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Development of a Design Probe to Reveal Customer Touch Points in the Sale of Mass Customised Products

Kate Herd, Middlesex University, UK

Andy Bardill, Middlesex University, UK

Mehmet Karamanoglu, Middlesex University, UK

Abstract: “Roll over, Henry Ford. Today you can have any color you want, as long as it’s the one you want” (Gilmore and Pine 2000, pvii). As mass customisation (MC) increases in both popularity and accessibility, it raises questions as to the nature and notion of the customer co-design experience; what is a ‘co-design experience’, and how can this be best designed for? This paper posits that by its very nature, a co-design experience consists of activities that relate to the co-design of the product via the product configurator (physical store, online store etc), but also that a co-design experience is broader than that, comprising both tangible and intangible elements, and encompassing the entire purchasing experience from the beginning of co-design activity through to the receipt of the customised product and beyond. Traditional research methods will often fail to capture the entirety of this experience. This paper highlights the need for empathic research methods which go beyond current research within the field of MC, and discusses the development of a design probe used to gain insight into co-design experiences.

Keywords: Customer Co-designer, Mass Customisation, Mass Customization, Empathic Design, Design Probe, Customer Experience, Design Research, Touch Points

Introduction: Mass Customisation and the Co-Design Experience

AS MASS CUSTOMISATION (MC) increases in both popularity and accessibility, there is an increasing understanding of the practical implementation of MC for designing and manufacturing custom, co-designed products. However, as the nature of the customer experience changes from an off the shelf purchase to one of customer co-design, it raises questions as to the nature and notion of the relatively under-researched customer co-design experience. In this context, product development has moved into the realm of shared experience; whilst design remains a “conscious and intuitive effort to impose meaningful order” (Papanek 1997), the design process becomes a two stage approach, where the customer co-designer becomes a partner in the process of adding value (Reichwald et al. 2004). Acknowledging this central role of the customer co-designer, and the extent to which they are embedded in the design process, is a crucial aspect of understanding and developing an overall MC strategy. Mass customisation by its very nature consists not only of the tangible product or service offering, but also of the co-design experience for the customer. This experience differs from purchasing a mass produced product as it requires engagement and participation in the creation process. It is an approach that exhibits the potential to enhance an individual customer’s emotional connection with the product, through their authorship of that product (Schreier 2003).

The MC literature to date generally offers research findings in one of two areas relating to the customer co-design experience:

- Issues surrounding the contents of the solution space (a conceptual container for the matrix of product possibilities that are made available to a co-designer for any given MC product)
- Communication and application of the contents through an appropriate product configurator (a system responsible for guiding the consumer through the configuration and purchasing process, often web-based software or a physical store)

Research approaches differ within the field; some utilise a method which attempts to recreate an MC purchasing environment, for example work by Kumiawan et al. (2003), and Kamali and Locker (2002), or else take an empirical approach to understanding the motivations and choices of a consumer as they are asked to go through a pre-selected MC purchasing process, for example work by Huffman and Kahn (1998) and Bee and Khalid (2003). Much of the research concludes with a completed design at the product configurator. Other researchers use quantitative methods to investigate customer perception and understanding of MC without any participation in a co-design experience, for example Fiore et al. (2004) and Dellaert and Dabholkar (2007). Kaplan et al (2007) state that the customisation process cannot be separated from the customised product, yet there appear to be few research studies focussed on the wider aspects of customer experience beyond the specific co-design decisions at a product configurator. This paper posits that a co-design experience consists not only of activities that relate to the co-design of the product via the product configurator, but that a co-design experience comprises both tangible and intangible elements, encompassing the entire purchasing experience from the beginning of co-design activity through to the receipt of the customised product and beyond.

It is often difficult to define where any customer experience begins and ends. However, to define it as simply the financial transaction and receipt of goods, or in the case of MC as the specific co-design activities at the configurator, is to severely limit opportunities for satisfying and engaging with that customer, and risks leaving their experience to chance. Whilst they may be happy with the product, what about the packaging that they can't open without scissors, the demeanour of the retail staff, the email confirmation of the order that never came, the switchboard that took 7 button presses to reach an operator, or the six week wait for the product to arrive? The most recent call for research in the field of MC confirms this view, and wants to “shift the mass customization debate from a mere physical product level to a perspective of a total value system and life cycle experience and to go deeper on customer-centric communications” (MCPC 2009). This recognises the importance of the design of the product, service and experience, and raises the question of how appropriate research methods can be best selected and used to support increased understanding of the MC customer co-design experience?

Walking the Customer Corridor: Mapping Touch Points

One method of understanding what occurs in a co-design experience is to break the experience down into the touch points that construct it; the “instances of direct contact either with the product or service itself, or with representations of it by the company or third party” (Meyer

and Schwager 2007). As Slassi (2005) describes, it is these tangible touch points which make the experience real, enabling brand to be savoured, remembered and communicated.

Our research uses the conceptual model of a customer corridor (Herd et al. 2009) to provide a useful reference for understanding the experience through which the customer co-designer travels when purchasing a MC product. This is based on work by Meyer and Schwager (2007) and Reichheld (2001), who use the customer corridor as a marketing term; “It’s a good model for study of customer behaviour, because what determines value is the sum of relative benefits and drawbacks, advantages and disadvantages, that consumers experience at each doorway along the corridor” (Reichheld 2001, p201). Our research uses these doorways (and spaces in between), to represent key activities such as co-design at the product configurator, payment, waiting for products to arrive etc., and are each described through a series of touch points which construct the tangible co-design experience (website, till receipt, email, packaging etc.). These touch points must be considered in their totality in order to create a “clear and consistent unified customer experience” (Moggridge 2007, p422). This provides a narrative to the co-design experience. This narrative is important as brands and products need to weave a story around themselves that has emotional appeal and that also communicates an authentic message; Caterpillar sells shoes on the back of its rugged work image, while customers of the Body Shop buy its beliefs along with its products. (Lewis and Bridger 2004). An inconsistency in the customer experience can turn touch points into negative experiences, leaving the customer wanting or frustrated. The notion of a customer corridor is therefore useful in supporting an understanding of where design effort is required to create the desired co-design experience for the customer.

During this research project we have undertaken a series of MC purchases, with the purpose of mapping existing customer corridors across a range of leading MC products and companies. This has enabled us to gain insight into *what is happening now*; as Bill Moggridge of international design consultancy IDEO states, “the only way to experience an experience is to experience it” (Suri 2004). It is recognised that every co-design experience is unique, but this construction of a series of customer corridors offers frameworks against which each later co-design experience can be viewed. In an attempt to improve and model good practice, there is a need to uncover not only *what is happening now*, but also *what could or should be happening now?* This information cannot be gained solely from studying from current practice. Without input from co-designers it is naive to believe we can understand their co-design experiences, but equally it is important to recognise that the co-designer cannot tell us what to design for them; “designing new experiences is usually about figuring a way to connect with people” (Kelley and Littman, 2001).

Design Research: Using Design Probes as a Method of Gaining Inspiration and Insight

If, as Fiore et al. (2004, p845) describe, “active engagement of the customer is central to the experience of co-design”, then the selection of appropriate research methods for understanding co-design is paramount in deriving insightful data which can capture the entirety of the co-design experience for the customer. The tracking of customer behaviour on websites, for example, could be seen as simply “capturing data” rather than the rich information source of customer observation, such as can be found in empathic design techniques in product design (Leonard and Rayport 1997). As the “rationally acting user has been transformed

into a complex, emotional experienter” (Mattelmäki 2006, p20) it is important to recognise that MC research must not remain formulaic, turning customer experience into mathematical equations. As Rosenthal and Capper (2006) describe, formal market research techniques will often fail to detect opportunities for product innovation. “Traditional market research asks people questions about what they do and the design is based on what they say. But there is a difference between what they say they do and what they really do” (Myerson 2001). Alternative approaches are needed to elicit subtle, tacit customer needs, requiring product designers to “go beyond the view of a product as a set of explicit performance features and functions and to consider the implications of the physical and emotional context of product use” (p216). Research methods are required which reveal co-designers tacit knowledge and expose latent needs, relating to both their experience as well as the product they have purchased. These are often difficult to describe in words; “We are often testing the wrong things: products instead of behaviour, acceptability instead of experience” (Gobé 2007, p223). Adjoining disciplines such as marketing, in particular areas such as Customer Relationship Management (CRM) and Customer Experience Management (CEM), as well as in product design areas relating to user-centred design, can all offer theoretical and practical techniques to support existing MC research.

It is important to note that “design research is paradoxical: it is both imaginative and empirical” (Johnson 2003). Imaginative since “the customers’ ability to guide the development of new products and services is limited by their experience and their ability to imagine and describe possible innovations” (Leonard and Rayport 1997) yet grounded in evidence since no business wants to feel their research has been ‘made up’ by the research department (Johnson 2003). Research techniques are needed which enable us to empathise with the co-designer; “we need not only a window into the user’s life, but also an explanation of how he sees things in that window” (Mattelmäki 2003, p121). These new approaches to customer co-design research in MC may reveal elements of customer experience which have not yet been identified, thereby offering new opportunities for design and potential market advantage. We are looking for what we describe as ‘latent touch points’, touch points which are currently missing or un-designed within co-design experiences.

This paper describes the development of, and reflects upon, a design probe used as part of a mixed-method approach to understanding MC customer co-design experiences. Defined by Mattelmäki (2003, p120) as “self documentation packages for gathering data on people’s actions and the contexts in which they take place...[design probes] provide people with tools for reflecting and projecting their opinions and feelings”. Their advantage lies in their “rich, textured understanding of user need” (Gilmore 2002, p31), recognising that “the truth is that there is no average person out there” (p32). First developed in a research project during the late 90’s, cultural probes, as they initially began, referred to packages of materials designed to provoke inspirational responses, “an impressionistic account of...beliefs, desires...aesthetic preferences and cultural concerns” (Gaver et al. 1999, p25). Set within a context of a pan-European research project, Gaver et al. (1999) developed cultural probes as a method of stimulating imagination rather than defining problems. They formed part of a strategy for “pursuing experimental design in a responsive way” (p22), driven by a design team viewing research into technology from the traditions of artist-designers rather than the more traditional scientific or engineering approaches. Unlike traditional self-documentation techniques which are designed to offer as little disruption to participants as possible, the cultural probes were designed to provoke and to stimulate imagination (Mattelmäki 2006).

In contrast to most research methods, which strive for objectivity and impersonal results though controlled procedures, design probes seek to actively embrace the subjectivity of their method, recognising that: "...any user-testing involves a cycle of expression and interpretation. Researchers express their interest through questionnaires, experimental tasks, or the focus of their ethnographic observations; volunteers interpret researchers' motivations and interests and express themselves in response; and researchers interpret the results." (Gaver et al. 2004, p55). Probes become a designers tool for creating a dialogue between themselves and their participants. They are not intended to provide design solutions, but create an empathic understanding of product users (Mattelmäki 2003, p143). They enable designers to construct a story of an experience, not based on constructed personas, but on real life experiences, helping to avoid preconceptions and assumptions; "They can make the facts live and the stereotypical image of the user fade" (Mattelmäki 2006, p50). Participants can be seen empathetically rather than intellectually; "Rather than producing lists of facts about our volunteers, the Probes encourage us to tell stories about them" (Gaver et al. 2004, p55). This is valuable since summarising returns risks producing an "average" picture that fails to capture insight into the individual, filtering out the unusual moments that can be the most interesting (Gaver et al. 2004, p56). Carrying out this research with small numbers of participants using these methods also falls inline with the nature of MC where everyone is an individual; as Moggridge (2007) describes "Empathic research methods...if skilfully used, can yield much inspiration from small numbers of subjects" (p434).

Tuning In: Conceptualising the Design Probe for an MC Co-design Experience

The Study

The design probes in this study form part of a wider research strategy, and were used to gain insight rather than specific answers to a research question. Once handed to the participants, design probes are a means of gathering what Gaver (1999) calls "fragmentary data" to support an understanding of a co-design experience; probes can be seen, essentially, as open questions (Mattelmäki 2006, p65). One of the problems with current research methods in the field of MC are the approaches that only provide a snapshot of time, this reveals very little of the wider customer co-design experience. This issue becomes particularly relevant when we aim to understand the emotional reaction to specific events within a timeframe which, for some purchases, may last up to eight weeks. It is unlikely during a follow up interview that an accurate account of emotions will be recounted, for example at the moment of payment, when this view is likely to be later distorted by the satisfaction or dissatisfaction with the final product. Likewise the 'recreation' of a website to evaluate peoples clicks through a custom site are lacking any engagement with brand and will to purchase, which are further considerations within this work. The benefit of the design probe, therefore, is its ability to be sent out over a prolonged period of time to explore a real life situation that the researcher would otherwise not have access to.

The following areas were to be explored using the design probes:

- Insight into what events, and corresponding touch points, occur during a specific co-design experience

- Insight into the emotional reaction/thoughts associated with those events/touch points
- Insight into the social networks of the customer co-designer with regards to their co-design experience
- Assistance in the construction of a persona, and storytelling of an individuals experience

The experiences captured within the design probes can be viewed against the customer corridors from our previous MC purchases; this helps to view the findings in context (for example mapping touch points against a timeframe), enabling the researchers to have a prior understanding of the specific co-design experience for each company selected. This has the benefit of removing the necessity for the probe to inform the researcher of accurate information regarding all of the purchasing experience. It enables a focus on the interpretation of events, and the associated emotional reactions. The design probes are retained for one week after the co-designed product arrives, and are then returned to the researcher. This is followed up by an interview in which the co-design experience can be further explored. As Robertson (2006) discusses, probe results can provide both prompts for the interview, and can help in bridging the distance between the researcher and volunteer. The completed materials offer insight into the participants experience prior to interview, and allows the interview schedule and manner to be adjusted to better suit the needs and specific context of each participant. In addition, the researchers own experiences, in this case our MC co-design experiences, offer a shared understanding between interviewer and interviewee.

Initially two design probes have been produced to act as pilots, with a further four to follow in the main study. The purpose of the pilots was to gain feedback on the tasks, clarity and time required to complete the probes, prior to the full study. The results could then be reviewed to establish whether the research objectives were likely to be met. It is important to recognise, however, that since the nature of probing is one of “conscious risk-taking” (Mattenmäki 2006, p84) the results of the pilot would not necessarily be replicated across other participants and that the probe must be designed to offer surprises, and therefore not be too explicit in its use and instructions.

Five companies were offered from which a custom purchase could be made (bag, trainer or watch) either online or in-store:

- Nike ID
- Freitag
- Timbuk2
- Pumas Mongolian BBQ
- K-Swiss

This selection presented a broad range of products from leading companies in their fields, based both in the UK and abroad. Customer corridors had been created from an MC purchase from each one. Participants were found in response to posters placed around two university campuses, and through enquiries to students within the department of Product Design and Engineering at Middlesex University. The profile of the participant was unimportant, more important was a genuine desire to purchase a custom product from one of the companies on offer. The emphasis remained on enthusiastic and willing participants. It is recognised that the purpose of the design probes is not an unbiased study, but rather insight into specific events which are driven by the customer co-designer. A £50 thank you payment was offered

to participants for their time upon completion of the probe and follow up interview; this payment was deemed high enough to generate interest whilst deliberately less than the price of any of the custom products on offer on the websites at that time.

The Pilot Design Probe

The pilot design probe comprised a number of components designed to complement each other in the insight gathering process; inspiration was taken from examples of other probe kits in the literature (see Gaver et al. 1999; Gaver et al. 2004; Mattelmäki, 2006; Robertson, 2006 etc.). The pilot design probe included:

- a set of 8 task cards
- set of photo stickers and ‘capture it’ folder
- ‘before you start’ sheet
- ‘it’s arrived’ sheet
- a record book and pen
- digital camera and photo printer
- digital voice recorder
- ‘what happened’ map and
- ‘who did I tell’ map.

Each item had basic instructions for use. The activities were guided in part by their names/labelling; ‘CAPTURE IT’ tasks required a photograph, ‘DRAW IT’ tasks required a diagram, and ‘DESCRIBE IT’ and ‘LIST IT’ tasks entailed a written response.

The design of the probe components is important since research suggests that good design and attention to detail increases the motivation to participate (Lucero and Mattelmäki 2007, p173). Mattelmäki and Battarbee (2002) cite “originality and credibility” as the key to building user empathy. Other researchers discuss the nature of the packages; “their appearance as ‘presents’ ... make the probes stimulating and fun” (Hemmings et al. 2002, p49), kits have been described as “a surprise box with lots of activities” (Mattelmäki 2006, p73). The design probe must encourage participation whilst not overly burdening the participant with work. Functionality and usability are key components of probe design and attention must be paid to both the needs of the participant and the researcher, considering how the information will be documented, collected, communicated and stored (Mattelmäki 2006, p75-6). The design and construction of the probe kits is an important part of the researchers experience, “As I...physically cut, pasted, folded and wrote each part of each probe, the research themes were constantly being processed in my head” (Robertson 2006, p 11). The contents of this kit were carefully designed to offer interest through a mixed media approach. The professionalism of their production and presentation was deemed important since they were being used to probe the experience of co-designing ‘design-led’ products.

Task Cards

The 8 ‘task cards’ had images on the front and questions on the back, exploring the participants perceptions of themselves, the company they were buying from and their thoughts about customisation. The images were chosen either to support the questions, or as provoc-

ative images to generate thoughts. Participants were asked to “complete when the mood takes you” and to date the card. The tasks included:

- DRAW IT: A map of my life...
- DESCRIBE IT: A brand that stands out from the crowd...
- LIST IT: Choose five words to describe the company that you’re buying your customised product from



Figure 1: Set of Eight Task Cards. Two Completed Cards

The ‘What Happened’ and ‘Who Did I Tell’ Maps

These A3 ‘maps’ were designed to gain insight into the tangible nature of their co-design experience. The ‘what happened’ map was intended to record the touch points that occurred in their experience “*This map records those moments that make the experience real...use the ‘what happened’ map to record the times you interact in some way with either the product or the company*” (‘what happened map’ instructions). However, it was deliberately designed in a way that would be open to interpretation about how information was recorded. The symbolism of a treasure map was used, intended to support their understanding by communicating the idea of a journey and reaching a goal (in this case the arrival of their co-designed product).

The ‘who did I tell map’, assists in building a social narrative around the individuals co-design experience, offering insight into who they were talking to about what they had purchased, at what stage of the co-design experience, and what was said. This was inspired by the ‘friends and family map’ discussed by Gaver et al. (2004) which encouraged participants to diagram their relationships. The ‘who did I tell map’ uses sticker dots and simple drawings as a fun, easy way to record the ‘character’ being spoken to (see figure 2). “*I loved these, they were great [the who did I tell map and sticker dots]...the dots are good...it is kind of*

fun” (transcript from post-probe interview). It also offered a means of differentiating conversation relating to the design probe, from conversation about the co-design experience through two sticker colours.

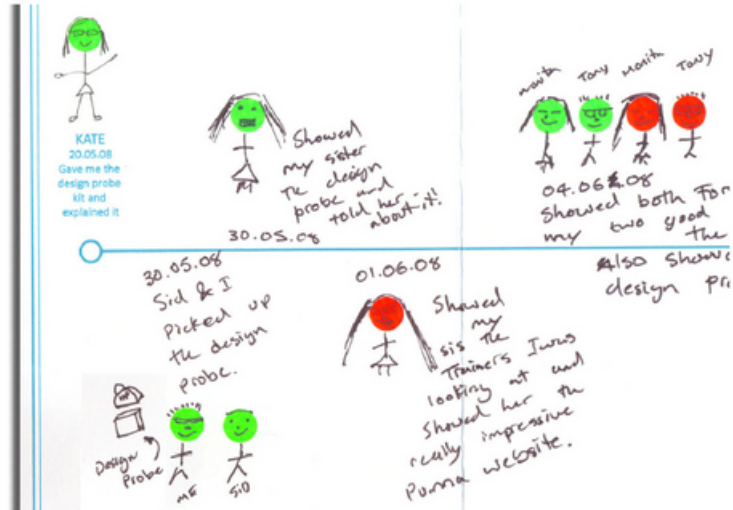


Figure 2: Section from the Completed ‘Who did I Tell’ Map

The Postcard Stickers

The postcard stickers were supplied as an A4 sheet containing 4 stickers (see figure 3). Each stamped, self-addressed sticker had a ‘CAPTURE IT’ photography task (the photo for which then became the postcard) and a written task. They continued the data gathering found in the task cards, whilst retaining contact between the participant and the researcher. This was particularly important when the anticipated period between purchase and arrival of MC products from these five companies (based on our customer corridors), varied from 6-50 days. The first postcard in the set informs the researcher of the purchase date and company purchased from, (from which an arrival date can be estimated for the product); this enabled a basic means of tracking the probe use.



Figure 3: Postcard Sticker Sheet, Plus One Completed and Returned Postcard (CAPTURE IT Task: Something Frustrating).\

The Record Book

The record book requested daily writing about what was happening and how the participant felt about their experience. The emotions were recorded through ‘colouring in’ stars, set against a number of emotions including anticipation, disappointment, happiness etc. Additional space was included for participants to add their own emotions to the list.

The Pilot: Interpreting Results to Redefine the Design Probe

At the end of the pilot, only one of the kits was returned completed. This highlights the potential difficulty of finding participants willing to both make the purchase and complete the probe. One of the challenges of using design probes is their intrinsic nature of being sent ‘out there’ beyond the researchers control; this is particularly challenging with the lengthy MC product lead times, there is no way of knowing whether the data is being gathered. The completed design probe and follow up interview offered valuable insights into both the co-design experience, and contents and working of the design probe.

The key issues for redesign can be summarised as follows:

- **Perceived repetition of data.** One of the key issues in the returned components, reinforced during the interview, was a perceived repetition of tasks and data required. This was due, in part, to the nature of the open questions and their subsequent interpretation. This occurred primarily across the ‘what happened’ map and the record book. It had been hoped that the map would reveal touch points whilst the record book would discuss wider experience, but instead information was duplicated.
- **‘Nothing is happening’.** The spaces between the ‘doorways’ in the customer corridor, for example between payment and receipt of goods may offer the most potential for exploring improvements to the co-design experience; as Donald Norman describes “Anytime one system or set of activities abuts another, there must be an interface. Interfaces are

where problems arise, where miscommunications and conflicting assumptions collide. Mismatched anything... is a designer's heaven" (2008, p36). It is therefore necessary to explore ways to understand how people are feeling during this time. What occurred in the probe however was generally a blank, or notation of "nothing happening".

- **Clarity of information.** There was a need to ensure the themes i.e. 'CAPTURE IT' are made clear in the presentation of the task – for example this wasn't understood for the early postcard stickers. The design probe also contained a large number of components which was felt to be confusing "*when you first open it, it's like, what do I do?*" (transcript from post-probe interview). The re-design of the design probe simplified the components and their structure within the kit.

The Modified Design Probe

One of the priorities within the re-design of the design probe was to retain focus on the initial goals of the research, whilst retaining the openness of the probe method. Each component was re-evaluated for both clarity and intent. Components were minimised or combined where possible, and the welcome letter was simplified in terms of its text, whilst offering a visual representation of the probe components and into which category they fell (CAPTURE IT, LIST IT, DESCRIBE IT), and what this meant. The significant changes can be described as follows:

The 'What Happened' Map

One of the major changes required in the kit is the manner in which touch points and the emotional response to these, has been recorded. Specified touch points were absent from the previous map in an attempt not to 'lead' the participant. However, a review of its purpose highlighted the emphasis on the emotional reaction to the touch point rather than the recording of the touch point itself. Therefore the map was redesigned using stickers as a quick and simple method of recording touch point and response (see figure 4). 18 touch points were identified from our previous set of customer corridors; these included the shop, receipt, email, telephone call, blog etc. and were duplicated across a book of 90 mini stickers in a sticker book. 45 images (a mixture of illustration and photograph), again presented in a 90 mini sticker book were then created to describe 'how did it make you feel?' in terms of their emotional reaction to the touch point. The relationship between the image and the touch points was designed to be abstract and open to interpretation. Once a touch point had been identified and stuck onto the map, up to three image stickers could be applied next to it. The map was designed in such a way that the visual appeal would increase the more it was used.



Figure 4: ‘What Happened’ Map, and ‘Touch Point’ and ‘Emotion’ Sticker Books

This component was trialled before use on a participant outside of the pilot, who had no experience or knowledge of the design probe kit. Touch points from an MC purchase were presented to them, talking through what would be happening in their co-design experience. At each touch point, they were asked to select from a wide range of printed images. The experience was discussed and selection of images was made for the design probe sticker books. These were chosen to offer a breadth of interpretation, minimising those which could be seen to have direct connections or meanings. Whilst the selection of images will offer no specific answers, its strength lies in its ability to encourage participants to reflect on the touch points they experience, and then to act as a trigger during the interview.

Uncovering Social Networks

The ‘who did I tell’ map was removed from the kit, despite its appeal during the trial; the appeal of using stickers was translated to the ‘what happened’ map. It was decided that the previous design was limited in terms of the data requested and recorded; there was limited amounts of space and no ability to record more than a few words relating to who and what was said. Participants are now encouraged to carry the digital voice recorder to record their thoughts, actions and discussions throughout the entire experience.

The Record Book

The design has been simplified to become a more time effective solution. One of the main problems with the pilot was the duplication of information and the lack of entries where ‘nothing’ was perceived to be happening. The layout was modified to focus on daily emotions through colouring in stars (see figure 5), with written entries of a lesser importance since the recording of events would happen within other design probe components. It is hoped that the title of a ‘diary’ infers daily entries, and that the design will assist in overcoming the ‘nothing happened’ mindset.



Figure 5: The Diary – Instructions, and Day One

The Next Stages

This paper reports on the development of a design probe used to explore the MC customer co-design experience, and reflects upon how the initial findings can be used to modify the design of the research tools. This study forms part of a larger research project seeking to further understand the co-design experience through the use of empathic research methods. The aim is to develop a series of resulting conceptual models to assist mass customisers in their design for co-design.

Design probes appear to offer a valuable method of gaining insight into the entire co-design experience in terms of both the recording of events and activities, and the emotional reaction to these. Their use, however, is not without challenges due not only to the time consuming process of creating the design probes, but also the loss of control once they are ‘out there’, the precarious nature of the results, and the challenges of analysing the ‘fragmentary data’. It is important to recognise that the probes cannot tell us what to design, but can help increase our understanding of individual co-design experiences, thereby fuelling the construction of stories and personas which enable us to share this information.

Following the pilot, four modified design probes are being distributed to participants wanting to purchase an MC product from one of the selected companies. Further discussion will be reported on the findings relating to the co-design experience, appropriateness of the design probe method, and further reflections on the design of the probe kits.

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About the Authors

Kate Herd

Kate Herd is a lecturer in the Product Design and Engineering department at Middlesex University. Her PhD ‘The development of conceptual models for designing for co-design in mass customisation’ is investigating the customer co-design experience, developing models and tools to inform the process of designing for co-design. Utilising design probes, her work appears to be one of the first in the field to explore the entire customer co-design experience, utilising empathic research methods and theories from the field of product design

Dr. Andy Bardill

Andy Bardill is a principal lecturer in Product Design and the Director of Product Design and Engineering Programmes at Middlesex University. His current work and research interests include: Interaction Design, affecting human behaviour through environmental design, mass-customisation, and the robot apprentice

Dr. Mehmet Karamanoglu

Mehmet Karamanoglu is a principal lecturer in Product Design and Engineering and head of Product Design Research Centre within the School of Arts and Education at Middlesex University. He is also a Visiting Professor at University of Cincinnati, Ohio, USA. His research and scholarly interests include mass customisation, mechatronics, design engineering, discrete event simulation, manufacturing automation and robotics in the creative industries

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