PRODUCT EXPERIENCE: INTRODUCING STUDENTS TO THE RELEVANCE AND APPLICATION OF DESIGN RESEARCH

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ABSTRACT
In today's competitive consumer market it is increasingly important that Product Designers understand how people will use and interact with the products they design. Designers also need to understand why people form relationships with products so that they can influence a richer and more sustainable connection between product and consumer. This paper describes an investigative project undertaken within a new 12-week undergraduate module entitled 'Design and the User'. The 'Design and the User' module was introduced in 2009 to 2nd year undergraduate design students to encourage them to consider a holistic view of physical, sensory and cognitive human capability in order to deliver empathic and emotionally engaging human centred design solutions. Within the module students undertake three projects relating to; product attachment; human-product interaction and inclusive design. The project described within this paper focuses on product attachment and is underpinned by emerging design research in the area of emotional design. In addition to exploring the concept of product attachment, the project also provided a platform to introduce students to the relevance and application of design research. Appropriate research was introduced throughout the project to provide a framework to investigate; product narrative; material objects as symbols of self; the pleasure paradigm and cognitive processing.

Keywords: Product attachment, pleasure, product narrative, emotional design.

1   INTRODUCTION

Product attachment relates to the emotional bond that users can have with their products. This bond can impact a users behaviour, to the extent that, if a strong bond is formed with a product, they may take better care of it, try and repair it if it breaks, and keep and use it for a longer period of time [1]. From a designers perspective, considering product attachment as part of a design strategy, offers two very exciting opportunities. Firstly, it is no longer feasible for an organization to compete solely on price, quality and technology [2]. As a result, organizations are challenging designers to create enhanced product–user experiences and to design products that emotionally connect with users. This is evident from recent design strategies adopted by large organizations, for example Peugeot. Peugeot have recently rebranded, see Figure 1, using the strap line "MOTION & EMOTION".
Strengthening the emotional bond between product and user, by encouraging product attachment offers the potential for richer emotional experiences and may provide both competitive advantage and product loyalty.

Figure 1. Peugeot re-brand to exemplify the adoption of emotion as a design strategy

Secondly, from a sustainability position, the construct of product attachment presents a very important and exciting opportunity. If users are prolonging the life of their products, by taking better care of them and repair them when they break, then fewer products will end up in landfill. Furthermore, the environmental burden of manufacturing replacement products will be reduced. Encouraging prolonged product use via product attachment, therefore, presents itself as an innovative eco-design strategy, which may offer more sustainable benefits than symptom focused strategies such as design for recycling.

2   TYPES OF PRODUCT ATTACHMENT

Product attachment can occur at two levels, as a result of certain product variants or specific product specimens [3]. The first level of product attachment is when a user is attached to certain product variants. This means that they are attached to the physical form and/or the function that the product offers. The attachment is somewhat superficial as the same level of attachment could be felt for a similar product of the same type. For example, a user may become attached to an alarm clock. They may become attached because they find it easy to use, the alarm sound always wakes them up and they appreciate the aesthetic form. If the alarm clock were to break and be replaced by the same or similar model, the user is unlikely to feel emotional loss. This is because the user is attached to the product variants and not the specific product specimen.

The second level of product attachment is much deeper and results in the object becoming irreplaceable. This means that the same level of attachment could never be felt for a similar product of the same type. For example, a user may become attached to a soft toy. The user becomes attached to the toy because of memories and shared experiences with it. The user may take care of it and repair it if it becomes damaged. It is unlikely that the user would feel any attachment to an exact replica, or to a brand new version of this toy.

The two levels of attachment are not exclusive and a user could experience attachment at both levels. Actually, this could result in a much stronger product attachment. For example, a user could be attached to their iPhone at both levels. The user could be attached to the physical form of the product, benefit from the function it provides and enjoy the user interface. This level of attachment relates solely to the product variants. If the user were to lose their iPhone and replace it with another iPhone then the same level of attachment could exist. It is however, possible for the user to also become attached to a specific iPhone, so that it would become irreplaceable. This may occur if the user had embedded personal meaning into the iPhone, for example they may have a number of personal photos stored on it.

3   PROJECT METHODOLOGY

The methodology for the product attachment project was based on a study conducted by Lacey [4]. Lacey investigated the reasons why people become attached to drinking cups. She used Norman's three levels of cognitive processing [5] to explore the construct of product attachment and identified a strategy to design cups that people are more likely to become attached to. Norman's three levels of cognitive processing were attributed to design characteristics in order to rationalize the attachment to the cups. Normans three levels of processing are; visceral (how something appears); behaviour (how something works or feels); and reflective (what something means).

The students used the same methodology as Lacey to carry out their project, but rather than exploring why people become attached to cups, the students were asked to investigate; their favourite childhood toy; a product that provided pleasure; a product that improved with time and a tattoo. These items provided the students with the opportunity to explore a number of different research theories surrounding product attachment. The relevance of each of these items is explained, together with the underpinning research, throughout the project results section.

Thirty-five 2nd year undergraduate design students undertook the project, 21 male and 14 female. The students were asked to collect information on attachments to the four items. Students could volunteer their own attachments or ask friends and family. Students were then asked to examine the rationale given for selecting each item and relate it to Normans model.

4 PROJECT RESULTS

4.1 Favourite childhood toy

Students were asked to identify and reflect on their favourite childhood toys in order to explore the product narrative theory. The work of Chapman [6] was used to introduce the theory. Chapman, in his book Emotionally Durable Design, discusses the product consumer relationship as attributed to the product narrative. The more emotional investment a user gives a product the richer the product narrative becomes. Chapman uses the example of a teddy bear to exemplify the narrative phenomena as all over the world teddy bears are cherished by children and the attachment often continues into adult life, long after all other childhood possessions have been discarded. Chapman discusses product attachment as a strategy for sustainable design and proposes that designers should design products that users can emotionally invest in.

The majority of students reported that their favourite childhood toy was a stuffed toy or a baby doll. The remaining students preferred cars, building blocks, games and other toys. Of the students whose favourite toy was a soft toy or a baby doll, almost all of them still have, and still cherish it. This was not the case with the students reporting other toys, with only a very small percentage of them still possessing their toy.

In most cases the soft toys and baby dolls had great sentimental value to the students, often being given to them at an early age by a close relative. These toys were rich with stories and in some cases had been on very emotional journeys with the students. One student discussed how her father had given her a teddy bear when she was born but he had then left the family home when she was only three. The toy acted as a reminder of his love for her. Another student talked about how somebody offered to buy his toy but he had proudly said that it was priceless and was not for sale.

In the case of the soft toys, the attachment was further enhanced by the great sensory pleasure, afforded through touch, that the toy gave to the students e.g. many students discussed the softness of the material. This indicated that touch may play an important role in product attachment. An example of one of the student's favourite childhood toy and the rationale as related to Norman model of cognitive processing, can be seen in Table 1. The example shown, describes visceral, behavioural and reflective benefits offered by the toy, however, it is the reflective benefits that relate most strongly to why the user has become so attached. This was true for the majority of the students who demonstrated a strong attachment.

Table 1. Example of one students' results from the "favourite childhood toy" analysis

Toy	Visceral	Behavioural	Reflective
	He has a great smile and is just adorable	He's really squishy	Once someone offered me £100 for him but I told him he was not for sale. Dopey has been on holiday to Australia with me and has been on TV twice. He's quite the celebrity! He still sits pride of place on my bedroom cabinet.

4.2 A product which provides pleasure

Students explored how a product can provide their user with pleasure and the impact this can have on product attachment by investigating pleasurable products. The pleasure paradigm, as described by Jordan [7], was presented as a means to categorise the cause of pleasure; physical (achieved via human senses), social (resulting from relationships with others), psychological (concerning cognitive and emotional reactions) or ideological (relating to peoples values). The students then attempted to map the four pleasure categories onto Normans reflective, behavioural and visceral cognitive processing

model. The importance of pleasure in establishing product attachment was evidenced by research carried out by Schifferstein et al [8] who found that pleasure experienced through product use enhanced product attachment. The students used this hypothesis to investigate whether the products they identified provided pleasure through product use or otherwise.

In almost all of the cases investigated, the students found that the act of using the product was integral to the experience of pleasure. This finding substantiated the findings of Schifferstein. When the students mapped the items categorized in terms of the pleasure paradigm onto Normans model, they found that behavioural processing attributed most frequently to the experiences of pleasure. For example, one student reported that the product, which gives her most pleasure, was her 'Tickle me Elmo', she said, "he dances about and even if I am upset or sad, he can always make me laugh and cheer me up." In a small number of cases, the pleasure was experienced from the product, simply by looking at it. For example, one student stated that the product that provides most pleasure to him was a brass tanker. " I never use it, I just like to look at it as it reminds me of my Auntie. It makes me feel good to know that I have it". In this example, although it is the visceral level that evokes the pleasure, it is the reflective cognitive processing that causes the pleasure to be experienced. Figure 2 shows some examples of the products that were selected because they give their owner pleasure. The products have been categorized using Jordnan's pleasure paradigm; ideological, psychological; social and physical.

Figure 2. Products which provide pleasure categorized using Jordan's pleasure paradigm

4.3 A product that improved with time

Students investigated the role of memories and if products can actually improve with use, by identifying a product that improves with time. Schifferstein [8], as well as advocating the importance of pleasure in establishing product attachment, also recognized the significance of memories. His study, which focused on clocks, lamps and ornaments, concluded that in the case of new products, enjoyment was the most influential factor and in the case of older products it was memories that had the strongest influence. Students were asked to consider if the product had improved as a result of emotional investment and memories or whether the function had actually improved with repeated use, which supports new proposed design strategies [9] to intentionally design objects so that the function improves with use.

In the cases were the students assigned a functional improvement over time it was predominantly as a result of a change in the material properties, for example the material became softer; a pair of boxing gloves, a pillow and a leather jacket. There was, however, an example given of a guitar, where the guitar was said to have improved with time because the more the student played it the better he got and therefore the better the guitar sounded. This was an interesting discovery as it demonstrated a development journey for both the product and the user. The function of the product was said to have improved as a result of the users enhanced competence. Another interesting example given was a car. The student who claimed his car improved with time had completely personalized it and although it constantly caused him mechanical trouble he loved everything about it. This example is interesting for two reasons. Firstly, the student felt that the car improved more and more each time he personalized some aspect of it. Secondly, he felt that the function of the car had improved as a result of his

enhanced mechanical capability. He was becoming more mechanically astute each time he encountered a problem with the car and as a result the car was performing better. This example also demonstrates a shared development journey for the product and the user. Figure 3 shows some examples of the products selected by the students that they felt improved with time.

Figure 3. Examples of products which the students felt improved with time

4.4 Tattoo

In order to investigate Csikszentmihallyi and Haltons theory [10], that material possessions are symbols of self, the students were asked to investigate the ultimate symbol of self – a tattoo. Csikszentmihallyi and Haltons view of product attachment is that material possessions are symbols of where we have been, who we are now and what we aspire to be. They describe the relationship that people have with products as a self-development process and material objects as an extension of self. Their theory extends to include how product attachments are related to key self-development processes; expressing individualism and integration with others. As a development process this suggests, the degree of attachment is constantly changing over time and therefore throughout the product consumer relationship, the level of attachment will change as the person develops. Students were asked to explore if there was any change in the degree of attachment that people felt for their tattoo now, compared to when they first got it.

For this part of the project, all of the students interviewed a friend or a family member who had a tattoo. Only one of the students reported that their interviewee felt any regret. Most students reported that their interviewee felt much stronger about their tattoo now, than when they first got it. The majority of responses as to what the tattoo meant to the owner were very personal and often related to aspects of their personality, or an important time in their lives. The example shown in Figure 4 demonstrates a tattoo, which is rich in personal meaning. The tattoo, which illustrates Swallows with the words "Don't Worry" along with the names of the interviewee's grandparents, reminds him of what his Grandparents taught him, which was, to think positive even when times are tough.
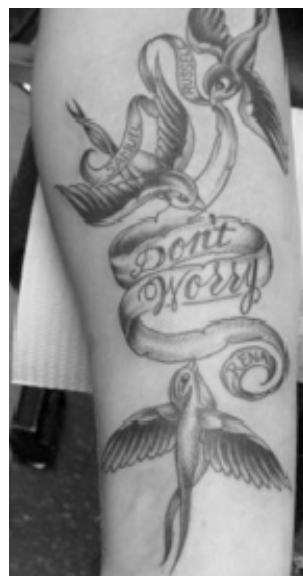

Figure 4. An example of one of the tattoos that was investigated

5 CONCLUSION

For many of the students, this project was their first exposure to academic research and their first practical experience of conducting design related research. As the project involved the students reflecting on their own attachments and those of their friends and family, they all quickly engaged with, and enjoyed the project. Many of them reported that they had never considered the importance of why they preferred one product over another or why they kept certain products and discarded others. The realization that they could potentially influence the level of attachment that a user could feel for a product was extremely valuable for their development as a designer. Underpinning the project with emerging design research was important as it allowed the students to compare their own findings with those of esteemed researchers. This provided validity to their findings in addition to encouraging them to consider the relevance and application of design research.

Based on the project the students identified a number of questions to consider when designing for enhanced product attachment. These questions, could be used in a similar way to Osborn's checklist [11], at different stages throughout the design process.

* Can you afford the user some control to personalize the product or adapt the way it is used?
* Can you use materials that become more desirable with use or time?
* Can you use materials that provide sensory pleasure to the user?
* Is there anyway to encourage memories to be associated with the product?
* What pleasure could the user experience by using the product?
* How can you ensure that there is continued product use?
* Is there opportunity for the user and the product to develop together?
* How can the product convey the personality of the user?

In conclusion, this project afforded design students the opportunity to explore emerging design research within a realistic and practical context. The ability for students to understand how design research can inform practice is incredibly valuable and should be encouraged at undergraduate level. Furthermore, encouraging students to consider the emotional impact of their products in terms of sustainability and product loyalty is good preparation for the challenges that they may face in industry.

REFERENCES

[1] Mugge R., Schoormans, J.P.L. and Schifferstein, H.N.J. Design Strategies to postpone consumers' product replacement: The value of a strong person-product relationship. *The design Journal*, 2005, 8(2), 38-48.

[2] Thackara, J. *Winners! How successful companies innovate by Design*. 1997 (Gower publishing Ltd)

[3] Mugge R., Schoormans, J.P.L. and Schifferstein, H.N.J. Product attachment: Design strategies to stimulate the emotional bonding to products. In Schifferstein H.N.J.& Hekkert P. ed. *Product experience,* 2007 pp 427 *(*Elsevier Science)

[4] Lacey M. Contemporary ceramic design for meaningful interaction and emotional durability: A case study. *International Journal of Design*, 2009, 3(2), 87-92

[5] Norman, D.A. *Emotional Design*. 2005 (New York: Basic books).

[6] Chapman, J. *Emotionally durable design*. 2005 (Trowbridge UK: Cromwell press)

[7] Jordan P.W. *Designing pleasurable products, an introduction to the new human factors*. 2000 (London: Taylor & Francis)

[8] Schifferstein, H.N.J, Mugge R. & Hekkert P. Designing consumer product attachment. *In Design and Emotion: The experience of everyday things*, pp. 327-331, 1999 (Taylor & Francis)

[9] Helms M., Leifer L. Designing objects that improve with use. In *International conference on Engineering Design, ICED'09*, Stanford, August 2009, pp. 7-311 – 7-320

[10] Csikszentmihalyi M. & Halton E. *The meaning of things: Domestic symbols of the self*, 2008 (Cambridge University Press)

[11] Osborn A.F. *Applied imagination; principles and procedures of creative problem-solving*. 1963 (New York: Scribner)