



## Participatory Design for Enhancing the Shopping Experience

*Master's Thesis in the Master Degree Programme, Interaction Design and Technologies*

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Cover:

Photos from ethnographic studies in Gothenburg and Nanjing, with icons of technologies in customer's hands, customer's home and customer's surroundings.

## Abstract

Shopping experiences have become an important factor for the competitive retail industry, and they can be enhanced by technology. Technology allows the in-store experiences to be digitally enhanced. Existing applications focus on improving the connections between customers and products. Technology can help construct relations between tangible in-store shopping and virtual experiences beyond shopping. By involving customers and stakeholders in the early stage of design, the connections of digital and tangible shopping can be explored to enhance the shopping experience. This participatory design methodology provides an approach for innovating interactive shopping experiences.

The thesis explores spaces for an interactive in-store shopping experience through participatory design methodology. The main discussion of the thesis is around how the design methods support the articulation of shopping experience innovation. The innovation project in the report aims at enhancing and enriching the shopping experience for female fashion retailers.

Through the innovation project, various methods of participatory design are analysed. This includes the ethnographic studies and co-creational strategies in workshops. While ethnographic studies of customers expand knowledge for innovation, co-creation develops concepts to fulfil the customer's requirements and brand's vision. Through the iteration of methods and design with a participatory approach, novel experiences are generated. This thesis results in a concept as an exemplification of the methodology implementation, and concludes with a synthesis of methods that can be applied in the area.

The report is written in English.

**Key words:** Participatory design, Ethnographic study, Co-creation, Shopping experience, Design methods



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# 1. Introduction

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Early research has suggested that shopping has been turned into an experiential activity in modern society (Holbrook and Hirschman, 1982). Retailers seek ways to generate entertaining shopping experiences as a source of competitive advantage (Jones, 1998). These authors discuss the emotional and recreational properties of shopping, and these frameworks provide the room for designers to innovate and create enhanced shopping experiences. The industry also shows an engagement in the innovation of shopping experiences, as there is a strong need for more novel shopping experiences in order for the retailers to be more competitive and to pioneer the future of retailing (Monki, 2013). Therefore experiential, recreational or emotional shopping experiences can be enhanced by the development of experience-centric applications. Customers can be better satisfied by the novel shopping experiences with interactions, more than transaction-based shopping experiences. The Interactive Institute Swedish ICT and the local fashion brand, Monki are also interested in this field, which leads to this thesis as a part of a project aimed at the innovation of shopping experiences.

I think it is an interesting domain where technologies are employed to enhance shopping experiences. Moreover the innovation in this project is expected to be driven by insights towards customers and extensive users. Therefore the participatory design methodology is applied to take advantage of crowd wisdom, with sufficient investigation of customer behaviour from a design perspective and involvement of stakeholders in design stages. In this project various methods are performed in collaboration with the retail industry, where customers maintain a high level of interaction with the retailing objects, as well as with the brand and parallel customers. These methods shape the shopping experiences that are collaboratively created. Therefore, how the innovation is supported by design methods and materials, and how they lead to design results are interesting to study. At the same time, while there is little material on the linking of shopping experience innovation and participatory design, it is interesting to discuss this methodology in a context of shopping experience for the fashion categories.

- Therefore the main research question of the thesis is:

*How can methods and materials from interaction design, in particular participatory design, be used in order to design interventions that aim to enhance and enrich the shopping experience in the retail industry?*

The focus of the research question is methods from ethnography and participatory design, which are used to collect information, and to convert information as design inspirations and intentions. The exploration centres around the methodology, the innovation process and the outcomes in iterations. As a result, there is little discussion of ethical issues and technological issues.

The research of the thesis is based on my participation in the project including members of the Interactive Institute Swedish ICT, the brand Monki and Lindholmen Science Park. I participate in this participatory design project as a member of the Interactive Institute Swedish ICT. The project involves users through field research, and facilitates new ideas through various co-creation sessions with participants from the three parties. The ethnographic studies as field research will be performed in both Sweden and China, while the workshops and co-creation sessions are performed in Sweden. Sweden is where the headquarter of Monki is, but in order to broaden the knowledge of the customers, and as China will be the next marketing extension of the brand, the shopping experience of customers in China will also be investigated. The research of the thesis will produce a method list as a tool for shopping experience innovation, especially in dealing with customer-driven force. The research also employs the innovated concept as an example of the practice of the methods.

- The outline of the thesis is as follows:

This introductory chapter will be followed by a background and theory of relevant domains where the thesis can be applied. Then the methodology used in the innovation and the innovation process per se will be discussed. Finally, the results of the innovation process and the further discussion about some issues around application of methods will be addressed before a conclusion.

## 2. Background

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The background includes the design context of shopping experience, with the emergence of internet and cross-channel shopping (Molenaar, 2010). Some innovations have been done for shopping experiences in this design context. The paradigms of innovated shopping experiences mentioned in this chapter are applications that bring technologies into physical locations to improve shopping experiences.

### Shopping as Experience

Shopping experiences go beyond a realm of consumption in modern society. These socially behavioural activities constitute of many factors including the emergence of technology, according to Moss (2007). The following quotation from him is the first statement that I find to connect technology with shopping experience, especially with shopping as entertainment experience.

*"One of a key feature in order to enhance the leisure and entertainment qualities of shopping is the importance of utilizing technology and in particular electricity to facilitate and enhance shopping as entertainment experience. To some extent this came with the division of production and distribution, in the sense that consumption itself was increasingly thought of as a social activity associated with leisure and entertainment... (p.18, ch.2)"*

He also points out that the motivation to employ technologies is the electricity or electrical power, as they can create endless possibilities. This employment of technology is *"the magic association with certain forms of entertainment consumption (p.18, ch.2)."*

These acclaims confine the sense in bringing technology into shopping experience as one aspect of entertainment and recreation. Apart from this, technology as experience can be pragmatic in shopping experience. From the literature review several practical examples are found. These technological experiences of shopping

employ technologies as material to support, or augment shopping experiences. Molenaar (2010) addresses more motivation to employ technologies in shopping. The traditional transaction-oriented approach of retailing and shopping faced the pressure of external factors, and these factors include the boom of opportunity of purchase, and the role of internet in shopping. As consequence these change the customer buying behaviour and set the new goal for retailers. With the new challenge, Molenaar describes new customers and retailers as follow:

*“Customers are individualistic, self-willed and have their own preferences and motives... More than ever before, selling is about listening to and communicating with the customers. This means not performing a “hard sell” and continually pushing the advantages of product, but rather responding to buying motives and working on building a continuing relationship (p. 46).”*

From this point of view, the effect of technology in shopping experience helps retailers to listen and communicate, in order to keep the long term connection with their customers. Thus, through introduction of technologies, they fulfil *“an intrinsic feeling of being given pleasure and feeling comfortable in the shop (p. 46)”*. This is the new goal of shopping experiences for retailers in new shopping age, according to Molenaar.

Another issue of how and what technologies should be emerged is discussed in one of the sessions from the Fashion Hackathon event of New York Fashion Week (Decoded Fashion, February 2013). The discussion ensures the fact that the future of fashion relies on technology such as social interplays. In this sense, the social media can serve largely for the fashion industry in order to achieve the increase of selling from content marketing (Eha, 2013). This term refers to the implementation of social media in shopping activities. While practices in technology application from marketing lean towards stressing the tool, or the entertainment, this statement in technology is one of the contents of technology that can be integrated with fashion and retailers, for the purpose of a sale-oriented shopping experience.

## Related Examples

As a famous project that aims at designing interventions of retailing environment, Prada “epicenter” store in New York City is the result of collaboration between IDEO and architecture - research firm OMA/AMO. In this project (IDEO, 2000) the system as “staff device” and “dressing room” is created to establish the complete focus of the staff on the customers. This adjustment of useful technologies is initially to create the invisible technology that allows Prada staff members to choreograph the in-store sales experience, so as to create a luxurious customer experience. The design solution also enhances the relationship between customers and staff in an alternatively transparent dressing booth. The merchandises are combined with RFID tags to access various databases for customers purchase records, driven by the

requirements of connection between retailers and customers. In-store ubiquitous screens are remotely controlled by portable staff devices and this brings customers a thoughtful service. Apart from these, customers benefit from a time-delayed mirror and tailored experience also provided by RFID tags with specific information browsing. Another work worth mentioning is one applicable technology opened up after 2007: the "Mirrus Retail Mirror" (Evans, 2012). Apart from its commercial function in advertisement, the in-store effect is mainly in a dressing room. The appearance is the same as a normal mirror, except with the integration of radio-frequency ID tags; The Retail Mirror is able to preliminarily identify what outfit is being tried on then bring up a display of items could match that particular one. There are also examples of the touch screen technology to be used in a supplement of in-store shopping experiences. Another two examples from the Intel are Macy's Beauty Spot (Intel, 2012) and Adidas Virtual Footwear Wall (Intel, 2010). The Beauty Spot is a kiosk in a department store with two side screens that allow customers to search for cosmetics with several tools and get further information. They can terminate the experience by adding some goods in the virtual shopping bag and acquiring the help from staff with printed information. The Virtual Footwear Wall provides a richer experience in both shopping and visual sensation. Customers can browse products freely on the aisle-like screen installation as an endless virtual shelf, and check them in any angle through 3D software. They can purchase on a connecting tablet device, or send the message to counter to purchase.

Among the examples, some of them are implemented in the market and some of them are cutting edge technology prototypes that can be ready for use. These works enhance shopping experiences through introducing technologies into the physical location. The Beauty Spot of Macy Department Store and Virtual Footwear Wall from the sportswear retailer, Adidas, all bring some of the online experiences to local stores. They take advantage of the feasibility of database management (Cooper, 2007). They help customers to better access goods virtually and acquire the comprehensive and comparative information. The virtual wall eliminates the barrier of limited space in physical stores among others by providing infinite selections in virtual shelves. What Mirrus system and Prada store provided is more pervasive in the store environment. The technologies are embodied in the common objects that customers are used to, or naturally appear in the spaces that can compensate average shopping experiences.

Much as these designs allow customers to connect the information from stores, there is a gap in connecting the customers who also share shopping experiences of the same brand, share its goods, locations and share its values to some extent. This leads to the potential for customers to form a shapeless community to share or public.

## Research Background: The Project

The brand, Monki, pursues strengthened relationships with customers, new technological and user-driven ways to enrich the customer's physical shopping experience under global context. They have the vision to find a means to connect with their virtual "Monki World" from locations. The Monki's vision is to take advantage of technology by blending the design, manufacturing and retail as a whole to build a close relationship of the company's design, manufacturing, shops and especially customers.

- About the "Monki World":

It can be seen as the sum of all the digitally online presence of the brand, and they could be both dominant and recessive. The sources we percept begin with contents that the brand officially published online. With the development of the project in the early stage, we define that this synthesis includes their official social media channels, official websites, online shopping system and social networks whose content is generated by existed and potential customers, among other digital presence.

The goal is to enrich and highlight the shopping experience for physical retailing stores of the brand. The whole project is a one year participatory innovation project attempting to carry on a design process from user field studies and co-creation activities to the development of prototypes, and installation and evaluation into locations. The background of the thesis is the first six months work, an open innovation in order to develop interactions in shopping activities, by bridging the physical resources and the digital resources and thus enhance and provide new shopping experience for customers. My role in the project is the ethnographic data collection in both Sweden and China through field investigations. Furthermore I worked on preparing these materials in order to bring into co-creation stages. I participated in the co-creation process as one of the members in the Interactive Institute Swedish ICT, performed the participatory design approach.



# 3. Theoretical Ground

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This chapter will introduce interaction design and the user experience as the theoretical background of the thesis research. The participatory design and ethnography as traditions of interaction design field (Ehn and Kyng, 1991) will also be discussed as overarching theories of the methodology and the design practice of the project.

## Interaction Design and User Experience

The definition and identification of interaction design come from many perspectives. ACM (1997) definition stresses the interaction between human and computer-based systems: *“human-computer interaction is a discipline concerned with the design, evaluation and implementation of interactive computing systems for human use and with the study of major phenomena surrounding them.”* While Preece et al. (2002) believe interaction design is considered as a wider scope than HCI for all manner of technologies. According to them interaction design means *“designing interactive products to support the way people communicate and interact in their everyday and working lives. It is about creating user experiences that enhance and augment the way people work, communicate, and interact....The concept of user experience has become central to interaction design (p. 8).”* User experience is explained as *“how a product behaves and is used by people in the reality (p. 11)”* from the user's perspective. Cooper (2007) also states the concern of interaction design as the process of use and user experiences in context. He defines the designing for interaction is *“a synthesis and imagining things as they might be instead of focusing on how things are (p.612).”* While Carroll (2000) defines the work of designers to design for user experience as follows:

*“Design is the articulation of a new vocabulary for addressing experiential concerns in design work along with an exploration of what that means for the future design of ubiquitous technologies (P. 19).”*

McCarthy and Wright (2004) provide a similar point of view. They believe technology designs as experiences have altered from the design of isolated devices to the

design of computer-based applications in the context of a workplace. Design of artifacts as experiences is as a process more than as products. They mark interactions with technology as user experience from HCI field, where a usability goal can be seen as the concern of the design. Preece et al. (2002) talks about the experience goal as *“(user experience goals) are concerned with how users experience an interactive product from their perspective rather than assessing how useful or productive a system is from its own perspective (p. 14).”*

The views on interaction design and user experience presented above indicate a shift in design, where the users' perspectives are considered as the fundamental element in experience-centred innovation. Therefore, the importance to understand user behaviours, actions and activities from users' perspective appears during design process.

While considering individual experience, some discuss the interpretation of user experiences in community, where individual experiences converge to a unity. According to Brown and Duguid (2000), *“information and technology are always caught up in community practice. (p. 109)”* and the interpretation of social discourse reveals the nature of experience. McCarthy and Wright (2004) mention the account to keep dialogical thinking when review experience in social discourses. This involves being open to the relational processes that constitute any unity when understanding or creating experiences. Therefore an experience is inseparable with dialogical relationships which enable dialogues with others and consummate self. Experiences are narratives that are *“not mirrors of what actually happened, but is selective interpretations, constructed for a purpose and an audience (p. 120).”* The interpretation of experiences includes aspects of recognizing narrative structures and this process evokes senses of emotional feelings, according to McCarthy and Wright.

The narrative experience shows relation between experience and stories, that story-making can be seen as an approach to build experience. Drago et al. (2008) write that stories and the process of storytelling are deemed as a transformation from data to information; data as facts is transformed to information with a closure of meaning and sense-making, or furthermore, of affective experience. This coincides with how Forlizzi and Battarbee (2004) described the experience as a synthesis with stories:

*“User experience is characterized by a number of product interactions and emotions, but is schematized with a particular character in one’s memory and a sense of completion...and often inspires behavioural changes in the experienter (p. 263).”*

Drago et al. also addresses the relation of story and experience through storytelling fundamental providing a story-centred approach to produce digital experience. In other words, how the story is crafted when it is to be told can be harnessed in how user experiences can be structured and designed.

## Participatory Design and Ethnography

Bødker et al. (1993) describes the participatory design as: *“an approach established on an evolutionary design process with continual, active user involvement (p.95).”* This approach originated from the phenomenon of computer popularization in 70s, as a result the workers / users started to expect to be included in defining the type of technology they use. Computer systems should be a tool that enhances the skills, and the design of it should involve users in full process and highlight the context of computer-based systems. These indications from Kyng et al. (1993) become pervasive in the design of computer-based installation. Participatory design is developed in these backgrounds and holds the basic standpoint of those affected by a design should have a say in the design process, according to Kyng et al.

In the Ninth Conference on Participatory Design, the definition of participatory design is *“a diverse collection of principles and practices aimed at making technologies and social institutions more responsive to human needs.”* The definition is considered to provide direct involvement of technology end users in the co-design of technologies. Ehn (2008) and Greenbaum (1991) also point out the focus in making tacit knowledge of participants with their work knowledge into play as a transition from designer / developer centralised design approaches.

Ehn believes the recognition of the benefit to use participatory design is *“when people are involved in shaping their social, technological and material environments, the better suited these environments are to everyday realities and requirements and the more people able are to claim authority over their work and leisure lives (p.94).”* This recognition considers the value of participatory design as a social idea of democracy.

While participatory design focuses on process and end users, it uses research methods under ethnography to transfer user knowledge into the design and development of the system, while social discourses are implemented in the design process (Hakken and Allwood, 2008). McCathy and Wright (2004) give more motivation to apply ethnography in participatory design: *“traditional design methods that investigate individual process and isolated tasks are no longer fitting for technological context where users are interactive and can be cooperative (p. 34).”* To understand these interactive and cooperative users, ethnography delivers a new way of work, as Carroll (2000) described the content of the ethnographer's work:

*“Ethnographer seeks to enter the world of another person(s), imposing no expectations and making no assumptions...tries to make sense of what goes on and identify important categories and distinctions in the world as found, building anthology of the agents, goals, actions, events, obstacles, contingencies and outcomes from scratch (p.36).”*

Ethnography, on the other hand is a strong tool in interpretation of social discourses to understand human experiences, as *“it involves participating in and conversing with subjects about their experiences and participating in and conversing with peers about interpretations*

*of those experiences (McCathy and Wright, p.35).*” These theories in participatory design and ethnography set the ground for the methods developed and performed in practical work of the thesis.

## 4. Methodology

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From the theory frame of design for experience and participatory design introduced in the previous chapter, this chapter will introduce methods used in the research process. The focus will be on the discussion of ethnographic methods to collect data and methods in order to present ethnographic findings for participatory design sessions. Three concerns of these methods are embodied in the innovation process.

They are:

- what methods are used to collect data;
- what forms of activity are applied in the co-creation stages – the participatory workshops;
- how the information from the field is used in the design process.

Around these concerns, the methods are developed and employed for the innovation during iterative design stages.

### Background Research Methods

According to DRS (Design Research Society), it is vital for practicing designers and researchers to stay updated with latest researches and new ideas due to the rapid change of social, cultural and economic importance of design activities. Therefore, it is essential to research with the background and theories in an innovative design process. Before and in the early stage of the work, materials of some events and projects relates to the combination of fashion and technologies accumulated. These works found from updated materials on internet, or provided by the brand Monki, include trendy aspects of technologies, business area, or computer-based system designs. Based on these examples pointing at previous works on shopping experiences, some academic journals of shopping experiences and customer behaviours are reviewed in theoretical layer. Selected relevant related works include the above mentioned examples. Through theoretical literature review, some work examples from Intel in relation with shopping experience are identified to be relevant. From a design perspective, shopping experience innovations are

accomplished with a big amount of practical paradigms. Therefore the literature review was from studies of innovative examples of theoretical foundations, and the acquainted knowledge of theories promoted the analysis of the works.

## Ethnographic Field Methods

Ethnography is a fundamental tool for understanding daily basis as qualitative research methods in terms of interaction design and analysis (Spradley, 1980; Patton, 2002). Ethnography investigation played the role to understand technology as experience, for a cooperative behaviour beyond individuality. The basic purpose of its methods is to make sense through interpreting social discourses among shopping activities. The content of ethnography for design is described in several ways. The first tradition is to impact scenarios. According to Carroll (2000), "*scenarios are stories about people and their activities (p. 46),*" and while the scenarios come from the real world, the stories of consumers / customers in ethnographic inquiries can be articulated and transformed to either critical or typical scenarios. Therefore ethnography as a major support of scenario-based methods provide relatively substantive transition from field studies to idea generation.

Ethnographic methods are used to collect and present materials for aforesaid participatory design process. Blomberg et al. (1993) identified three types of relations between ethnography and design. The first one is the designer undertaking the ethnographer's work achievement, usually in the form of literal report, and then identifying the issues for the design concerns. The second relation is the ethnographic study undertaken by both designers and researchers to embody the field insights in designer's experience and at the same time make the field interpretations more relevant to design. The third one is what this project as participatory innovation undergoes. This project is undertaken by the team consisting of designer, researchers together with the involved stakeholders as critical users. The critical users here refer to the project participants from Monki's side, who are the practitioners of fashion retailing industry and maintain experiences and leading force of the trade, meanwhile some of them are the shopping customers among the Monki's target group.

## Ethnographic Methods for Design

To gain understanding in fields, ethnographic methods such as participant observation (Patton, 2002), unobtrusive measures (Martin and Hanington, 2012) and cultural probes (Gaver and Dunne, 1999) etc. can be used. Ethnographic methods like probing which needs long term of investigation, is discarded in the project. It can be interesting to allow those studied to describe their own activities to make sense for an open innovation, but on the other hand, the practical limitation such as time

and research participants and the purpose of the research needs to be taken into consideration. The observation and interview are the overarching methods for the investigation. The observation is either unobtrusive or takes the researcher as a part of activities, and the interview is in shopping context or other natural settings. These methods are grounded in a short time frame and a quick contextual research to understand how users perform in the situation and build the sympathy for the team.

Hybrid of methods is arranged in the work based on this specific design circumstances, due to the adjustability in ethnographic approach (Hughes et al., 1994). The fieldwork was completed based on principles given by Blomberg et al. (1993, p. 124-130): (an ethnographic practice focuses) the natural settings of the community; the holism (raises the need for researchers to consider the relation between parts); (the interpretation of the study that forms a result should) be descriptive and primarily standing in the point of view of those observed and studied.

## Field Methods for Stories

### **OBSERVATION WITH NOTES TAKING**

Short term observations taken in the project are wholly onlooker observation, without disclosure of the observer's role and with the focus on the holistic view (Patton, 2002). This unobtrusive user observation can be associated with the design method: "fly on the wall", as research input in human-centred design (Bella, 2012). Comparing with the demand of distant observer, the principle is to be immersed in natural settings as peer shoppers, regardless keeping distance on purpose, to record on-going activities.

### **SHADOWING**

Shadowing is an observational method collecting insights from real-time exposure (Bella, 2012). This method is integrated in both observation and shop-along throughout the process. It is used to observe real-life situations for a set duration to understand how people behave within given context. While videos help documenting in shop-along, observation with less temporal demands allows picture taking and sketches to show a reality of context through shadowing with customers.

### **SHOP-ALONG FROM OBSERVATION COUPLED WITH CONTEXTUAL INTERVIEW**

Shop-along is a general method that is used in some commercial research and design projects in related fields of retailing experience, for instance, another IDEO project "Retailing Experience Design for Warnaco" (IDEO, 2004). The basic activity in the investigation is going shopping along with target customers but the specific contents can be various depending on needs. The first shop-along took on this project stands on a wide range of concern as a probing and recording of a customer's experience of before shopping (best starts from home settings), in store actions and after shopping. In the field practice this is a combination of observation and interview in context (Blomberg, 1993). The contextual interview is to trigger and probe from customer's on-going activities, thus recording the valuable information. The context can be the space where shopping activities occur, or where the objects

in the context can recall shopping stories (e.g. a closet). Values of information can come out from shopping journeys that customers already experienced. The shop-along is to keep along with customers in field and forming the narrative of valuable information to allow discussion and analysis in co-creation stages. The documentation is videotaping under subject's awareness.

It includes some orientations. They are 1) the engagement of taking photos in shopping experience, 2) the technology customers use to deal with pictures of shopping and 3) sharing of fashion presence in store. Apart from these, there is also 4) the guide to ask questions origin from observation and 5) investigate past legacy stories through the items customers possess. After iterating the method, there are some focused and orientations added to understand customers as a community. There are three further points: 1) the involvement of network issues in the shopping process; 2) more possibilities of distant discourses; 3) comparison between customers and shopping experiences in two countries while the method is conducted in different countries. Video is a very strong tool for ethnography (Suchman & Trigg, 1992). In this case the means of documentation by videotaping continue to serve during shop-along process.

#### **INTERVIEW**

The interviews are not limited to customers in the second fieldwork. In-store shopping experiences and communications with clerk participants in workshops indicate that they are holding rich resources and knowledge of customers as a result of working hour accumulation in stores. When observing in the store, some casual interviews are taken from the clerks to expand knowledge of the community from a different viewpoint. Though the content of interview about customers is not easily visualized via dynamic video, the descriptions of the study are merged into presentations as supplementary materials.

#### **VIDEO PORTRAIT: A SYNTHESIS**

Video portraits are confined synthesis of the customer's shopping experience. It is more like browsing user data in the angle of users instead of stories and without changes in the type of field data collection. Therefore the first shop-along is re-organised so that past story and the new ones are integrated after editing. The application in the second shop-along was selected from data that is collected driven by the implying of previous phase outcomes in ethnography as investigating networks. Data for video portraits implies a shifted articulation on users comparing with the narrative stories. This method combines scenarios and contexts, and possibly related information based on the subject.



## Participatory Design Techniques

Participatory design includes many techniques (Schuler and Namioka, 1993), such as future workshops (Jungk & Miillert, 1987) and cooperative prototyping (Bodker & Gronbak, 1991) etc. The common ground of these methods to facilitate co-design is that they are all based on workshops and share co-creation spaces as the core of collaboration. In this project, while confronting the participants with different background knowledge, scenarios are used for the call to settle a common ground of design. This scenario-based design approach was launched by Carroll (2002). Similar methods are performed in workshops by Brandt and Messeter (2004). They introduced four types of cooperative games as participatory design methods to enhance the performance of scenarios usage. Each type respectively increased exploration of the genres in end users: the environment where users will be, the technological possibilities and enacted scenarios.

The workshops of the project apply methods that are developed from the scenario technique to create an amount of novel scenarios, in order to present customer shopping experience as design concepts. In co-creation stages the consideration of methods contains both building empathy from field users and taking advantage of participants experience as customers. The scenarios are structured in three stages, as the same as the order of how ethnographic studies are conducted in field. In scenarios, the surroundings and characters are developed by participants, and technologies are selectable in a confined range. Either through props or participants, the scenarios are played or enacted to find out more possibilities in shopping experiences

## Materials Presentation

The following content will reveal the designer's work in handling design materials. How materials from ethnographic studies are presented in participatory workshops is developed in the project. There are three steps when putting material in co-design stage. First of all is to collect data from the field, and secondly interpret what is gathered, and the strategies of the latter work are explored during the project. The gathered data is brought into workshops for further analysis.

## The Scope of Field Work

Every new field work was based on the knowledge and the range of the previous one. Observation and the first shop-along are field study ahead of the first workshop, while the second shop-along is in the second stage of the process. Therefore, the ethnographic study in the project is an in-depth process as follows:

### Observation in-store

1. A study of the context, especially spatial dimension (e.g. privacy, lights, mirror area).
2. A study of customer behaviors, the norm of their shopping appearing to onlookers (e.g. accompany and alone shoppers, any usage of technologies).

### 1<sup>st</sup> Shop-along

1. , The activities of before shopping, in-store shopping and after shopping, and their possible relations.
2. A closet study of customers that probing their shopping experiences.
3. How customer view the shopping in store and before and after.
4. A study of technology they use in communicating with others in store.

### 2<sup>nd</sup> Shop-along

1. A customer network focus, and how the extensive shopping experience to their networks.
2. A verification of context and experience in different background.
3. A verification of technology, and a comparison of communication technology and social media in different background.

Table 1. In-depth means to collect data

## Develop Presentations

The analysis and presentation of interpretation deal with materials achieved from these field works. The style of such a work is described by McCarthy (2004). Interpretation of field notes goes beyond the descriptive data. It *“attaches significance to what was found, makes sense of findings and offers explanations in some way. Some of the work draws conclusions and makes inferences together with participants.”* The “notes” of ethnographic study is a wide range of documentation including notes, pictures, videos or any other type of medium that enable the discourses to be captured. There are several means used to form the representation. There are three types of representations that are created during the project as the transformation of data when trying to bring ethnographic findings to design stages.

1. Template stories are descriptions of shopper's in-store legacy and behaviour from observation. The ethnographic findings are stories containing a

memorable title, a unique visually iconic presence, and rich details are brought to share findings from ethnographic studies. Figure 7 shows the example of stories from observation structured in such a template.

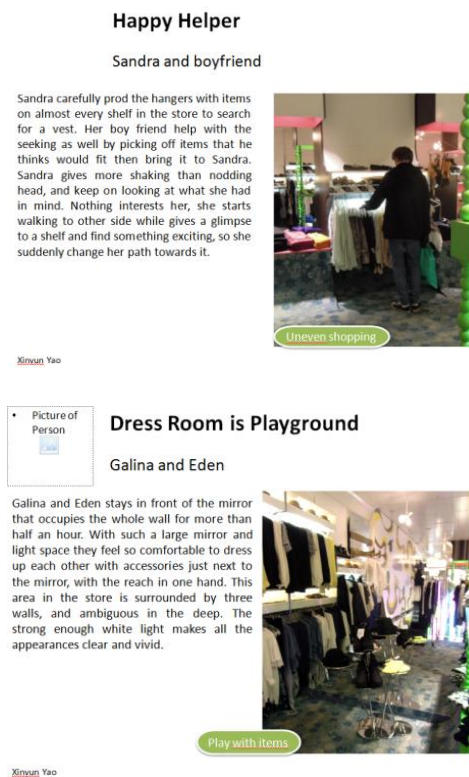


Figure 1. Stories that are told based on a template

- Video narratives of shopping in context can present the customer shopping experiences directly and combined the interview. It is especially effective to demonstrate how customers using technology when users are explaining the current action and the possible reflection of the moment etc., through videos. When bringing these videos in the co-creation process, the presentation in videos is feasible to understand and gives enlightenment to participants. For instance, how skilled and sophisticated a person using technology to send images to others was obtained via video communication. This is a type of tacit knowledge that can be conveyed through the intellectual communication.

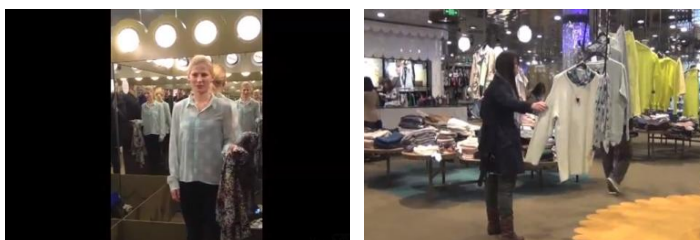


Figure 2. Screenshots of video materials presenting customers in context

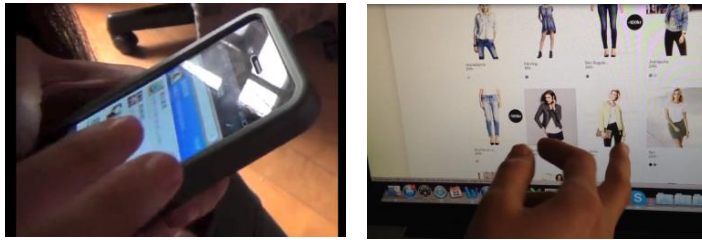


Figure 3. Screenshots of materials presenting the technologies that are used during shopping

- Video portraits present customers in a compact way of how they experience and accomplish shopping and their stories of shopping. Information that is not observable, including the stories that customers have already experienced, can be valuable for the innovation. To present these ethnographic findings, a combination of images and sketches are applied to demonstrate the situation, in order to supplement the full experience of customers and make the stories told by customers accessible. This ethnographic technique is developed with sketches and pictures to present unobservable but important information. When interviewing the customers, the former stories can be shown in context sketches that are launched by interviewers and further customers are encouraged to re-tell their stories following to the narrative they had and is visualised by sketches. While dealing with a non-English speaker, voice over is an option to retell customer's stories by field researchers.

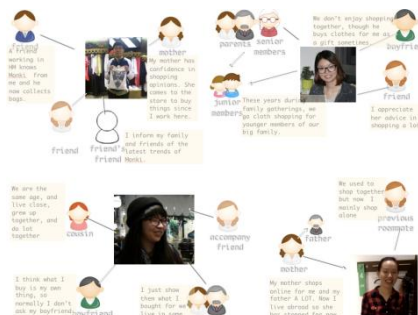


Figure 4. A screenshot of the presentation: interpersonal networks in shopping



Figure 5. A screenshot of a video portrait: using sketches to visualize the unobservable past stories



Figure 6. A screenshot of a video portrait: related stories that happened separately

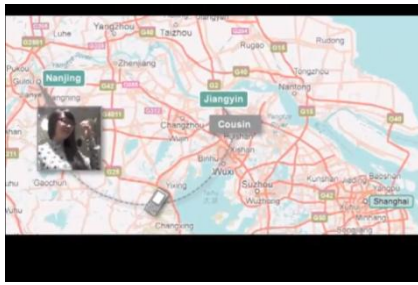


Figure 7. A screenshot of a video portrait: a map with images to present stories in distance



## 5. Research Process

The overall process is from the first contact with field to development of implementable concepts. The early stages of my research include literature review and observational fieldwork, aiming to inform the first workshop. The literature studies were divided in two different directions, theory and practice. The theory included design ethnography, participatory design and shopping activities as experience. The practice includes different examples of implemented technology enhanced shopping concepts. The resources for the literature review were found on internet, industry magazines and fashion events, and were analysed in the context of this project. The literature review helped deepen my understanding, broaden my view and prepare me for the practical work in the project. After the preliminary workshop I start with the exercise and preparation of next fieldwork which is conducted in China. By implementing ethnographic methods of data collection in fieldwork, we aim to enrich shopping experience through collaborative workshops. The process of the project from February to June is as follow:

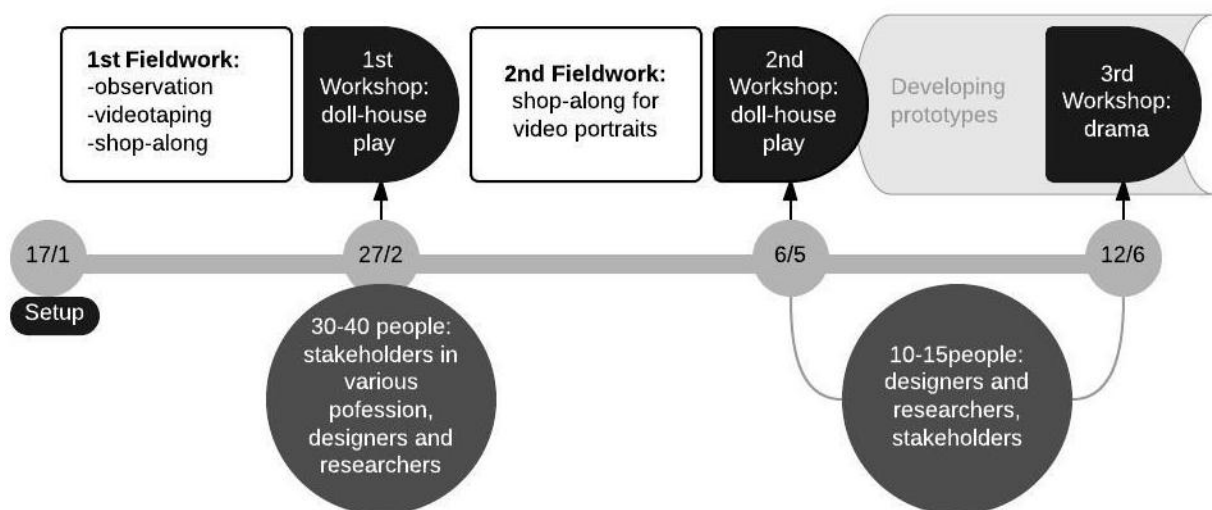


Figure 8. Timeline and progress of the project in months

The content of this chapter is the process of the shopping experience innovation. The core vision of the retailing company and concepts of shopping experiences are

formed during this open innovation, from a customer perspective through design methods.

## The First Stage

The first connection with field was an explorative observation of customer shopping experiences on a behavioural level. The investigation was settled in Sweden, where Monki is connected locally. The whole team took part in generating outcomes from in-store observation in Gothenburg. One video story of shop-along activity in Stockholm was produced. We brought these materials to the first workshop with the expectation of generating a wide range of ideas.

### The First Fieldwork

Data collection methods were based on ethnographical observation and interview. I conducted two of the observation investigations and made several stories of findings in field study. My two observations were in two local stores with different store concepts. The timing was in the late afternoon, after working hours while the other one was a busy weekend afternoon. Observations generated findings to be considered interesting through "legacy story" or "journey map" with a given template. These findings were formatted as stories that constitute of essential description, iconic illustration(s) and an attractive title (story template of Interactive Institution Swedish ICT, 2013). The interview method was grounded in the narrative of the following sequence: 1) before entering the store how customers encounter the brand digitally; 2) in the store what technology customers can interact to enhance experiences; 3) what activities do customers have after shopping as the result. The ethnographic study produced many video materials. The project is initialised with online streams for these materials as the supplement to the materials that were brought to co-creation stages. Figure 2 shows that stories of observation findings were taken on the first co-creation stage to make the customer experience accessible and to make the further discussion. Such stories embedded in the physical co-creation space enabled the warm-up of co-design activities later. Through this setting the participants could discuss and comment, thus gained knowledge of users and achieve inspirations.



**Figure 9. Findings from observation**  
**left: stories in the co-creation space that are accesible;**  
**right: group members discuss and analysis the stories.**



## Application of Materials in First Workshop

The first workshop was in a physical space where innovation activities were conducted with the field materials. After participants were necessarily informed with the currently available technologies, wall stories allowed participants access the contexts and scenarios. The other important phase of the workshop was the video of customer's shopping incidents from first shop-along practice. While the participants discussed the content of videos, they were encouraged to relate the story of their own or interpersonal circle's shopping experiences.

The purpose of introducing stories and a narrative story from the first shop-along in ethnography was to inspire the vision of future shopping experiences. Those involved in co-creation contributed their knowledge and envision their concepts of shopping experiences via a playful tool. It is a scenario-based formatted tool called "doll house", where members could bring the user scenarios by paper-made props to create a future scenario description. The first workshop was held to explore ideas in the enrichment of shopping experience, ended up with broad conceptual outputs. The tangible doll-house plays involved hybrid of stakeholders and designers in small group, in order to generate ideas and concepts under the given background. As demonstrated in the figures below, the doll-house play contained 1) props of context in "before", "in" and "after" that are represented by environment pictures taken from field, and 2) a range of props of personas, as well as 3) a range of props of technologies. With these articles each small team played with manipulation, dubbing or voice-over. Group members enacted scenarios like "puppet play". The results of each dollhouse show were documented through videos.



**Figure 10. Dollhouse play**  
left: group members picks up context pictures for their scenarios  
right: set members adjust props to their scenarios

## Ethnography as In-depth Investigation

Based on Blomberg, Holtzblatt and Jones (1993), ethnography study is undertaken during early stages of the design project. The iteration of design research methods were paralleled with the early co-creation process. As both the process and outcomes of the workshop brought new inquiries to the field, the output of ethnographic study was influenced by new purposes. Outcomes from the first workshop also set new focuses on further ethnography. The next field study was improved from two sides: 1) As field workers went through the achieved material and analysis, they were equipped with the knowledge and background to conduct the next study. 2) The next ethnographic study could be designed and developed as the

deepening expansion of previous design research. Because of the changed concentration, design researcher retained the filter of data that was to be collected in further practices in field.

While the explorative research offered a thick and holistic description in shoppers, the first phase of design exposed a demand in the deeper and more precise understanding of the social aspects in shopping. Therefore, the investigation questions in the further ethnographic fieldwork became: who do customers involve in a shopping experience, how the involvements achieve technologically and what particularly happened when networks are in long distances became the investigation questions in the further ethnographic field work. Exploration of customer networks as well as their experiences through shop-along would be the next focus. Further studies aimed to re-framing the shopping experience of the brand, and bring materials to the second workshop or decision-making executions. The shop-along interview was developed to be a semi-structured interview after the first practice. An outline interview guide is developed as the suggestion of field practices. Shop-along interviews maintained a structure that covers the topics and issues, while leaving the sequences, specific questions and probing to interviewers.

## Outcomes from the First Stage

The outputs of the first workshop are eight video scenarios within five minutes. In order to see the trend and analyse these outcomes, the requirement of evaluation raised up. The analysis of the workshop aimed at 1) set free the resources in videos from chronology to make them ideas, 2) to identify resources relating to the categories we identified as important elements in context. I was in charge of mapping the videos into the matrix to build an evaluation tool for the development. After receiving the suggestion by project director, I began with the categories of customer, environment and technologies. Later I adjusted to the necessary subclasses and made sense of every idea. The result of this matrix tool is in the appendix.

The value of the matrix tool is not only as design ideas for co-creation outputs, but also the reflection of stakeholder visions intermingled with the user behaviour, which can provide directions of shopping experiences. After the analysis, and based on the matrix, the ideas from the workshop can be summarized in the following directions:

- **Self and other relations** are mainly the relation inside the community and how the customers maintain self-expression, body expression and reflection. The mirror encourages customers taking photos and sending to social media. The photos taken by customers in store appear in public channels under their allowance, and customers can generate content more than images but videos as fashion movies. Customers are a part of the virtual Monki world and interact with the community through content they created (e.g. hashtag).

There can be advanced users in the innovated service of discovering or making music, so there are followers creating their own musical content and interact with those who share the same interests.

- **Dialogues with the brand**, brand, relate to the customers communication with the brand or with each other via brands. Customers have associated through retailing products in the virtual Monki world. Visualization in the mirror provides some sense of brand and encourages further communication. The specification of the brand is a long-term promotion in music so the music is settled as means of the dialogue, which customers can act on music both online and in-store. More direct way is the online presence of the information exchange or providing a service that leads to online conversation with the brand.
- **Dialogues with community customers/consumers** are the communication within the brand's community in a *rhizome* structure. The customers interact with the content they created online or in-store thus to maintain dialogues. Through real time messenger tools or online tools customers can also involve their social networks in a shopping experience and its extensive experience. The major form of content is the images where they are wearing outfits of the brand.
- **Customizing experience** specifies shopping experience that has been mentioned and analysed in recent years with the development of new ways of shopping, online shopping. Customization includes a wide range of sensation, the sounds that can only be heard by each individual, the customized welcoming literature, the differed visual effect. The major use of customization is on the items per se; therefore users can receive the service to book the colour and materials and so on as well as browse information of their home items.
- **Seamless experience between online and in-store** is the attempt that brings the online experience into a physical shop, or, it could be in the other way that brings the in store experience to online shopping. As both have their advantages and disadvantages, they can benefit each other from proper utilization. The functional request is to eliminate the boundary in browsing items in store with the assistance of mobile phones or other devices that can connect the online browsing and physical store items.
- **WOW shopping experience in distinction of in-store zones** is mainly the concept to entertain customer's sensations when they enter the promising area such as fitting rooms. Ideas in the workshop are distinction of acoustic effect or light effect in different areas in the store, while light and sound offer a mood ambient to shopping experiences.
- **To Game the shopping experience** is the request to accomplish selling oriented interaction in store. The workshop offers an idea of gamed experience that customers are involved in the competitive games of taking pictures in a photo booth and to get them printed out. The consensus is made in part of the workshop that gaming is one way to encourage interactive

participation and facilitate selling to some extent, and the priority of the brand no matter what experience they provide to customers, is sale-oriented.

- **The loyalty mechanism through interaction** is a request that many innovated experiences can fulfil such as the pictures-taking concepts encouraging customers to express themselves. There could be many ways to cultivate the loyalty for the brand, and it can be seen as one of the ultimate goals. In this term the development is a loyalty reward system based on location.

## The Second Stage

More shop-along interviews and interviews with clerks were added at this stage. The investigation was conducted in Stockholm, Sweden and Nanjing, China. The team spent about half day on each interview with customer(s). After applying the new findings, two sessions of workshops were based on scenarios, but further extended the co-creation through new techniques in the workshop.

### Performing Shop-along Interviews

The second shop-along based on the guideline started with the visit of customer's home and closet to open the talk, and continued with going along with customers, interviewing and observing. The expected outcome was to make descriptive understanding of shoppers' behaviour and their current experience, to produce edited and compact video materials.

Based on the previous work, the target was reinforced as "design a digitally enhanced store-based experience connecting customers and their networks to the brand" from the perspective of ethnography. In the second ethnographic study I did three independent shop-along interviews in China. I interviewed three subjects and some clerks in one store, within four days. The three customers are in the target group of the brand and one of them is a clerk working in the store while also being a customer.. The clerk shoppers can provide more reflection to shopping and the brand due to the deeper relationship with the brand. Among our studies, shopping is a social activity with the expectation of achievement in validation from the interpersonal networks. Shopping as a social activity makes shoppers connect experiences of themselves with those of others, from past through present, through selling products, analogue and digital presence. The investigation of customers was targeted on the following aspects: the distant networks caused by location, the celebration of shopping with networks, and similarly the lure from networks. It included what communication tool the customers use, how they use, what situation arousing the use, what content they want to convey, what related support they need from store, and the variation of the network group communication in order to

complete the shopping experiences. These were the contents of ethnographic study in China.

### Shop-along in China

According to Blomberg, et al. (1993), ethnographic field methods for computer system require an *“improvisational style of work” to enable the understanding user’s current work practice be useful in the design of new technologies (p. 123).*” This is based on the recognition that no two situations are alike. When considering the situations in the fieldwork of Sweden and China, the adjustments in investigation are needed to confront different situations.

Comparing the ones we conducted in Sweden, the ethnographic study I performed in China was within the concentric time in store (or other context such as street, home) with customers. This made me have more contact with customers and acquire the information from workers in the store. This tight timeline also required quick reflection of what had been done in order to communicate field data with the team. Therefore my first practice of shop-along interview was a trial in Gothenburg. While I maintained the knowledge of customers in Sweden, I would be aware of the distinction when different behaviour and sense-making occurred in China comparing to what happened in the Swedish store. It was also important to make sure to have proper intervention in order to guide the research. The differences included what context the similarity and difference occur in, when and how the difference is triggered and what the Chinese customers’ view is on the same incidents. For example the modification of dressing rooms was introduced through videos by the clerk. The dressing room area was also identified as the hotspot of stores. The investigation about the hotspot revealed rich information of customer types, behaviours, their appeal of shopping experience etc. The other example was the discrepancy of tools used to convey messages in two countries, especially the social media channels that customers used to spread or send the information of shopping.

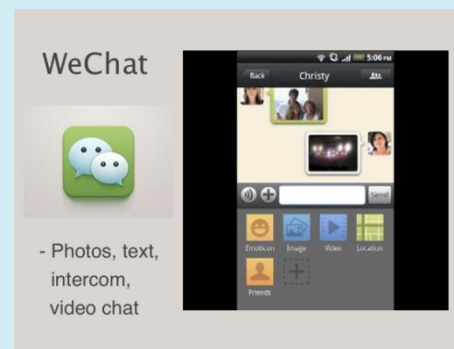
Table 2 shows examples of the differences of shop-along researches in two countries. It was convinced both subjects had potential requirements to communicate with multi-media in their networks. But an obvious distinction was that they chose to use different tools, thus leading to different forms of communication. Customers showed the implicit requirements to achieve real-time feedback from the communication.

## Shop-along in Sweden



In the shop-along interview case in Stockholm, the interviewee used Snapchat tool to send contents. A special feature of this tool is the contents are not

## Shop-along in China



One of the subjects in Nanjing is also used to send pictures through mobile apps. Instead she uses WeChat and this tool also supports sending voices and can replace message functions on the phone.



From the the experiences of the brand, the hashtag in Instagram is quite successful In promoting the brand by user-generated contents. Now this feature requires more association with a shopping experience.



In China, the subjects I investigated rarely use Instagram, but use At signs of a local micro blog, Weibo, to send and forward contents to networks very often. This feature can be mapped with shopping experiences as well.



A local QQ messenger is also one of the most mentioned tools for communication in shopping. This tool is particularly of great use when

	communicating online shopping experiences and mutually exchanging information. The investigation of the use indicates some requirements of Chinese customers to communicate in shopping experiences and some patterns can be borrowed to support tangible shopping experiences.
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**Table 2. Different communication tools found from two shop-along interviews**

### Application of Material in the Following Workshops

- Three outcomes from the second stage study were brought into the co-creation:
- 1) A shopping experience model was concluded from the field studies, and presents a process from when customers are attracted to the store, gets supported in the store, and finally celebrate the shopping with the validation from their trusted networks.
  - 2) Presentations of customer interpersonal networks that relates to shopping activities
  - 3) The investigation of dressing room area as hotspots of interactions,
  - 4) The sum of the differences and similarities of customers and interviews from clerks in two countries.

By bringing the above knowledge in, the co-creation activity ended up with scenarios that emphasized on the social media benefits. The design decision was to improve the achievement of celebration in shopping by social media. The shopping experiences should support the instant communication among customer's networks, and thus developing sale-oriented solutions. The co-creation tool was identical with the first workshop in the second one. It resulted in doll-house videos but in a narrow range of two concepts that stuck in the above mentioned focus. Figure 4 and 5 shows the activities in this smaller range of workshop. Two physical forms of the design were decided as “mirror” and “cube”. We also physically explored the two concepts by only building the preliminary elements. The interactions and flow of use were kept open to explore. These were also used for materialisation the technology for stakeholders.



**Figure 11. One of second doll-house plays with materials achived from field.**





Figure 12. One of the completed doll-house scenarios: personas are interacting with the cube in store .

After the confirmation of physical forms we extended co-design work through the informance. Informance design (Burns et al, 1994) as the extensive explorations is the eventual co-creation session. This participatory design method is a visualization technique. It is also defined as *“a visualization technique rendering scenarios as interactive environments (p.119)”*, with team members “actors” (participants) role-playing users, and simple prototypes employed as “props”. Brandt et al. (2000) claimed that dramatic elements can contribute fruitful effects in envisioning future artefacts that are not existed nowadays. This design method relates to the methods of body-storming and role-play in human-centred design (Martin & Hanington, 2012). The leap is using “props” in the relatively detailed description of technology to allow members *“use the low-tech materials to reshape the technologies”*, and *“express their ideas directly via the low-tech materials (Muller, 2002 p.1071)”*. In this term we worked with our bodies to replace doll-house plays to deepen design explorations and visualization, as a *“design-by-doing (Bødker et al., 1993, p. 71)”* approach. Through the performance participants were able to better image with concepts and ideas, emphasis end users in experience level, and better communicate with peer participants.

There were three groups, with three members in each, and every group was asked to act one relationship of the roles in ethnographic videos. The informance in each group was also coupled with one technology form. The co-creation began with the discussion in shopping possibilities and patterns according to the acquired customer information. Then the members reached an agreement and developed a frame of transcript while quickly created the mock-ups of interfaces on whiteboards. Other accessible props could be utilised to re-shape technologies and to provide reasonable visualization of the shopping experiences. Finally the group members enacted the role in the scenario with the narrative of before, in-store shopping, and the afterward celebration of shopping. Each group's acting was recorded for documentation as more in-depth, concrete concepts. The below figure showed the scene of performances by one group.

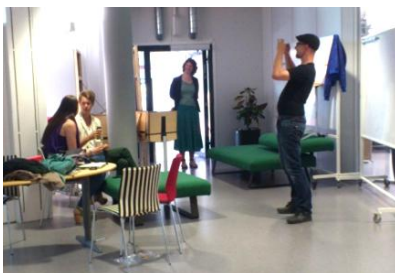


Figure 13. performance and its video documentation: three participants visualise the novel shopping experience through performance and the creation of mockups.



## Outcomes from the Second Stage

As mentioned above, the cube concept from the second workshop acted as a tangible browser. With one screen on one side, it worked as a tangible browser of both the social media and inventory products. We also explored the possibilities of different sizes and the appearance of touch screens. The other concept was the mirror about the natural interaction in dressing rooms. The interaction was associated with the behaviour of trying on items, and allowed snapping and sharing pictures through logging into accounts of social media. The challenge was to create an experience identical to that of looking into a mirror.



Figure 14. Cubes in different sizes, from top to down: thermal textiles as the screen; the ambiguous digital screen shlieted by fabric; the digital screen exposed.



Figure 15. A “magic mirror” through novel experieeces provided technologies.

After introducing these two forms in co-creation, the drama acting output more specific shopping experiences. Functions and interactions in each scenario were explored. As a result we had ideas of concepts for shopping experience enhancement:

- Cube

The cube is meant to tangibly browse online shopping experiences and social media in the store. As a type of device settled close to retailing items, information from the inventory databases appeasers after scanning the item. Customers can also take their own photos and make hashtags then their own photos will appear on the cube as a contribution to the Monki world.



Figure 16. Concept 1: the cube simplified as a small screen provides the basic information of outfits aside new arrivals. Users or clerks can scan the the selected piece to achieve more information.



Figure 17. Concept 1: after scanning the inventory information will appear on the device so that clerks can check the availability in size and numbers. Customers can see more information including:

1. pictures from various social media or online resources where different people wear the newly arrival item(s),
2. the composition of products
3. care instructions,
4. the occasion guide and trendy lookbook,
5. the function of rating and reviewing products

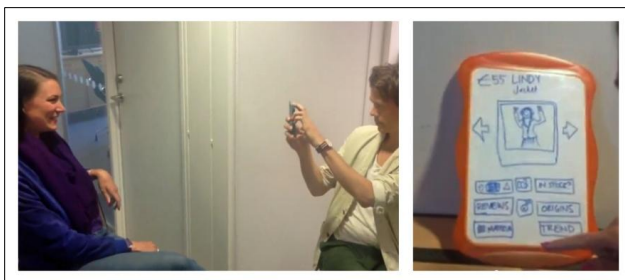


Figure 18. Concept 1: customers can take their own picture and make hashtag(s) for the specific item in Instagram thus being a part of the digital world in the cube.

- Mirror

The mirror is a system with installations in store. There are two types of mirrors, one as a public mirror bulletin and a booth mirror for photos, considering a compromise of privacy when users taking pictures and the attraction of customers. As a natural setting in the store, it extends the experience in dressing rooms for customers. The mirror in public space is a screen-based installation to present the information of the new arrival outfits and related social media feeds from users. Apart from this the public mirror is also an incentive of private "photo booth". The other private

interactive mirror provides dependent spaces for customers where they can enjoy a private service with the outfits they want to try on.



Figure 19. Concept 2: the public mirror performs as a bulletin of the store focus. It includes the picture collages social media where people are wearing the products. One of pictures allow users to see themselves as mirror, and then they received the message to try on in the interactive dressing booth on the screen.

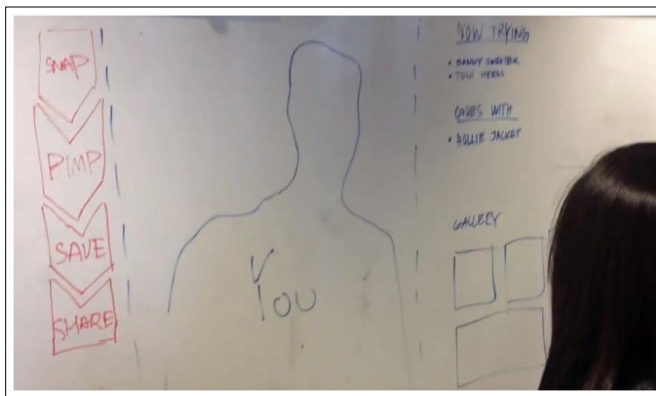


Figure 20. Concept 2: the interactive dressing booth is a private space where customers can play with the mirror when trying on. The system provides vocal or light feedbacks. The mirror provides:

1. the information of products that the customer is wearing on,
2. the suggestion of the relevant and the matchy,
3. a gallery of parallel customers who wear relevant products
4. a function set for customers to take pictures from the mirror and save to their cell phones or share it to various social media.



Figure 21. The downloaded photo is identified with the product page in online store. Therefore it is convenient for customers to purchase the products that have been tried on after shopping, and to recommend to networks through sending the picture via messages and social media.

- 3D printer

Due to the call from stakeholders, 3D printing technology is additionally introduced. The Monki 3D printer is a service that allows users remotely design accessories online, for example an iPhone case an iPhone case, and printing the design in the local store. In this way they could customize the parts of Monki products and thus the brand enhances its identity. Customers can also hashtag the finished case on social media as a unique product that they can obtain from the Monki brand.



Figure 22. Concept 3: the service starts with an online unit to design the case and send the design message to any person. When the friend receives the message with traffic directions of the nearest store location, there are limited hours to print out in this store.

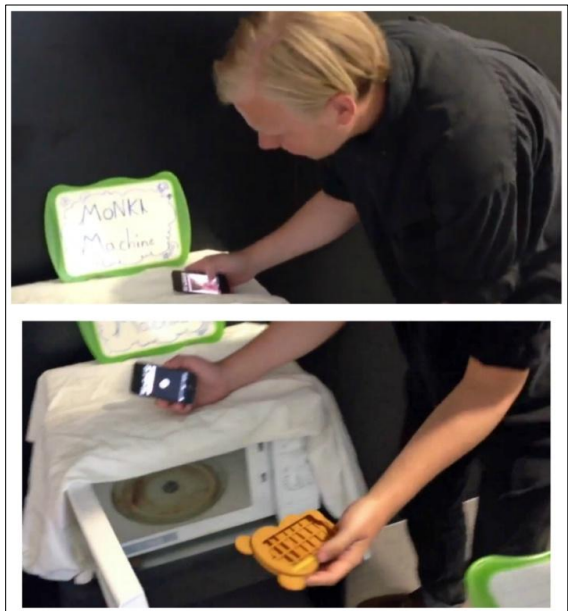


Figure 23. In store the clerk will use the message as a ticket to print out the case. While printing the customers can hear the announcement from the machine that the gift is from the giver as a celebration for the customer's birthday, in this scenario. They can hear both names through the message among the store scale.



Figure 24. In the end the customer can take photo of the printouts and make hashtags on social media. Thus the customer's network can be informed with this service and may be interested to get involved.

These concepts will direct the further pilot prototype, leading to realization of a concept and the evaluation in real context.



## 6. Result

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In this chapter, the result from a twenty week master thesis project in interaction design will be presented. The result is based on experience from the shopping experience innovation by Interactive Institute Swedish ICT, the brand Monki and Lindholmen Science Park, in which I have taken part. The focus has been to investigate *how methods and materials in the methodology of participatory design can be used in order to design interventions that aim at enhancing shopping experiences*. In order to answer this, the shopping experiences and behaviour has been investigated in Sweden and China. A concept has been developed through many collaborative activities with researchers, users and company stakeholders. The result, in the form of a method toolkit, can contribute for shopping experience innovation, especially for physical store experience enhancement in retailing industry. The methods are exemplified through a design concept developed from the innovation process.

### Collaborative Methods for Shopping Experience

The answer to the research question aims at the design development in shopping experience innovation, especially for the enhancement of experience of physical stores. The answer can be inducted as a strategic methods toolkit with the following aspects:

- Innovation stages: three steps.

Shopping experience innovation can contain three layers of process. They are 1) the field work for investigation of user's situations; 2) the presentation created by designers to visualize the findings for those did not experience the fieldwork; and 3) collaborative creation to visualize the concepts of participants to narrative videos.

- The thread of innovation: storytelling.

The story and storytelling are the major thread to design experiences together with participants in various backgrounds. The stories to express and craft experiences of the past, current and future are the thread of the design process for the shopping experience innovation. Storytelling is used to formulate the sequence of ethnographic field investigation, and to ground the knowledge of customers to participants' mind in co-creation stages. It is also used collaboratively by heterogeneous participants to create scenarios for design concepts.

- Methodology: from field to co-creation.

The participatory design and design ethnography are the methodology for shopping experience innovations. The basic concerns of the innovation are to involve technological end users through design ethnography, and to involve stakeholders from the industry as critical users or audiences of the innovation.

- Design communication tool: videos.

Video materials can be a strong tool for the communication in shopping experience innovation. Videos (compensated with pictures) are the medium which allows researchers and designers to transfer field data to design knowledge, and understand users with demonstrative materials. Videos are used to build the empathy and they are a strong simulation to assert concepts. This way of designing communication increases the involvement of heterogeneous participants including designers, researchers and stakeholders in the fashion industry.

While the innovation of shopping experiences involves above concerns, there are also specific strategies in design research and innovation progress. The strategies of design methods for shopping experience innovation are developed through practice:

- 1) Field work: Shop-along investigation towards customer communication is derived in this layer. The main activity is going along with the customer during the period from before they enter the store, when they are at store for shopping, and until they finish the shopping afterwards. One of the stages should include the home visit. Through the field visit, customers are observed and interviewed for understanding of shopping experiences.

In home visits those studied are encouraged to tell their shopping stories in the context of home and other contexts that relate to their shopping. Home visits provide a natural dialogue for the interviewer and interviewee in shopping context. The materials regarding communication are from these visits, where customers are allowed to tell their shopping stories in their perspectives. During the in-store period, customers are interviewed in the on-going context of shopping. While allowing the free expression of feelings in the

shopping activity and the store context, they are also encouraged to communicate contents regarding the shopping on a distance. By finding out whom and how they communicate in the natural in store to the setting, this investigation helps to understand the potentials of shopping experiences. Customer experiences are investigated from their communication forms and possible trends. The data from the shop-along are documented mainly in dynamic video materials.

- 2) Presentation: Brings design materials to co-creation through designer / researchers' interpretation. Stories from the field that explains customer shopping experiences should be brought into the later co-creation in a way that enlightens innovation. While creating presentations, stories are initially demonstrated in before experience, on-going experience in store and future experience afterwards. Instead of presenting stories as what they are, the significance of their communication in shopping can lead to design sparks.

The technique of presentations is to visualize the shop-along outcomes that are either unobservable or from dictation, which are selected to be important for facilitation. This can contain the relevant pictures available in the field, or in another source that indicates the information and the sketches during field visits from researcher / designer. These expressions combined with voice-over or text can be the same self-explanatory as the videos directly from the field. Video materials are means to visualize the field findings, and they should be processed by designer / researcher as design communication.

- 3) Collaborative creation: Design methods across backgrounds are used to interpret presentations to design creations. Hybrid participants convert knowledge they learn from customers to design with their knowledge through scenarios of "before, during and after", as the response of story / experience narrative. Scenario based design activities in a playful way are used to eliminate the barrier of the professional knowledge for participants. Such a play is in two ways, and one is to play with props while the other is acting with bodies to have a more concrete exploration. The design concepts in the form of play are also documented in videos.

## Shopping Experience for “Monki Girls”

The design research through the above methods leads to an enhanced shopping experience by introducing a concept of technology-integrated mirror into store context. A pilot installation will be introduced into the hot spot of the store - the dressing room area as an additional unit. In order to maintain privacy like dressing rooms, the concept needs to be an unobtrusive experience while users are interacting with the installation. It is vital to provide an experience exactly same as regular mirror in the technological installation.

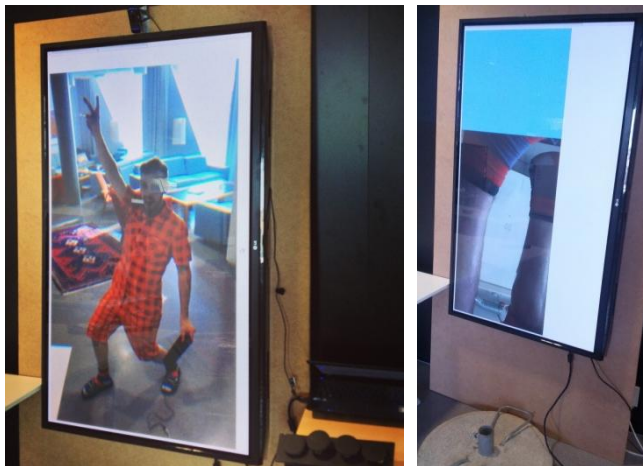


Figure 25. One of the mirror solutions: the screen prototype

Figure 25 shows the initialization of the mirror prototype. Monki's shopping experience supports customers with a mirror that allows sharing content from the mirror to the Monki world that is integrated in social media channels. This makes the interpersonal communication available and uses retailing products as a conduit of the communication among customers. Digital Monki world constitutes of accumulation of contents from customers can be accessed in store through screen-based mirror installation.

The installation consists of two functional parts. One is the screen with an integrated camera in and works as mirror. The other is the console to control interactions with mirror. It supports several functional frames. The mirror is firstly a camera that users can take pictures when using the mirror. It is secondly a port to social media as well as a personal communication tool. Users can upload the pictures to preferred social media channels (e.g. Facebook, Instagram), and are encouraged to contribute content by hashtags. The latter work is done by the social media functions. Users can also download the picture on cell phone or send to their contact via email. The pilot is at the same time a flowing browser in the access Monki world in the sense of visiting social media database of pictures taken by previous users.



# 7. Discussion

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This chapter will discuss the used methods in terms of pros and cons, followed by language issues of investigation in different cultural backgrounds. Then the chapter will relate the shopping experience innovation to the examples introduced in previous chapters, and the further research based on the current stage.

## Participatory Design Methods

From the study I find there are distinctions in design methods that we used for data collection. Comparing between observation-based and interview-based, following comparative analysis are made. Pros and cons are distinct while doing the investigation. Regarding the distinctions of the interview and observation, they are complementary methods when collecting field data in the project.

Observation	Interview
Designer's full closure to those studied	Designer's disclosure and intervention to those studied
What people say and what people do are not same. This causes the ideal behaviour and manifest behaviour from subjects. People respond to whether they are watched by different behaviour. They tend to show the natural behaviour without getting exposure, but in the other hand, an onlooker's observation may fail in interpreting manifest behaviour.	Interviews compensate the observation through asking the situations of customers, or inquiring feelings and motivations in the moment. The shop-along interviewer can intervene in the activity to encourage the potential requirements and actions, in order to achieve the inspiring materials. But this also brings the cons that customers compromise the demands in a more feasible way, rather than the natural response.

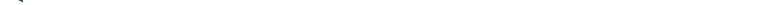
Observation	Interview
Easy setup	Designed setup
The observation is easy to conduct as an investigation to achieve the fruitful data. But lacking of direct communication with customers makes the findings less reflective comparing to interviews, as the interpretation is wholly on observer's perspectives. Yet It helps the team to catch the first context and connection with field and customers. More holistic view and comprehensive information can be caught in the study through a longer time spending in store	The shop-along needs more preparations, such as the contact and date appointments with interviewees, and preparation of the interview consent. After the permission, the interviewer is involved in the complex and richer activity with interviewees. The understanding of customers can be deeper. However the setup needs more endeavours and plans to get prepared appropriately. The behaviour captured in the observation can be understood in customer's point of view in the shop-along as a holistic investigation.

Observation	Interview
Time free	Time pressure
Observation by single designer in field is without time pressure. The video documentation can be synchronized thoroughly, thus sketches or notes can be achieved. The idle time makes the observation more careful.	The shop-along by single interviewer in field is with some time pressure. Firstly there might be some switches of documentation devices (photography to notebook, notebook to videotape etc.) Secondly, multi-tasks such as keeping dialogues with customer, videotaping them and taking notes in same time can be in a hurry. At most of the time videotaping can replace notes but some of the notes are essential and can be summarised afterwards. The single agent is sufficient to finish the shop-along task, while more than one can work better to avoid missing field information.

**Table 3. The comparison between observation and interview.**

The goal of observation is to form sufficient description in order to bring audiences into the field context, while interview can achieve a deeper understanding in customer's perspective. Designers tend to analyse when perceiving phenomenon, which is avoided in field work. The interpretation methods used are also differed in several design stages for the analysis. Videotape of shop-along interviews and story walls play an important role as a creative medium by allowing active analysis by participants. Through the interpretation by both field workers and participants (who

By field worker  By participants

By field worker  By participants

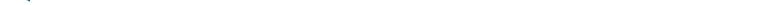
By field worker  By participants

Table 4. The range of material interpretation

Among the methods that are performed in the innovation process, observation research gives more spaces for participants to image and improvise, while videos captured in shop-along are more convincing and brings the demonstrative knowledge of customers. It is important to have sessions allowing participants discuss and analyse based on materials before co-creation activities.

## Language in Ethnographic Studies

As Patton (2004) summaries, *“Cross-cultural inquiries add layers of complexity to the already-complex interactions of an interview. The possibility for misunderstandings is increased significantly as documented in materials and training schemes aimed at cross-cultural sensitization (p.391)”*. The first barrier in the communication of this design study is the language. As an observer, I cannot understand Swedish when observing in local stores. So my interpretation is in an absence of verbal information. This helps me to focus on customer's body language. Nevertheless I am fully unable to understand them from their points of view. The interview in the same period is conducted in Stockholm in English, which allows all members to better understand. In order to fit a nature language setting in Chinese context, Chinese becomes the interview language there. Therefore, this interpretation increases the barrier of the language. Before bringing the material to the co-creation stage, the team needs audition and pre-examination in English. The challenge is to enable the material for the workshops understandable, in aspects of both the customer behaviour and translated language. It is a natural context and effective way to send a native speaker agent to another context, and collect the field data in the local language. But on the other hand, it is time-consuming to transfer the mass data to English. In order to reduce the barrier, one option is to facilitate more demonstrative materials. The other solution is to encourage customers to do storytelling independently, and field workers support these stories with visual tools such as journey maps, subtitles or dubs.

## Reflection of the Innovation

From the development to the result, the purpose of design is to fulfil the brand value: *“We aim to inspire girls of all ages to express and be more of themselves”* (Monki, 2013). This is challenging as the innovation is open to many design factors including individual stakeholder's vision, customer requirements, and technologies together with brand values. Factors such as brand's requirements and user needs can be contradictory to some extent. Through this participatory design, the design intervention that enrolls social media in store provides more recognisable and sale-oriented shopping experiences for the retailer and more entertaining and functional

experiences for customers. Effects of social media are employed to satisfy customers and retailers as a way to connect stores with virtual Monki world. This new shopping experience where “Monki girls” encounter with the brand is formed to support a community.

The related projects mentioned contain technological frames like the Mirrus network. With RFID tags of recognition of products, Mirrus Retail Mirror (Evans, 2012) takes the mirror in a dressing room as a tangible interaction and information searching system, so as the Beauty spot of Macy's (Intel, 2012). The Prada store (IDEO, 2000) that uses technology to support both clerks and customers provokes a sense of luxury. As this was an early innovation, it did not take consideration to the social networks that play a role in customer's shopping activities. The design from this participatory innovation involves customer's networks in the shopping experience, and sets the relation between customers and the brand, and between customers. Comparing with related examples, the implementation of the design can help the brand be more influential among customers.

While some of the examples use RFID technology to recognize the products in the dressing room, there is a limitation to exploit this technology for the company. The replacement of new tags can be an organizational challenge, which currently is not in a ripe context for change. Therefore the concept focuses on users' contribution through the mirror. The risk comparing with the examples is the possibility of unhealthy and inappropriate information that flow into the system. Social media can face such ethical issues and when it is an open platform towards the mass. Therefore such a mirror system requires a proper filtering and a supervising mechanism to prevent these negative impacts. One option is to simply use the mirror as a port and leave the duty of censorship to existing social media channels. The other option can be the concept of rating described in the informance stage. The rating from customers undermines the useless, worthless information, and in the same time clerks and the organization are able to check and clean the inappropriate information.

## Further Research

In the further work of the concept, richer interactions can be implementable when the inventory can be recognised and identified through the mirror. The relevant functions include allowing the recommendation of the relevant goods, and interactions from social media feeds. Instead of the identification and tracking on goods, in one of the workshops we also discussed the possibility of tracking and identifying customers. Customers can bring a certain type of “Monki ID” (e.g. club card) and log in to the mirror with a customised experience based on purchase records, or with “secret” information and other customised information. They can have “Monki friends list” in the mirror to share information to external channels. The

contents that can be interacted with are centric in the brand's products and thus the concept aims at further dialogues with the brand.

As fashion retailing is an industry with a strong brand image, there is little related research in association with the industry through participatory innovations. The experience of the project indicates the strong need of customers in the market and brand. The innovation is also related to the experience design and can be extended to design for services. It can be developed as a long-term service, through the implementation of technologies to support touch points between customers and services provided by brands. As the current goal is to implement pilot prototypes for evaluation, the further research can be expanded to field studies and co-design activities towards enhancement of shopping experiences that is focused on interactive experiences with more touch points, such as websites, after-sale services etc. Apart from this, what the retailer can provide implicitly is also interesting to investigate and articulate from participatory activities. This can be a characteristic in the application of participatory innovation in retail industry.

## 8. Conclusion

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This thesis work explores design methods in the process from field studies of customers to the establishment a social interplay concept. The research and design are relevant for the communication during shopping. Particularly, the perception of knowledge on how customers communicate drives the innovation, where members of the participatory design project interweave both the customer knowledge and the individual background knowledge with the development of socially communicative experiences. The stories and scenarios provide a medium for design communications among participants in various backgrounds.

In conclusion, methods from participatory design can be used for enhancing and enriching the shopping experience as follows:

- Field methods are motivated by the vision of the brand and previous field works. This phase is important for fully learning from customers. Contents of investigation through methods evolve from a general setting and behaviour in shopping to study communication among networks regarding shopping.
- Methods to handle design materials are motivated by concerns of co-creation. This phase is important for processing the proper knowledge of those who are studied. The contents of presentations through methods respond to both field work and co-creation sessions. These materials either inspire or prove the innovation.
- Methods for co-creation are motivated by previous co-design sessions. This phase is important for the transformation from the material knowledge to design expression, and thus crossing innovation barriers. The results from methods are narrowed down and evolve from many imaged stories to a concept with details. The methods envision the shopping experiences that are enhanced by technological augmentation, and enriched by the import of social interplays.

The open innovation contains three main factors: stakeholders, customers and technology. The methods as an approach synthesize these factors to design inputs, and output design concepts, thus facilitating the innovation of novel shopping experiences. Through the performance of methods, the innovation fills the gap between the social media and retail locations, while in the same time the thesis addresses the contribution to a gap between the participatory design and the retailing shopping experience.



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# Appendix

## 1. The Matrix Analysis

	Customer			Environment				
	Self-expression	Information sharing	Deep term of relations hip	Light ambient	Mirror	Fitting room	Store	Others
<b>Video 1.</b>	Fabulous effect in mirror encourage photographing and send them social networks				Cool mirror with Monki graphics inside.		There will be a light on in-store items that are tagged in specific app.	
<b>Tech</b>	Kinect				Kinect		Tangible hangers/AR	
<b>Video 2.</b>	Create content (write, photos, hashtag etc.) base on locations.		Virtual Monki world connect with informati on in other stores and whole commun ity.				Enter and get requested contents for entering made all virtual Monki world, and develop to loyalty reward mechanism .	Screen to show the contents over the world.
<b>Tech</b>								
<b>Video 3.</b>		Get more information (designer, fabric related items etc.) on the mirror and send to friend as recommendati on.		Fitting room lights for screen mood and ambient.	Touching screen and integrated, to change ambient according to theme.	Fitting room music on, ambien t and mood instantly change s.		
<b>Tech</b>		Touch screen as mirror			Touch screen as mirror	AR, sound spot		

<b>Video 4.</b>	Photos taken inside the store are shown outside for attraction.	Photos taken can be shared or printed out.	Photos taken for campaign/competition (chosen environment, style etc.) Collectable (puzzle) card-like game for printings.			Photo booth in fitting room. Built-in camera and changeable backgrounds.		Screen to show customers photos for attraction.
<b>Tech</b>						Screen as mirror, Kinect		
<b>Video 5</b>		Discovery music (creations), events in store, before and after shopping. Share own music creation to that is people with similar interests.	Customers already made some music used in stores as "celebrity",					A hangout place (have coffee, record studio, or other equipment), keep creative in the area. By browsing celebrity picked items hear her music in specific zone.
<b>Tech</b>								Sound spot
<b>Video 6.</b>		Scan friend's item to storage information. Use instant messaging tool to communicate with friends. Communicate with shopping pal via special screen between fitting rooms.		Fitting room lights for day look, night look.	Instant messaging tool is built in mirror.	Change light in fitting room.	Input scanning online to buy, or bring scanning to store to show where it hangs.	
<b>Tech</b>		Touch screen as mirror, transparent screen			Touch screen as mirror		Tangible hangers	

<b>Video 7.</b>					Multi angle to see in mirror. Book dress on mirror and customize in colour Add home items into mirror.		Picked item synchronizing on the phone and bring to store and scan in place and indicating lights on. Step into the store enjoy a welcome sound that can only be heard by herself.	
<b>Tech</b>					Touch screen as mirror, delay mirror, kinect (virtually trying on)		AR, Sound spot	
<b>Video 8.</b>	Public own fashion movie.	Online consulting in fashion (real time chat) and online search based on occasion.					Bring the store experience to website	
<b>Tech</b>								

**Table 5. Matrix from the first participatory workshop as achievement**

## 2. The Interview Guide

# Interview Guide

### 1. Introduction to customer

- Greetings!
- Purpose: Introduce the purpose of the research to interviewee.
- Schedule: "This interview takes about \_\_\_\_\_ minutes, and \_\_\_\_\_(the theme of the interview)"
- Informed consent: "\_\_\_\_\_"(the interviewees are asked to sign and agree with their presence of the research)
- Payment: \_\_\_\_\_
- Set up the interview schedule (date/time)

### 2. Interview question examples on themes (about 15mins)

- Warming up questions – age, hometown or job
- "Where do you buy your clothes?"
- "What type of clothes do you wear?"
- "How do you view/think of your different clothes?"

Start with these types of questions, and find interesting and inspiring shopping stories.

### 3. Question examples about specific location/occasion

#### About closet

- "What are the last three things you bought?"

#### About clothes on that person's back

- "Where/when did you get this?"
- "With whom did you go shopping?"
- "Do you think about something to wear with?"

#### About shopping in store (Follow up questions)

- "Why did you buy/not buy this?"
- "If you want to ask someone if you should buy/not buy this, who would you contact now?"
- "How do you feel about today's shopping?"
- "Could you tell me how did you end up with these clothes?"
- "What do you do after you get home?"
- "Do you have a plan when to wear this?"

**Other techniques:** Shadowing / Situation "Map of home, store and other places"