

Uniquely for you: the individualised avenue for longer product lifetimes

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Abstract

Object customisation has historically been a regular practice as a form of self, or group-identification. A product we can identify ourselves with, is one that we keep for longer, tend to repair when it breaks and dispose of later as a result of an emotional bond with it. Such bond is strengthened when we invest time and effort customising. Consumer involvement when customising is facilitated by new technologies in design and manufacturing. For example, computer algorithms can automate customisation, meaning products are customised *for* consumers rather than *by* consumers, (namely *individualisation*). However, the adequate 'amount' of consumer interaction is still debated amongst researchers. This paper questions the consumer benefit and extent of an emotional bond with *individualised* products. Using a mixed-method approach, 63 participants responded to in-depth interviews while engaging with individualisation exercises. Respondents were profiled as either of two types of consumers depending on their interest in art, design and critical engagement with what they consume, namely *Active Consumers* (AC) and *Passive Consumers* (PC). Results suggest individualisation attracts PCs, showing signs of greater engagement in the process and attachment to the product than ACs. PCs welcomed the automated decisions taken by an individualisation toolkit, whilst ACs found it detrimental to the experience. It is claimed that individualisation can strengthen emotional bonds between PCs and the resulting products. The paper concludes that individualisation could offer PCs new experiences, enriching their lives, generating an emotional attachment leading to longer product lifetimes, and potentially changing consuming behaviours otherwise unlikely to be nurtured.

Introduction

Object customisation has historically been a regular practice as a form of self, or group-identification. Egyptian pharaohs, for example, had their coffins custom decorated with messages and symbols preparing them for the afterlife. Those same sarcophagi would later be reused and re-customised when other members of the family died, as explained in (Cooney 2007). Millennia later, manual processes of production and customisation were still common practices, with examples from jewellery pieces made to order, to tailored clothing. The arrival of industrialised methods of production took manufacturing from the domestic environments or small garages and into factories, making customised products a thing of a rarity reserved for the skilled person. Technology developments in the fields of design, digital manufacture and communication since the early 1980's rediscovered the power of consumers to choose and create what they consume in an environment of products otherwise characterised by the 'one size fits all' mind set. Indeed, studies in the field of product customisation, have identified product uniqueness as a consumer need for achieving satisfaction (Tepper et al. 2001; Etagar 2008).

Additionally, a product we can identify ourselves with, is one that we keep for longer, triggers a rediscovery for repairing and re-using, and we dispose of later as a result of an emotional bond (Mugge et al. 2009; de Beer et al. 2009; Mugge et al. 2009; Ariadi et al. 2012) suggest consumers develop such emotional bond when they are involved in the customisation process themselves as they invested time and effort (both physical and intellectual) in that process.

Computer algorithms are capable of making automated product optimisation processes possible, such as in aerospace and medical industries (Yang & Bouchlaghem 2010), guaranteeing speed to obtain safe and manufacturable results. Such an automated approach is becoming a common practice amongst designers, artists and architects for the generation of a wide variety of customised artefacts. It is therefore necessary to establish whether such an automated approach to customise products (namely product individualisation) is capable of generating products that users can emotionally attach to, thus achieving similar results to products customised by consumers themselves in terms of product lifetimes.

Background

Computer algorithms applied to automate the customisation of consumer products, means products are customised for the consumer rather than by the consumer. The amount of consumer interaction, or freedom, in customisation processes, is a topic of debate amongst researchers and practitioners in the field (such as Franke et al. 2010; Piller 2010 and more). For example, Mugge et al. (2009) argue restrictive toolkits could hinder the development of an emotional bond with products, whilst Campbell et al. (2012: 7) claim that toolkits should “limit user freedom” in order to secure standards of safety, functionality and manufacturability. This paper builds on that body of work by questioning what are the benefits of individualisation for consumers. Particularly, it looks at the relationship between the engagement of consumers with customisation process governed by automated means, such as individualisation, and the extent of an emotional bond with the resulting products. The study goes on to determine if such bond can also make consumers keep individualised products for longer, extending the product lifetime.

Methods and Sample

This work had a mixed-method approach using semi-structured interviews, experiments and observation for data collection. The interviews were designed based on Ariadi et al. (2012), and Franke and Schreier (2010), assessing both: the participants’ engagement experience with a customisation exercise (individualising a white t-shirt with a pattern of painted marks) and their attachment with the resulting product (participants were allowed to keep the t-shirt). That t-shirt was both a vehicle to illustrate the exercise and a motivator to attract participants. A total of 63 participants responded the interview while doing the proposed individualisation exercise, which required them to choose their favourite coloured pattern design to apply on a t-shirt.

Individualisation exercise

To start the exercise, each participant had to roll two dice to find out how many paint marks his or her t-shirt would have. The reason for using dice to find out such number was twofold: it gave the participants a sense of participation, and portrayed an element of uncertainty in a process that takes over the decision-making. Second, the participant interacted with computer software (the toolkit), which worked with an algorithm designed using



Figure 1. Screenshot of the toolkit.

Processing software (Fry and Reas, 2017). The toolkit featured a white t-shirt on the computer screen, as shown in Figure 1.

Each time the participant pressed the space bar, the toolkit would randomly place a coloured mark (using one of six available colours) over the front of the t-shirt on screen. The space bar was pressed as many times as dictated by the number obtained by rolling the dice, ending with a pattern of colours over the on-screen t-shirt. Once the space bar was pressed all the required times, the participant had to choose between keeping the resulting pattern design and turn it into a real t-shirt, or use the toolkit again. The participant could use the toolkit as many times as desired until achieving a pattern design he or she liked on screen. Finally, using syringes loaded with paint, the participant physically applied paint marks over a real t-shirt, copying the chosen design on screen (see Figure 2, below). The physical interaction with the syringes and paint offered the participant an opportunity to feel as an active part of the customisation process even though they could not create their own design. This last part of the exercise was designed based on previous studies in product customisation that indicate a consumer needs to invest physical effort in order to engender an emotional bond with the product (Mugge et al. 2009).

Sample

The sample considered for this work were consumers that grew up with mass manufactured products and demand more personal products with which they can make an affective connection. These are consumers who are independent to decide their own purchases, familiarised with computers, software, online shopping, modern communication channels, interaction with retailers, and are aware of customised design (from computers, mobile phone deals, clothing, accessories, and more). This group includes the “prosumer”: a “22 to 42 year old consumer activist” who is “powered by connectivity and interactivity” (Konczal, 2008). After a comprehensive

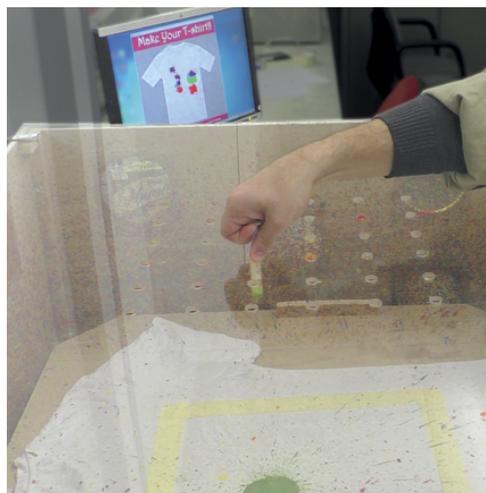


Figure 2. Participants applied paint on a real t-shirt following the design on the toolkit.

review of product customisation literature (particularly Ariadi et al. 2012, Franke et al. 2010 and Sinclair and Campbell 2009), it became clear that the sampling criteria should explicitly profile the respondents' as either of two proposed types of consumers:

- **Active Consumers (AC)** group or 'makers' – Individuals who are interested in art or design activities, by profession, study, hobby or keen interest, and who are interested in getting a customised t-shirt (40 participants).
- **Passive Consumers (PC)** group also called "lay-designer" by (Hermans 2014) – Individuals with no particular interest in art or design activities, but who are interested in receiving a customised t-shirt (22 participants).

Each participant was profiled during an introductory questionnaire at the start of the interview. That questionnaire asked whether the respondent:

- Had customised a list of products and when this was
- If they did customise products, what sort of participation they had
- Whether they had any art, design or craft-related hobbies
- Whether they would "self-identify as interested in design" (Sinclair and Campbell 2009) and art.

That differentiation of consumer types was deemed necessary given the automated characteristic of individualisation and the possible degree of consumer interaction allowed, generating different effects on either type of consumers.

Responses were analysed using thematic coding analysis, producing 26 major codes and four overarching themes. Eight weeks after the interview took place, further questioning was sent to the participants via email, assessing their attachment to the product over that period of time. After the thematic coding analysis, the qualitative codes were quantified using a scoring system based on Henerson et al. (1988) that allowed identifying which were the key codes that could best explain the participants' behaviour.

Findings

The proposed participant groups, AC and PC, showed distinct behavioural characteristics. ACs spontaneously looked for an opportunity to customise the t-shirt according to their preferences. Meanwhile, PCs expected indications of how to do the exercise. Both groups of participants obtained t-shirts of similar quality. Figure 3 shows a sample of resulting t-shirts.

The PCs felt the automated toolkit allowed them to participate in the individualisation process without the responsibility of deciding how to design a pattern. PCs felt comfortable with the exercise, engaged with the process and valued the individualisation experience.



Figure 3. Sample of finished t-shirts.

Further, PCs explicitly highlighted that the automated decisions taken by the toolkit was a beneficial feature of the individualisation exercise. PCs valued their chance to have an input on the otherwise automated process (rolling the dice, pressing the space bar and using the syringes) thus feeling ownership over the resulting design. On the other hand, ACs struggled with the software that restricted their personal choices as they hoped to design a pattern by themselves. When they found that the automated nature of toolkit dictated how the design should be (participants were invited to customise a t-shirt but were not advised how that would happen), they become frustrated and did not engage with the process or felt ownership over the final design. ACs results were evidenced not only through their responses to the interview, but also through other verbal expressions of disapproval and their body language.

During the physical participation of painting the t-shirts, ACs talked more positively and frequently than PCs, even though ACs showed signs of frustration with the overall experience (which included the use of a restrictive

toolkit), highlighting the differences that characterise the two groups. The PCs referred to the physical painting part of the exercise (e.g. using painting tools) less positively than ACs, but it triggered the sense of achievement and pride at the end.

Once the exercise was finished, the PC participants referred to the resulting t-shirt more positively and felt attached to it more than AC participants did. Responses to the additional questions that were emailed to all participants eight weeks after the interview, indicate that whilst not all PCs wore the t-shirt, they did still have it, keeping it with other clothing and took care of it. On the contrary, ACs referred to the t-shirt more negatively: only one of them wore the product, some forgot where they kept it and some no longer had it (they lost it or gave it to someone else). Two of the ACs did keep the product only because they further customised the t-shirt (e.g. cut the sleeves or added paint marks).

Finally, only two participants (both ACs) commented on the risk of waste due to unwanted individualised results, given that the exercise did not allow them to customise exactly as they initially wished. This did not seem to be a relevant issue for the PC group, as they did not mention it.

The qualitative responses were quantified using Henerson et al. (1988), and suggest that ACs' attachment to the product was weaker than that of PCs. The difference between PCs and ACs behaviour was key when evaluating individualisation as a driver for extended product lifetimes.

Discussion

Consumers that align with the PC profile as described in this study, do not regularly seek to engage in product customisation activities that require a level of effort they are not keen to make (as well as art and design skills they do not possess). It is argued that PCs' positive response to automated customisation was due to their lack of experience in art, design and craft. In other words, the software aided them to find a coloured pattern that they liked with a minimal amount of effort, making those participants engaged with the experience and valuing it positively. Although the act of physically painting the t-shirt (following the pattern on the computer screen) was a challenge for PCs and they perceived it negatively (probably due to their unfamiliarity with that sort of activities), it arguably allowed PCs to be proud of the finished t-shirt. It could be said that the opening of new design and customisation avenues driven by the automated means as discussed on this study, could have the potential to alter the consumer behaviour of PCs as they benefit from new and attractive new experiences.

ACs approached the exercise with more developed art and design skills than PCs and higher expectations of the pattern design they could generate. Those expectations were not met, turning their engagement with the process unsuccessful. Whilst the ACs cohort did welcome the act

of physically painting the t-shirt, it was not enough to generate an emotional bond with the product as they did not feel authors of the design, leading to not keeping the product as PCs did.

The evidence suggests that individualisation experiences (which technically restrict the consumer freedom when interacting with the customisation process) can engage PCs, and the resulting products can generate an emotional attachment. In line with Mugge et al, (2009), PCs' emotional bond with the t-shirts resulted in keeping them for longer than ACs, who did not experience an attachment. Therefore, the argument that restrictive toolkits deteriorate the emotional bonding with customised outputs is challenged in cases where the user matches the proposed PC description.

The automated customisation process studied in this paper, generates designs that give PCs the opportunity to obtain unique goods. This paper, however, only considers individualisation at small scale: 63 participants who obtained 63 unique t-shirt designs. It is uncertain what could be the effects of individualisation over the uniqueness value (as identified in (Tepper et al. 2001; Etgar 2008)) of products if individualisation was applied at an industrial scale. It is speculated that mass-individualisation (generating uniqueness en-mass), could hinder its uniqueness value as it becomes an ordinary thing instead of something exclusive.

Conclusions

PCs (individuals with no particular interest in art or design activities) welcome the automated decisions taken by an individualisation toolkit to customise. This study concludes that an individualisation approach to customisation can offer a beneficial opportunity of consumer interaction and product attachment, particularly for PCs. As such, those consumers obtain more opportunities to obtain unique, customised belongings with which they can establish an emotionally bond. The study also concludes that limiting the level of consumer participation in the process can generate added value products and emotional attachment them. ACs on the other hand, are not attracted to automated process of customisation due to the uncertainty over the resulting product.

An automated process of customisation can offer an interesting avenue to customise and open up novel channels for artistic expression assisted by computer algorithms, attracting those consumers who would not spontaneously be persuaded to invest time or effort customising. As a consequence, those consumers benefit from living new experiences that enrich their lives, potentially changing consuming behaviours. Individualisation could therefore be considered as a valuable opportunity for practitioners, developers and entrepreneurs to generate new businesses around customised goods for PCs, generating the necessary emotional attachment for longer product lifetimes, which would otherwise be unlikely to be nurtured.

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