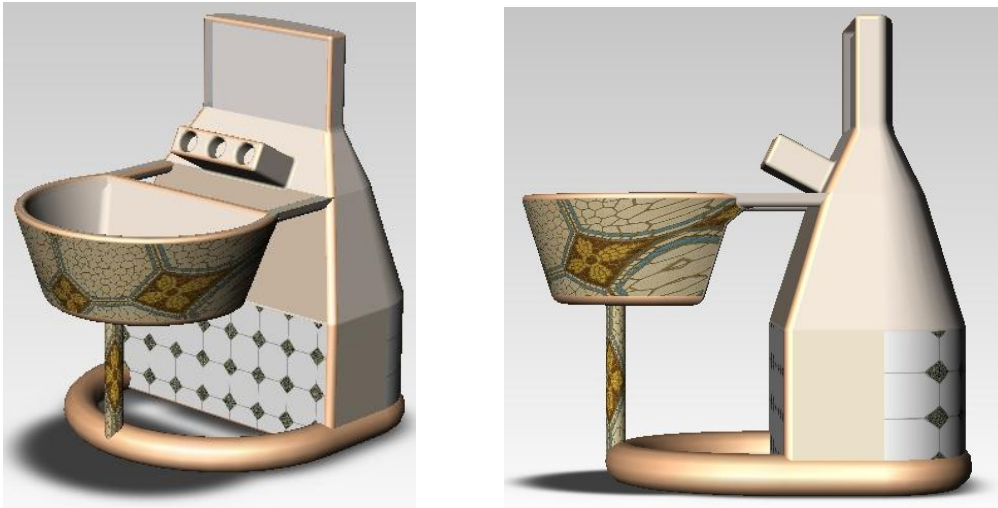


Figure 2: 3D CAD Model (Prototype) of the Ashtray used for the study.

Results

To analyse the results, the following chart (fig 3) was produced plotting the number of people that felt each level of emotion (low, medium and high) towards the product against the eight emotions. In addition to this, a chart (Fig 4) was plotted to compare the emotional ratings of smokers and non-smokers. A table was also produced that shows the differences between mean emotional ratings of smokers and non-smokers (see Table 1). This illustrated the significant differences between smokers and non-smokers' emotion towards the product.

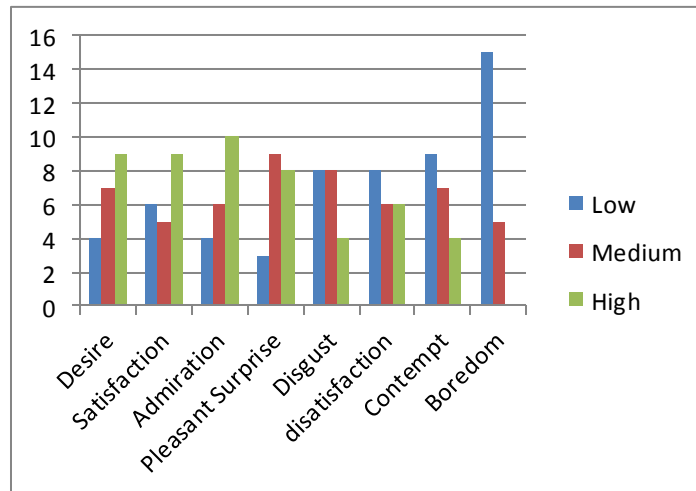


Figure 3: Chart of number of people that felt each level of emotion, against the 8 emotions.

Discussion

Overall, the results produced some interesting findings such as; the high values of pleasant emotions by smokers, the lack of boredom emotion by smokers and also the differences between smokers and non-smokers responses. The chart also shows an intercept of both smokers and non-smokers emotional values; this can be called the point of equilibrium. Generally, the study was a success due to the ability to demonstrate the theories in practice and to discover insight into product tested.

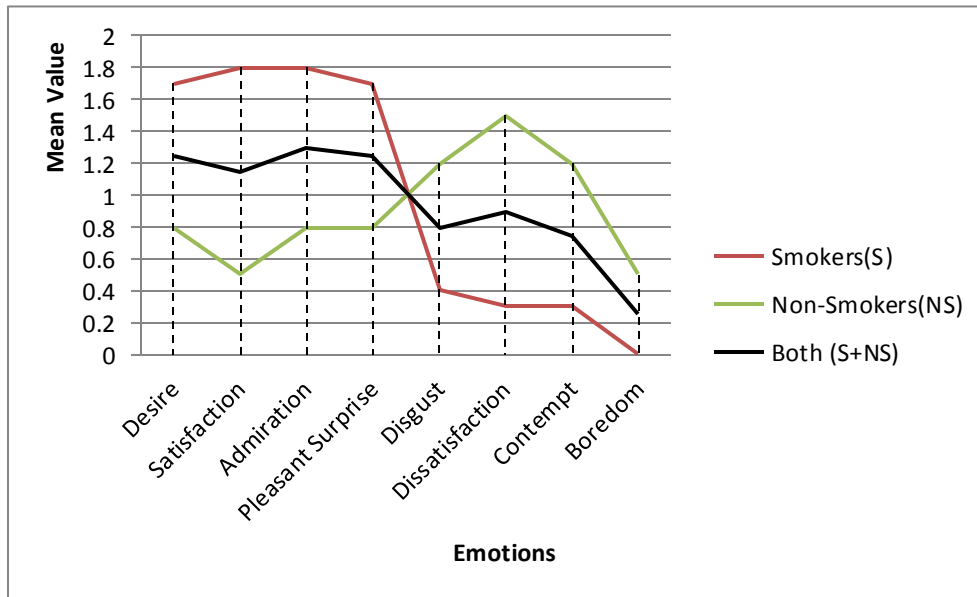


Figure 4: Combined Emotional rating of Smokers, Non-smokers and overall (S+NS)

Emotion Elicited

The highest mean values for the product was admiration. This constant is apparent due to the conditions of admiration (Desmet, 2002). That is, most participants agreed that the product will really serve the purpose it's being produced for. Since the product is to their standard, it was appraised to be legitimate and this result in an emotion such as admiration.

This also reflects in participants comment such as; "it will really be effective" and "exactly what smokers need". It was also noticed that there was the same mean value in both desire and pleasant surprise. This revealed that the product elicited the same rate of emotional desire and pleasant surprise. Also there was no smoker with boredom emotion; this means that all the smokers are excited by the product.

Smoker vs. Non-smokers

The most interesting thing about the comparison is the interception of smokers chart line, non-smokers and the overall line (see fig. 4). These three lines intercepted at a point between the pleasant and unpleasant emotions. At this point, both the smokers and non-smokers as equal value of emotions towards the product, therefore, the point is known as the "equilibrium point". With

respect to the chart, the mean value at this point is 1 and this value is the equilibrium value of the product's emotion.

The highest mean value of smokers' emotion is both satisfaction and admiration (see table 1). This implies that the product satisfies their goal and was therefore appraised as motive compliant and this lead to a satisfactory emotion. In the other way round, the highest mean value of emotion of non-smokers was dissatisfaction (see table 1) while satisfaction was also record as one of the lowest value. This means that the product was non-motive compliant to non-smokers, it therefore result in an emotion such as dissatisfaction.

Table 1: Difference between mean emotional rating of Smokers and Non-smokers

Emotions	Smokers' Mean	Non-smokers' Mean	Difference
Desire	1.7	0.8	0.9
Satisfaction	1.8	0.5	1.3
Admiration	1.8	0.8	1
Pleasant surprise	1.7	0.8	0.9
Disgust	0.4	1.2	-0.8
Dissatisfaction	0.3	1.5	-1.2
Contempt	0.3	1.2	-0.9
Boredom	0	0.5	-0.5

While there was lack of boredom emotion by smokers, the non-smokers also recorded boredom emotion as one of the lowest mean value of emotion. This means that, although the product was non-compliant with their motives, most of them were still excited with the product. This was also noticed in participants (non-smokers) comment sure as "the shape looks so unique and new" and "it's attractive and uncommon". While some of the smokers commented as "the product makes me feel like smoking" and "I feel respected the way the tray was held".

The difference between mean emotional rating of smokers and non-smokers also revealed that satisfaction and dissatisfaction has the highest value of differences. This can be attributed to their different motive which makes smokers satisfied because the product comply with their motives while non-smokers were dissatisfied because the product did not comply with their motive. It also revealed that boredom has the lowest mean differences and this implies that most of participants (both smokers and non-smokers) are excited about the product.

Pleasant vs. Unpleasant Emotions

The overall emotions used were 8; 4 pleasant emotions (desire, satisfaction, admiration and pleasant surprise) and 4 unpleasant emotions (disgust, dissatisfaction, contempt and boredom). With respect to the overall emotions elicited by the product, 65% was pleasant emotions while 35% was unpleasant emotions (see fig. 5). The highest percentage of the pleasant emotions was from smokers

while the highest percentage of unpleasant emotions was from non-smokers. Since equal numbers of smokers and non-smokers participated and the highest percentage of the emotional response was pleasant toward the product, therefore it's a confirmation that product emotion has been successfully integrated into the product.

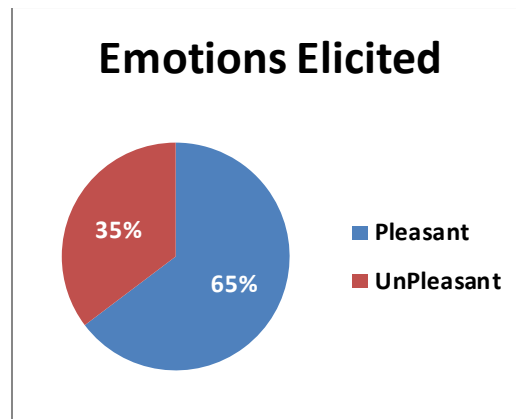


Figure 5: Percentage of Pleasant and Unpleasant emotions elicited.

BIBLIOGRAPHY

Carlson R. (1997). *Experienced cognition*. Mahwah NJ: Lawrence Erlbaum.

Crossly L. (2003). *Building Emotions in Design*, PDD group. *The Design Journal*, vol 6, iss 3. Pp 35-45.

Desmet P. (2002). *Designing Emotions*. Netherlands: Delft University Press.

Forlizzi J., Disalvo C., & Hanington B. (2003). "Emotion experience and the design of new products". *The design Journal*, vol. 6, iss2, pp29-37.

Lucinda Coventry & Martin Nixon (1999). *Oxford English Dictionary (Firth Edition)*. Oxford University Press.

Luke Woolfson (2009). "The structure, influence and application of emotion in product design". De Montfort University (DMU),

Lundahl D. (2006). "A holistic approach to product development". *Food technology* November pg 28-33.

Mc Donagh-Philip D. And Lebbon C. (2000). *The Emotional domain in product design*. *The design journal* vol 3 iss 1 pg 31-43.

Norman D. (2004). "Emotion design: Why we love (or hate) everyday things". New York: Basic Books.

Norman, D. (2006). A discussion with Don Norman on what makes great design prt1: Icon-o-Cast by Lunar Design [Podcast][<http://phobos.apple.com/WebObjects/MZStore.woa/wa/viewPodcast?id=78230141&s=143444> 19/08/2006]

Patri K. Venuvinod & Weiyin Ma (2004). "Rapid Prototyping: Laser-Based & Other Technologies", Kluwer Academic Publishers.

Peter Boatwright & Jonathan Cagan (2010). "Product Emotion: The way to captive customers".

Roseman I. J. & Smith G. A. (2001). Appraisal theory: assumptions, varieties, controversies.

The Columbia Encyclopedia (2008) Sixth Edition. "Computer-Aided Design" Retrieved February 26, 2009 from <http://www.encyclopedia.com/1E1-ComputerAD.html>

The Wikipedia (2011). "Computer-Aided Design". Retrieved October 26, 2011 from en.wikipedia.org/wiki/computer-aided_design