HOW TO DESIGN A FASHION APPLICATION WITH A HIGH CUSTOMER LOYALTY

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Abstract

This study examines what features of mobile fashion applications have the most impact on brand loyalty. The aim was to find out which (technical) features influence customer loyalty of a fashion application and how these features can be used to systematically design one that goes beyond the browsing and selling functionality.

To find out which features are of influence on the loyal use of an application a the literature was reviewed and two case studies were conducted on the successful fashion apps used by Zalando and ASOS. This resulted in the identification of 6 main features concerned with mobile, social, and brand aspects, that are subsequently used as a framework for structuring app design in this area. The six features are virtual interactivity, system quality, reward, name and logo, brand content and brand design.

An important conclusion of the literature research and the case studies is that the success of applications may be largely influenced by the unique way in which an application implements the feature of "virtual interactivity" i.e., the extent to which online users may participate in adjusting their personal content in real time. Furthermore the feature of "system quality" and "psychological reward" are also expected to have a large impact on the willingness of customers to use an application and to stay loyal to it.

Using the 6 features as guidelines a low as a high fidelity prototype for a new a fashion application, namely FitYourStyle was developed, tested and evaluated. For the low and high fidelity prototypes, a user-centered approach was used following the guidelines of Tang & Hämäläinen. This methodology shows that it is essential to involve the intended users of an application in all stages of the process to make sure user needs are met.

The low fidelity prototype was based on wireframes and mockups. It is interactive in the sense that one can "click-through" the functionalities and interpret it via visuals (mock ups). This prototype had the purpose of providing insight into the functionalities the whole fashion app should contain and which ones are the most critical to pursuit within in this study.

An important result of this work was that innovative aspects were prioritized in the specification, development, and testing of the High Fidelity Prototype. The innovation was specifically concerned with the unique virtual interactivity features of the FitYourStyle application with which it aims to distinguish itself from its competitors, e.g., to allow users to provide their specific measurements to the application easily and effectively, and to allow them to mix and match clothes from their wardrobe with their online purchases of clothing.

The prototyping and testing proved to provide valuable information for the improvement of the design, and for what further research work is necessary. The tests show that the basic idea appeals to users, but that it may be necessary to find a way to quickly make clear to the user what the specific new functionalities of FitYourStyle are. More specifically the visual communications could be improved concerning gestures and icons. Furthermore, it may be necessary to implement 3D virtualization (virtual mirrors) instead of static pictures, to make the application sufficiently attractive and competitive.

All work leads to the conclusion that virtual interactivity, system quality, and personal reward are the most important features promoting customer loyalty. This is supported both by the literature study and tests that were conducted within this project. .

Contents

1 Introduction

This chapter introduces the FitYourStyle fashion application that was designed in this graduation project, and the challenge that led to the development of this product. In conclusion the research questions following out this challenge are presented as well as the outline of this report.

1.1 FitYourStyle

FitYourStyle is a mobile fahsion application that sells clothes online while allowing customers to personalise their use of the application in two main ways. First, the clothes offered in the web shop are adapted to the real sizes of the customer. Second, the application makes it possible to combine clothes from the customer's own wardrobe with those from the web shop. These two functionalities combined makes sure the user does not buy a piece of clothing in the wrong size and that all purchased clothes will fit in the wardrobe of the user.

1.2 Challenge and research

The development of mobile applications has become a significant trend in the fashion industry. Nielsons stated that 87% of smartphone users (e.g. iPhone, Android and Ipad) have reported that their mobile phone is a fundamental part of their shopping experience and behaviour in 2013 (Neilson, 2014). Shopping online via mobile phone is also known as M-Commerce and is gathering the attention of businesses (Wei, Marthandan, Chong O and Arumugam,2009).

The FashionFitr company is one of the businesses that is interested in exploring the possibility in M-commerce. The company aims to sell clothing from several retailers using mobile devices. It is already known for its advisory tool on clothing sizes in a web application on standalone desktops.

The challenge now is to make a decent mobile fashion application that attracts enough buyers. If not enough buyers are attracted, retailers will not be interested to offer their products via the FitYourStyle application. Our aim is that every time a potential user shops online for clothing they will do so using this new fashion application. The user stays loyal to the application if heror she keeps on using FitYourStyle for online shopping.

To reach this goal a design and a prototype for a possible fashion application has been developed that focuses on customer loyalty. The prototype and the design are the results of research on the following research questions:

Which features of mobile fashion applications have the most impact on brand loyalty?
RQ1: What features persuade the user to keep on using the fashion application from a technical perspective?
RQ2: How can a fashion app be developed systematically?
RQ3: How can a fashion application offer an experience that goes beyond the basic browsing & selling functionality?

1.3 Report outline

To find out which features are of influence on loyal use of an application (RQ1) a literature review was conducted in the area of fashion applications (see chapter 1). By defining a fashion application as a mobile phone application that has the main purpose of selling clothing online, the scope of the literature research could be limited. The result was that 6 main features of such applications were found that can be used as a framework to structure and relate all the research and design work throughout this project (RQ2). The 6 features are concerned with mobile, social and brand aspects of an application and are elaborately discussed in chapter 2.

To verify that the features are important for loyalty, cases studies were conducted on two successful fashion applications (Zalando and ASOS), see chapter 2.2. By making an inventory, how exactly the features were implemented by them, it was possible to clarify and exemplify what the features mean in actual applications (chapter 2.3), and to acquire a sense of their influence, in preparation of the design, prototyping and testing of the new FitYourStyle application.

To systematically develop the design of FitYourStyle (RQ2) a user centered design approach was taken that was largely inspired by Tang & Hämäläinen (see chapter 3). For the purpose of this graduation project, to develop a conceptual design of the application, three stages of this methodology were emphasized: Vision, Prototype and Evaluation. The diffusion and commercialization stages were not used, because they require an implementation of the design, which is out of the scope of this project.

Chapter 4 reports how the Vision stage was carried out by means of ideation (4.1) and specification (4.2) methods. The main idea for the FitYourStyle application was developed by first generating diverse ideas, and then converging towards a viable concept. This was subsequently refined using the 6 features as a framework for the development of more exact specifications i.e. requirements. Based on this a low-fidelity Prototype was developed(4.3.1), tested and evaluated (5.1). Conclusions were drawn from the first prototype and taken into account by developing, testing and evaluating the high fidelity prototype(4.3.3, 5.2, 5.3).

2 State of the art: Creating a framework

In this section, the state of the art of fashion applications is described. First of all thesis used to find out what is understood by fashion applications in the scientific literature. Second, this state of the art is used to create a framework for analysing customer loyalty identifying six main features. Last, two very similar products, the mobile application of ASOS and Zalando, are analyzed using this framework. Conclusions out of this analysis are used as guidelines or requirements for creating FitYourStyle(4.2).

2.1 The definition of a fashion application

In this section, the definition of a fashion application is discussed.

The concept 'fashion application' is defined in two different ways in the literature. It is referred to as a 'branded app' and also as 'm-commerce'. The definitions differ on what is considered to be most important by the authors. However, the common factor of the two definitions is that a fashion application sells fashion products online. For the branded app it is important that the application is recognised by its brand identities such as the name and the appearance of a brand logo or icon (Bellman, Potter, Treleaven-Hassard, Robinson, and Varan, 2011). For m-commerce the focus lays on the fact the products are ordered online via a wireless network on a mobile device (Magrath, McCormick,2013) (Strategic Direction, 2015). While both definitions agree that shopping online is done on mobile devices, the difference is that the first emphasizes brand identity and the second mainly considers the technical specification.

Although these two definitions take a different point of view, they have several things in common. In both definitions purchasing products is the main function of the application. In both cases, the way of purchasing products is done is online. Furthermore, the shopping online is done via a mobile phone. These features all combined, the conclusion can be drawn that a fashion application is a mobile application that has the priority of selling clothing online.

2.2 Features influencing customer loyalty

In this section, six features of customer loyalty are discussed and explained. Please note that the main article used to make these distinctions refers to an M-Commerce Centric App. This term has the same meaning as the definition of fashion application as explained above.

Features that are relevant to a user making use of a M- Commerce Centric App (an application with as main goal selling, increasing brand image and awareness and collecting user data) can be divided into three categories: mobile features, social features and brand mention. Mobile features refer to the technical capabilities of mobile phones. Social features of a mobile application are associated with the possibility to interact with the content of the application and also with other users. Last but not least the brand mention gives an indication how companies market their brands within the application (Zhao and Balague, 2015). These three categories and its dimensions(see Table 1) will give handles to analyze existing products on all aspects. Result from this analysis functions as starting point to identify guidelines/ requirements for a customer loyal fashion application.

2.2.1 Mobile features

Mobile features refer to the technical capabilities of mobile phones. Two mobile features that have an influence customer loyalty are virtual interactivity and system quality. According to Jamid UI Islam and Zillur virtual interactivity is one of the strongest influences on customer loyalty (Islam and Rahman, 2016). Virtual interactivity is defined as "the extent to which online users might participate in adjusting the content of website in real time" (Steuer, 1992,). Technical capabilities of a mobile phone that can invoke interactivity for M-commerce centric apps are: camera's, scan barcodes/QR codes, location awareness augmented reality (AR), virtual mirrors and mobile payments(Zhao and Balgue, 2015).

System quality also has an influence on customer loyalty. It can be measured regarding the style of design, the ease of navigation, response and transaction time, security, clarity of the functionality and the extent of creating an audiovisual experience (Zhao and Balgue, 2015).

It may be concluded that for the the evaluation of the technical capabilities of a fashion application both virtual interactivity and the system quality should be assessed.

2.2.2 Social features

Social features of a mobile application are related to the possibility to interact with the content of the application and the interaction between users. Social features have a positive effect on e-satisfaction and e-loyalty (Christodoulides and Michaelidou, 2011). According to Islam and Zillur a user should gain some psychological reward out of using the application. A user can feel rewarded by interacting with the content and personalize it. This can be done virtually, but also in simpler forms like user-generated content, content personalization

(e.g., content tagging), content rating, commenting and content sharing. Also, including end users in the product development enhances customer loyalty; a user is more tempted to use the product they helped to create (Shawney, Veronda, Prandelli, 2005).

Another opportunity for user satisfaction is sharing, which is a form of interaction between users of the mobile application. Sharing experiences become especially important if the goal of shopping online is to acquire a good feeling from the shopping experience. In this situation, closed sharing (person to person) is preferred compared with open sharing (Facebook and Twitter) (Parker,n.d.).

Here it may be concluded that for the evaluation of the social features of the fashion application the (psychological and physiological) reward of interacting with users and and content should be assessed.

2.2.3 Brand mention

The brand mention gives an indication how companies market their brands within the application (Zhao and Balague, 2015). Brand mention has an impact on customer loyalty. Several distinctions on how to define brand mentions have been made. Aurand, Gorchels and Bishop suggest that if the name, logo, brand design and brand content as design factors are all incorporated in one the design, it improves brand loyalty. A good brand mention better makes also makes new products and creates a more sustainable strategy for the market (Aurand, Gorchels and Bishop,2005). Name and logo are of course name and logo of the company. The brand design has the purpose to create the corporate identity and consists out of typeface, layout, colour, stimuli (shape and icons), and presentation style. The purpose of the brand content is to deliver and enhance the brand image, referring to imagery, copy (the direct written communication of the retailer with the client), relationship features (communication beyond the website) and sound and video (Magrath and McCormick, 2013).

Another decision that can be made is to split up brand mention into corporate brand mention and product brand mention. Corporate brand mention refers to the brand of the corporation while product refers to the product it delivers e.g. the yoghurt Activia belong to the Danone group. A brand corporation can be evaluated on the following features: brand name, brand logo, matching brand colours, brand mascot. The product brand mention can be evaluated on its brand name, brand logo, brand packaging matching brand colors, brand mascot (Zhao and Balague, 2015).

Comparing these two definitions it can be noted that matching brand colours, brand mascot and brand packaging as features stated by Zhao and Balague are similar with the definition of brand design and brand content stated by Aurand. However, the definition of Aurand seems to be universal and applicable for this project. Therefore, can there be referred to the logo, name, brand design and brand content and their stated variables to evaluate the brand mention of a fashion application.

2.2.4 Conclusions

After studying several concepts and definitions, a fashion application can be defined as a mobile application that has the priority of selling clothing online. Features that influence customer loyalty can be divided into the categories mobile features, social features and brand mention. Mobile features that influence customer loyalty are interactivity and system quality. Social features that influence customer loyalty are interaction with the content and interaction between the users, since they both result in a positive (psychological) reward for the user. Interesting is that by engaging users to play around with the content of the application has an impact on loyalty. For a limited number of people it is also possible to develop loyalty by involving them in the design process. Finally, the features of brand mention that influence customer loyalty are the logo, name, brand design and brand content. All of these features have variables on which they can be evaluated and can therefore possibly be used as guidelines for evaluating fashion applications on customer loyalty.

Table 1: Features that influence customer loyalty

Virtual interactivity(mobile)	camera's, scan barcodes/QR codes, location awareness augmented reality (AR) ,virtual mirrors and mobile payments
System quality(mobile)	style of design, easy navi -gation, fast response and transaction response, security, clear functionality and creating an audio -visual experience
Reward(social)	-Interacting with content (user-generated content, content personalization (e.g., content tagging), content rating and commenting and content sharing) -Interacting with users (open and closed sharing)
Name(Brand) Logo(Brand)	Should be consistant Should be consistant
Brand content(Brand)	imagery, copy(the direct written commun- ication of the retailer with the client), relation -ship features(commun -ication beyond the website) and sound and video
Brand design(Brand)	typeface, layout, colour, stimuli(shape and icons), presentation style (the representation of typeface, layout, colour, stimuli).

2.3 An analysis of existing products

To see which of the features stated before are the most important and how they can be implemented, the applications of two big competitors, namely Zalando and Asos. were studied. Both examples are big popular online platforms that sell fast fashion via mobile applications.

2.3.1 Zalando

Zalando is a platform that sell fast fashion, see figure 1. It has a target group reaching every age and the company is highly competitive: they had sales in 2016 for 2979.6 million dollars. In Europe, Zalando is also very familiar with online shopping, with a customer base of 95% within Europe. This means that 95 % of all customers of Zalando are based in Europe (Wiggeraad and May, 2017).

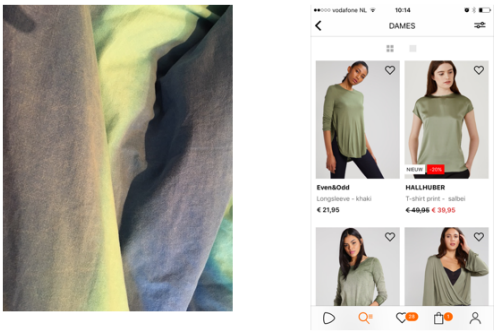
Figure 1: Zalando logo

Virtual interactivity

The virtual interactivity of the Zalando application is analysed via the dimensions of the camera's, scan bar-codes/QR codes, location awareness, augmented reality, virtual mirrors and mobile payments.

The camera option from the Zalando seems to be a very strong feature with which it is possible to make a picture of a clothing piece or pattern and make a search based on that picture, see figure 2.

Figure 2: Pattern search algorithm from Zalando app



Also, it is possible to search via bar or QR codes within the application. This feature can be become handy during physical shopping. The location awareness is restricted to inserted delivery addresses, no connection to GPS of the mobile phone is made. Augmented reality and virtual mirrors seem not be included. Mobile payment in the application is possible via Invoice, Ideal and PayPal.

System quality

The system quality of the Zalando's application is analyzed via the dimensions of the style of design, easy navigation, fast response and transaction processing, security, creating an audio-visual experience and clear functionality.

The style of design is very clear: the functions are to be found where expected and filtering on certain clothes is pretty straightforward. The navigation is easy and well designed for touch screen: clicking with your fingers on the mobile phone screen on icons and text inputs.

Also, the response time for the searches is really fast and accurate. The transaction time for paying for a product is hard to measure and is therefore left out. The primary security for the application is done via email and passwords, but extra security such as Touch ID can be activated via the settings. The basic functionalities of the Zalando application are quite logical: homepage with the advertisement for articles, searching and filter options, wish list, shopping bag and features related to the user (orders, profile, settings, help).

Reward

The psychological reward of the Zalando application is analysed by how well the end user can interact with the content of the application and other users of the application.

The content can be interacted with by the users in the sense that the users can leave comments on the products and can change colors of certain products. The interaction with other users of the platform is limited since the end user has no insight in who the other users of the application are. However, it is possible to share a certain product or the Zalando application itself by means of other applications available on the mobile phone such as Whatsapp, Facebook (Messenger) and E-mail.

Name and logo

The logo and name are evaluated on the aspect, if they are used consistently throughout the application. Consistency means that no other logo is used and the name is always spelled the same. The logo of Zalando is in fact prominent in the overall design and is the same everywhere. Striking is that other logo's of products they sell are never mentioned; per product, only the name of the brand and the product is mentioned.

Brand content

The brand content of the application is measured by the imagery, the copy (the direct written communication of the retailer with the client), the relationship features (communication beyond the website) and sound and video.

The imaginary of the Zalando application is rich; every product at least has two or more pictures. The pictures are normally posted against a gray background. The product copy on the main screen is represented by the price, brand name and product name. On the product pages itself, the direct messages are more details about the product e.g. the size and how to wash it. Also, information about discounts and new collections is usually communicated by means of push message. Furthermore, there is also contact via email, where feedback on the application can be given specialized on a theme, and a newsletter is sent to the customer. Sound and video were not used by Zalando.

Brand design

The brand design is expressed by the variables typeface, layout, color, stimuli (shape and icons) and presentation style. The presentation style is how typeface, layout, color and stimuli come together in a design.

The typeface used is Arial, which is quite a general typeface. Probably this is used for readability and to gain the trust of the customer. The color used in the design is orange, white, black and gray. This color combination makes it minimalistic and modern. The orange also provides a bit of warmth. The stimuli provided out by the application are clear: the defined functions via the icons were easy to understand (home button, search, wishlist, etc.), and also the buttons were easy to recognize, they had are rounded shapes and striking colors. The whole presentation of typeface, layout, color and stimuli make for a very sterile, modern and insightful presentation style.

2.3.2 ASOS

ASOS is also a platform that sells fast fashion, see figure 3. The company has a young target group and is highly competitive, although that they sold less than Zalando in 2016. In 2016 their sales were 1444,9 million dollars (Zalando had 2979,6 million dollars). Also, they are international and have a customer base in Europa of 70%. This means that 70 % of the customer ASOS has are located in Europe (Wiggeraad and May, 2017).

Figure 3: ASOS logo

Virtual interactivity

The virtual interactivity of the ASOS application is analyzed via the dimensions of the camera's, scan barcodes/QR codes, location awareness, augmented reality, virtual mirrors and mobile payments.

Within the application, no camera is used; searched with a QR or barcode is not possible. Also, the virtual mirror is absent. However there all the products are supported by videos that show the product on a model or is animated by the 360-degree view. Also, mobile payment is possible with a variety of payment methods: Visa, Mastercard, Paypal, American Express, Electron, Switch/Mastro, Delta, Ideal and Dankort.

System quality

System quality of the ASOS application is analyzed via the dimensions of the style of design, easy navigation, fast response and transaction processing, security, creating an audio-visual experience and clear functionality.

The style of the design of the application is a little bit messy. The primary functions such as home, filtering, wish lists and profile are pretty clear, although the way the secondary functions are divided is a little bit odd. Functions are sometimes placed under unexpected menus e.g. underneath the my-account-menu there are a lot of functions. It seems that all the functions they had left over were placed underneath my-profile-menu. However, the navigation is logically and integrated via icons, and also the response time is great for an application with so many videos.

The security is well done in this application. Besides that it is possible to log in via email address and password, Touch ID can also be enabled. However, this is something that is additional and not primary. There is also no audio-visual experience created since no sounds are used under the videos. The reason for this is that sound on applications can be annoying. Though video and images are used extensively, so that a visual experience is created rather than an audio-visual one.

Reward

The psychological reward of the ASOS application is analyzed by how well the end user can interact with the content of the application and other users of the application. It is possible to interact to share content of products and rate the application via other media. However making comments or ratings on the product itself is not possible. The application provides a link to the Apple store, where you can rate the application. Further, in the application itself, there is no possibility to interact with other users of the system.

Logo and Name

The logo and name are evaluated by the fact if they were mentioned in the application in a consistent way, which means no other logo is used or the name was not spelled differently. The logo of ASOS is prominent in the overall design and is everywhere the same. Striking is that other logo's of products they sell are never mentioned; per product, only the name of the brand and the product is mentioned.

Brand Content

The brand mention of the application is measured by the imagery, the copy (the direct written communication of the retailer with the client), the relationship features (communication beyond the website) and sound and video.

The imagery of the application is really extensive, the pictures and the video give a good look and feel of the products they offer. The copy of the application is quite standard: the product is described by brand, price and product description. In the product information provides a description of some facts about the product, the brand it is how the to wash it and the product core. Also, push notification is used to communicate sales and new collections. For customer relationships, there is a possibility to send feedback via email and rate the application via the app-store or website.

Brand Design

The brand design is expressed by the variables typeface, layout, color, stimuli (shape and icons) and presentation style(the representation of typeface, layout, color, stimuli).

The main typeface used is Fatura PT combined with a lot of different styles. For the layout(headers, text, buttons, pictures) are mostly rectangular shapes. The colors used are black, gray and white. Along sides these factors the application stimulates excitement using messy layout and using rectangular buttons. Sometimes using different colors for the buttons to highlight these buttons. The whole presentation style could be described as modern with a tailoring towards the younger generation.

2.3.3 Comparison

To conclude this case study both Zalando and ASOS are be compared with each other. What are their differences and what do they have in common.

Virtual interactivity

The two biggest differences between ASOS and Zalando in virtual interactivity is in the payment system they use and in some special features. Zalando has fewer payment methods than ASOS; the reason for this is not quite clear. However Zalando offers two ways of being interactive: namely searching on pictures and barcodes, while ASOS virtual interactivity is limited towards products that can be turned and watched in 360 degrees.

They have in common that they do not track location, but only allow the use to fill in delivery addresses. Also, something they have in common is that they both have one special virtual interactive feature (the search algorithm and 360 degree view) to make their application outstanding.

System quality

The biggest difference in system quality between ASOS and Zalando is in the way of filtering and the way secondary functions are implemented. The categories in Zalando are based on clothing, while the categorization on first by ASOS is more extended (brand, product, etc.). Also, the secondary functions for profile menu are different, ASOS has a lot more different functions here then Zalando, which makes it look like that Zalando is more structured and clear in navigation than ASOS, even though they have exactly the same primary functions: home, search, shopping bag, wishlist and profile. Also, they have comparable security for the application: name and email for logging in with the possibility to turn on Touch ID. Also, the navigation and response time with both applications is great, certainly for applications with video and virtual interactivity.

Reward

The reward system is not that different up to the point that Zalando does have the possibility to comment on the product. Further, the only interaction with the content is the ability to share with external applications e.g. Whatsapp or Facebook.

Logo and name

The way logo and name are used in the application is the same. The logo is used as a home button, and no other logos are shown in the application except for their own. The name of the applications is used consistently through the application.

Brand content

The biggest difference in brand content is in the Imagery and the level of detail of the descriptions per product. The imagery by ASOS is quite extensive; they use 3-D models of their product and videos while Zalando only shows several pictures of the products. The description per product differs in the fact that Zalando describes more about the size and the occasion where the clothes can be worn while ASOS tells more about the brand of the product. The thing that they have in common is the style of copy, the products are all described by name, brand and price, and they both use push notifications to communicate sales and new products. Also, the way they maintain relationships with the use is similar: the rating can be done via the app-store and feedback can be given by email.

Brand design

On all dimensions on brand design(typeface, layout, color, stimuli, presentation style) both application differ. The typefaces from ASOS are wilder and more varied than the one from Zalando. The layout of the ASOS is more rectangular than Zalando. Zalando uses in its buttons as it logo's a round shape. For the color scheme, Zalando and ASOS are close though Zalando uses a standard extra color which is orange. The combination of all the elements results in the applications sending out different messages and stimuli. While both styles are quite modern, they have the different look and feel. ASOS feels more edgy, girlishly and exciting while Zalando looks more decent and warm. The presentation style for both would be modern, but both have the other target group in mind. ASOS tailored more towards young people while Zalando focuses more on all kinds of target groups.

2.4 Conclusion about the state of the art

After creating a framework (the 6 features of customer loyalty) out of scientific literature and testing it on existing applications, several conclusions can be drawn for the graduation project. First of all, it may be concluded that the six features for customer loyalty are useful for analysing mobile fashion applications and can be used as checklist for designing one. The gained knowledge of the case study can be utilized as a foundation of design choices and as a source of inspiration. For example, the navigations of the ASOS and Zalando application can be an inspiration for the graphical design of the prototype. Another interesting example is the fact that every application has its unique virtual interactivity to make itself outstanding, such as the search algorithm and the 360 degree view from ASOS. This can be a starting point for the functionality of the application, namely that the shopping application should have a salient innovative feature besides selling clothes to make itself outstanding. For further details see the chapter 3.2 Specification.

Also, the fact one knows that customer engagement improves customer loyalty can be a foundation for the methodology of this graduation project. The methodology chosen for this project should be user-centered, the end user stands central in the design process, for further details see Chapter 3.1 User Centred Design.

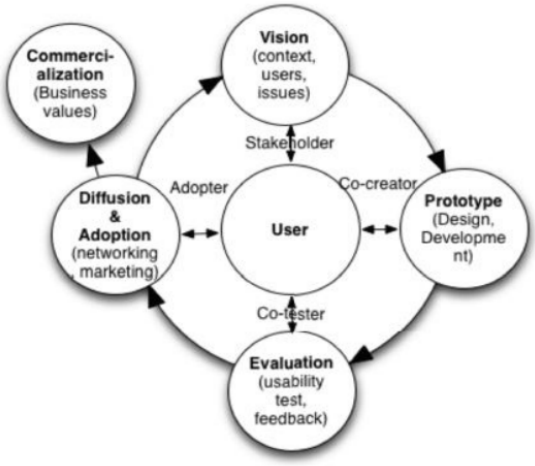
3 Methods and techniques

In this chapter the methodologies and techniques used during the project are described. First, the User Centered Design methodology by Tang & Hämäläinen is introduced. Next an explanation is given how the model is applied in this project and which extra techniques per phase are used. Finally some conclusions are drawn.

3.1 User Centered Design

In order to center the design on the user as well as possible, the scheme of Tang & Hämäläinen is used to incorporate user-centered designing in the graduation project (see figure 4). The model has a representation of how the user could be included in several stages of the project. In every phase, the user has a different role and gives his or her opinion on several aspects of the design (Tang and Hämäläinen, 2012). Since users are included from the beginning in the design process, following this model makes its possible to involve the user extensively throughout the whole process.

Figure 4: the scheme of Tang & Hämäläinen



Because this project could only take about three months only the first 3 of the 5 stages of the cycle were fully completed. Together these 3 stages (vision, prototype, and evaluation) are sufficient for the initial conceptual design of the product. If the product goes into production, the last two stages of diffusion and commercialization will be the responsibility of FashionFitr. Therefore these phases were not taken into consideration here. Additionally though, some ground rules of Participatory Design are taken into account. These are, according to Bjogvinsson, Ehn and Hillgren the following (Brown, n.d.)(Bjogvinsson, Ehn,Hillgren, 2012):

1. Designers should be involved in the big picture of innovative social designs. Their innovation and products should also have another purpose than only to earn money. 2.The design of a product should be a summation of the collaborative effort among diverse participating stakeholders and competencies. 3.The ideas envisioned should be prototyped early in the design process so that they can be tested on time to make improvements.

3.2 Analysis of the Tang & Hämäläinen model

In this section, the role of end users is considered in the graduation project according to the phases of the model presented before. First, the most basic question is why it is at all desirable to involve end users in the design process. The second question to address is precisely what role these end users will fulfill per phase.

Target group to include in the design process

According to Bjogvinsson, Ehn and Hillgren it is important to involve all the different types of users early in the design process. Therefore all different target groups of FitYourStyle have been included in all the design phases right from the start of the project. During visioning,co-designing and usability testing people from different ages (18-29,30-49,50-64) were asked to join. The age categories were based on a report of Adobe Scene, a viewer study that tries to find out about the motives of an online shopper. The resulting statistics of a questionnaire amongst 300 participants is presented below (see figure 5 and 6)(Adobe Scene 7, 2010).

Figure 5: Participant age group

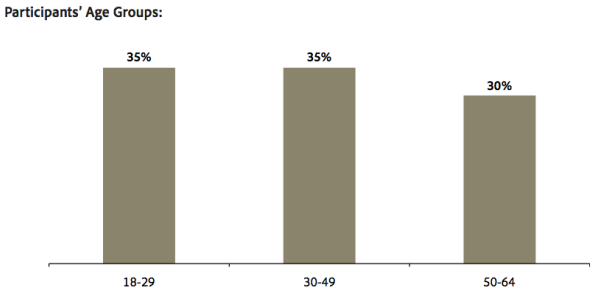
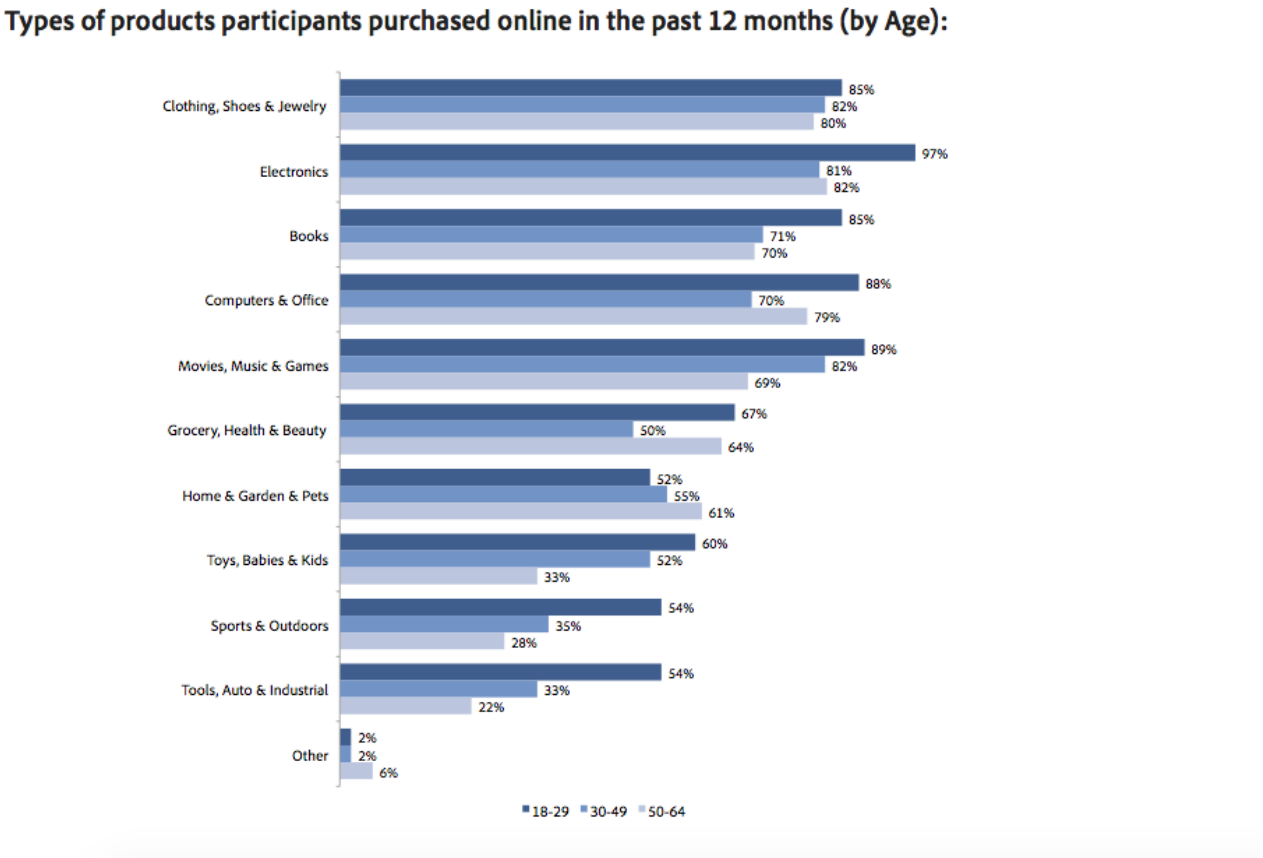


Figure 6: Types of products participants purchased online by age



In figure 5 and 6 the percentages of different age groups are shown that shop online for clothing, shoes and jewellery. Because there are no significant differences FitYourStyle should take all age groups into account much as possible.

Vision

The first phase according to the model of Tang & Hämäläinen is to develop a vision. The intent of this phase is to get a grip on what the context a user lives in and what the issues are to be solved. A problem statement is written, and a plan of approach is created for a product to improve user experiences and quality of life.

Prototype

The second phase is the Prototype phase according to Tang & Hämäläinen. In this phase, a prototype will be developed and co-designed with users (Tang and Hämäläinen,2012).

Evaluation

In the evaluation phase the prototype created in the former phase is tested, for example, the application of FitYourStyle will be tested on functionality and usability. By collecting user feedback, an improvement on the former prototype is possible (Tang and Hämäläinen,2012).

3.3 The Tang and Hämäläinen applied

In this section the results of the analysis will be integrated in practical activities, keeping the guidelines of Erling Bjogvinsson, Pelle Ehn and Per-Anders Hillgren and the character of the phase in mind.

3.3.1 Vision

Before designing an application a solid user vision should be developed. In this phase a vision of what the user wants is developed from the users point of view, and as a consequence a vision also of the product that should then be created. It is of course a challenge to do this well. One way to do so is to to represent the user by a constructivist method since this seems to incorporate the most guidelines of Erling Bjogvinsson, Pelle Ehn and Per-Anders Hillgren. This method is a way to create a vision/context for the end user of a product. The constructivist method is in fact a combination of two representation techniques, the implicit and explicit representation techniques. An implicit user representation according to Akrich relies on statements made on behalf of the user (by the designers themselves). Explicit techniques provide consumer positions more directly and require special skills and qualifications in the area of defining or interpreting consumer representations (Akrich, n.d). Examples of implicit techniques are market surveys, customer testing and feedback from the user who is using the first product. Examples of explicit techniques take the opinion of an expert into account while comparing the design with products with the same characteristics (the state of the art). So using all the techniques combined the constructivist method can be applied using the the next strategies: meeting with experts, making persona's, use of scenarios, and interactive workshops. Additionally a user logic may be developed. Using this method makes it the process participatory, since the end users are involved early, and the design will become a product of a collaborative process.

To find out who the user group is and what it wants, a constructivist method (implicit as explicit techniques) will be used as explained above. Users are thus represented as persona's via some techniques, while consultation with experts in participative design workshops also take place. All this is of course backed up by literature research. Care is taken to involve different age groups so that a broad perspective is developed on what kind of application FitYourStyle should become. The general conclusion taking this approach is that the the opinions of experts and users from different ages will provide the building blocks for the vision of this graduation project.

Meeting with experts

Several meeting were conducted with the experts, namely the CEO of the FashionFitr, Graphic Designers and Interaction Designers. The meetings consisted out of presentations, interviews and brainstorms. Getting a clear vision of client or company is important to state the problem and goals of the project.

Persona's

A persona was developed to understand the context and dimensions of the user. First, the dimensions are constructed by literature research and later verified via interviews with targeted end users.

Scenario of use

To get an understanding of how different target groups will interact with the application a scenario was created. A scenario is a way to find out how a user would use a certain product. For example, a pen-and-paper prototype of the application can be used to test what the most intuitive way is to navigate through an interface. So in fact a pen- and-paper prototype was created, and the most difficult cases were visualized via extended use cases. Also, the difficult interaction with other systems was visualized via activity diagrams.

User logic

The user logic op an application explains how and when a product is used in daily life, and how a user embeds it into habits. To understand the user logic and build a framework for this, a literature review was done. The main focus was to investigate the state of the art of fashion applications and why a certain user would like to use a certain application. Why are certain users loyal to a certain application? The combination with the testing of the scenarios on experts and users and the findings of the literature makes it possible to gain an understanding how a user of the target group would use such a fashion application.

Ideation and requirements

The final deliverables that come out of this 'vision' phase are the main idea and the requirements for the prototype. For brainstorming the principles of converging and diverging were used. First, all ideas were written down, regardless if they were realistic or relevant. After that ideas were selected or rejected based on principles that were important for the project, such the available time, skills and resources.

The requirements were also organized on importance via the MoSC(o)W principle (Karlson,1998):

- Must have
- Should have
- Could have
- Will not have

This way of structuring the requirements helped to decide which functions to include in the first prototypes and what was seen as most important for the first versions.

3.3.2 Prototyping

In this phase, prototype(s) are created to incorporate the user's vision. For a description of the character of the phases see chapter: Analysis- Prototype.

To include users, two types of prototypes were created. First, the lo-fi (low fidelity) prototype was created. Lo-fi prototypes are handy since they can be used for play-testing. They are discardable, and they can be used to explore multiple options and alternatives of the prototypes at low development costs. In this project the low-fi prototype was a pen and paper prototype because this type of prototype is easy and quick. Feedback from users can be integrated quickly, and a low learning curve from the user is needed to be able to participate in the design process (Jonkman, 2016). After the conclusions were drawn from the lo-fi prototype, a hi-fi prototype was created. Here an interactive (software) system was used with clear and concrete design decisions, supported as much as possible with earlier findings (user studies, lo-fi prototype, etc.) (Jonkman, 2016).

The high fidelity prototype was made with mock-ups created in Photoshop. These mock-ups were linked together via the prototype tool Invision. With this tool it was possible to make the mock-ups interactive and play around with them on an actual mobile phone. The reason to create mock-ups instead of real programmed applications was that there was limited time and because this type of prototype seemed to fit better to the goals of the project, namely to create a solid vision of what this application should be and where innovation should take place. By only creating mock-ups instead of already starting programming, flexibility is maintained, giving the possibility to switch concepts easily. With this approach less time was spent on implementing the prototype and more time on developing the concept in more depth

3.3.3 Evaluation

In this phase, the prototype was tested .For a description of the character of the phase, see chapter 3.2 Analysis of the Tang & Hämäläinen model . To be able to collect useful feedback a thorough user usability test was designed. According to Lazar, Feng and Hochheiser, the usability test is appropriate for the following cases (Lazar, 2011):

"The world of usability testing includes: Testing prototypes that have only been built on paper (known as paper prototypes),testing prototypes that look complete but have a human behind the scenes responding (known as the "Wizard of Oz" technique), testing working versions of software before it is officially released, testing software that has already been implemented in existing systems."

This means that usability tests on the low and high fidelity prototypes of the FashionFitr application are quite sensible.

While designing the user test a number of rules were kept in mind, see figure 7. For more details on this see Evaluation. After the test the users were asked to express their opinion by filling in a SUS survey and by participating in a semi structured interview, for more info see chapter 4.4.2 and 4.4.3 .

Figure 7: Rules of Lazar for usability testing

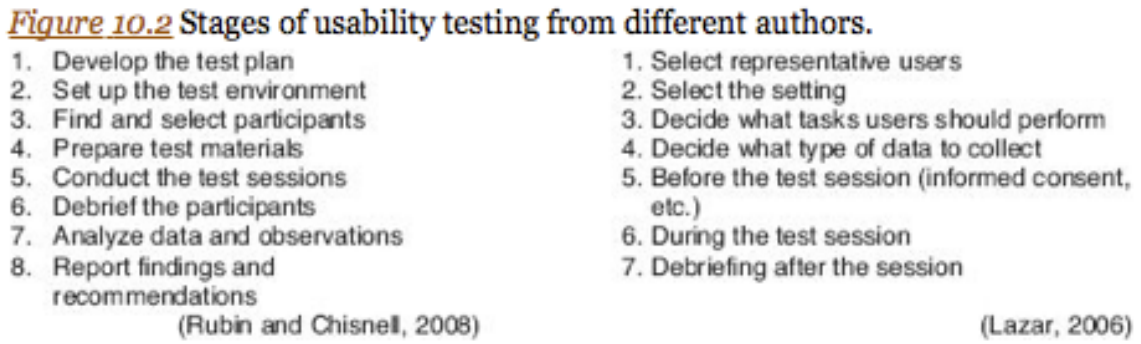


Figure 10.2 Stages of usability testing from different authors.

1. Develop the test plan
2. Set up the test environment
3. Find and select participants
4. Prepare test materials
5. Conduct the test sessions
6. Debrief the participants
7. Analyze data and observations
8. Report findings and recommendations

(Rubin and Chisnell, 2008)

1. Select representative users
2. Select the setting
3. Decide what tasks users should perform
4. Decide what type of data to collect
5. Before the test session (informed consent, etc.)
6. During the test session
7. Debriefing after the session

(Lazar, 2006)

3.4 Conclusions on the methodology

For the user inclusion in the graduation project, the model of Tang & Hämäläinen was used as the main methodological framework. Because of limited time and resources not all parts of this approach were fully used. In particular the responsibility for the actual implementation of the application and the inclusion of the user in the last phase lies with the company FashionFittr. The graduation project itself placed the emphasis on completing the vision, prototype and evaluation phase of the user centered approach. The target group involved during the process consisted of different age groups (18-29,30-49,50-64). For the representation of the user the constructivist approach was taken, because this involves the user as well as possible, in line with the views of Erling Bjogvinsson, Pelle Ehn and Per-Anders Hillgren. Furthermore the ideas and requirements were organized following the Converging- Diverging and MoSCoW principles. A major part of the work in the graduation project was to develop a lo-fi and hi-fi prototype, and to test both of them in the evaluation phase with a usability test according to the guidelines of Lazar, Feng and Hochheiser. After the test and a SUS survey and a semi-structured interview were held to obtain a thorough understanding of the user perspective on the evolving application design.

4 The development of the design and the prototypes

In this chapter, the development process of the low-fidelity prototype is described. First a report is made on, the generation of ideas in the ideation phase and how the main idea was selected. Then the specification of the prototype is elaborated by providing the requirements, a use case and an activity diagram. Based on this the realization of the two prototypes is described, including justifications of the design choices that were made. Finally a report will be given on how the concept, requirements and prototype(s) were evaluated by means of user testing.

4.1 Ideation

During the ideation phase several brainstorm sessions were organized with the client of the application (represented by the supervisor from the UT and the CEO of FashionFitr) and also with with people from the target group. For the target group sessions were held with both men and women, that were all relatively young (18-30). In hindsight people from older age brackets should have been included. In practice the brainstorm sessions were held both face to face, and on-line via social media. During the sessions ideas were first allowed to diverge, resulting in quite a lot of ideas. As a second step the sessions converged to one main idea.

Brainstorming face to face seemed to be more successful then brainstorming via social media and ended in more results and ideas. Nevertheless trying to brainstorm via social media had the advantage that a more varied group of people could be reached. The respondents(via Facebook) were three males from different backgrounds: food packaging(Breda), urban planning(Utrecht) and E-Commerce(Nijmegen). These brainstorm sessions gave new and interesting insights on the project.

4.1.1 Diverging

In this section all ideas from the brainstorms are described. First brainstorm sessions were held with experts from the field and later on with a group of males.

Brainstorming result from experts

1. An online shop that sells clothing with technology(Smart clothes).
2. Clothing inspired by random objects or images. (Recommended system for fashion application based on.)
3. Searching for clothing based on drawings, mood board and sizes. The applications can analyze color, size and width (http://visual.ly/oscar-dresses-outfits-worn-icons?view=true)
4. A clothing visualization that inspires the use one piece of clothing in many different ways as possible
5. An application that shows you things you don't like about your body.
6. An application that can interact with employees of a physical store about your size, so they don't have to ask about your size, but they know straight away.
7. An application with a material sample, such that you have clothing always the right size and you know how the clothing would feel without having to go to a clothing store.
8. An application where the right sizes and new clothing styles are advised based on comparable profiles of other people.
9. An application that combines the clothes you are buying with clothes you already have in your closet.
10. An application that combines all features of fashion: clothing, make-up, hair and jewelery to advise you on your style in the right size.
11. An application that shows in 3-D how clothing how certain clothes would look on you, based on your sizes.
12. An application that supports a community that shows user made combinations of clothing, based on own clothing and clothing bought via FashionFitr.
13. An application that not only combines and advises on fashion but also on lifestyle (food, interest, etc.). Other social media, like Pinterest, Instagram and Facebook, could be considered.
14. An application that only combines clothing from your closet / wardrobe.
15. An application that tries to identify your style in fashion.

16. An application that not only advises on your size but also tells you how it is made, for example, is it the fair trade? What is the story behind the clothing?
17. An application that analyses a piece of clothing and suggest what kind of other clothes you could make from this old piece of clothing. Then the application sends you a manual to inform you how to make this new piece of clothing.
18. An application that advises you what to wear/buy on a certain day, depending on the weather forecast.
19. An application that advises what to buy and to combine depending on the trends and inspiring people.
20. An application that sells secondhand clothing in your size, from stores within your neighborhood.
21. A platform where people can vote for outfits you could buy based on a picture within a quick response time. Maybe some people do not shop online because they want the confirmation of people around them.
22. An application that advises how to do your make-up based on your uploaded outfit. Same can go for jewelery.
23. An application that shows a picture of you in different items of clothing you would normally wear and try to give good as the possible representation as possible. This application mostly is interesting for inspiration
24. An application that gives dating advice based clothing style analyzed in your pictures.
25. An application that advises clothing based on your calendar
26. An application that shows you at the same time in two outfits

    Brainstorming with users
27. An application that delivers the ordered clothes anywhere and anytime e.g. also in the supermarket.
28. An application that advises clothing based on what the friends of the user are wearing, for example advised clothing based on Facebook profiles.
29. An application that makes automatically creates some sort of mood board of the style of the people around you.Of course this can also be done manually.
30. A network of fashion vloggers that advises of what to wear. This can be used as inspiration as can be used for trend analysis.
31. A fashion application that only sells fair fashion.
32. A fashion application that advises you based on your style. The style can be analyzed on several images shown and you pick the images you like the most. Based on your choices a style can be detected.
33. A fashion application that delivers clothing packages for families in the style of a certain designer or fashion blogger.
34. An application that remembers all combinations that you have worn before
35. An application that checks if the clothing you are wearing is in the same style as your friends wearing that day.
36. An fashion application that has as main function to give personal style advice by a fashion blogger. For 5 euro per month a fashion blogger analyses your style and give tips and tricks.

4.1.2 Converging

To converge the ideas, some practical points were taken into consideration. A first consideration was if the idea has already been done, or is similar to, one of the applications of the State of the Art. If so, the idea gets no priority. A second consideration during the convergence was if the idea fits within the capability and time constraints of the graduation project. The eliminated ideas can still be used as the basis for the future projects. Therefore a future vision is included in this thesis. Also, ideas that lay too far from the main functionality of a fashion application (see chapter 2.1 A definition of a fashion application) were eliminated. The starred numbers could be future ideas but seem at this point of time unrealistic. After this analysis, the resulting main idea, to be worked on now, and the future extension, to be worked on later, are described.

Guideline-Idea
Done before: 2,36
Does not fit in the time: 6,7,8,10*,11,15*,18*,12,29 ,19*,21,23,28,32,34*,35*
Does not fit the capability at this moment:6,8,11,15*,18*,19*,21 23*,28,32*,32*,35
Lays to far from the main function: 1,5,13,17,20,21,24,30,31,33,36

4.1.3 The main idea

The application has to be a personal online shopping application. First of all, by making it possible to combine the offered clothes in the web shop with the clothes or accessories the user already has in her wardrobe. Secondly, the provided clothes are represented by brands of interest and are tailored to specific sizes of the user.

Combining the offered clothes with own clothes and accessories is possible via a mood board. The user can upload pictures from (his or) her camera directly or via a link. The pictures offered by the webshop can be put on the same board. Now it possible to compare the images (see figure 8).

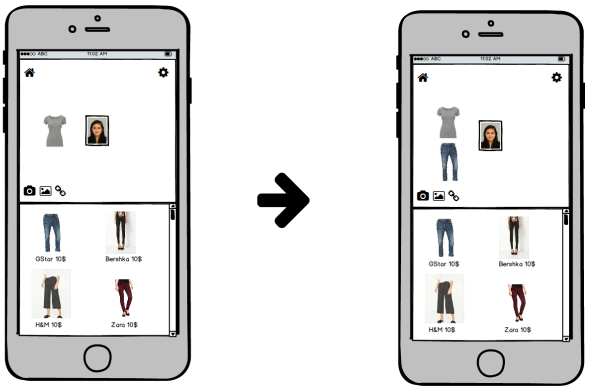


Figure 8: Mock up for first idea

4.1.4 The implementation of the six features of customer loyalty in the main idea

After analyzing the context of the FitYourStyle main idea of the concept was developed. In this section an explanation is given how the six features of customer loyalty were implemented in relation to the main idea selected and described above.

Virtual interactivity

For the virtual interactivity of the product, the choice was made to keep it simple, namely to use the camera of the mobile phone, see figure 9. This is an interaction that most smart phone users are familiar with. It was chosen, because it was an achievable interaction to implement. In the beginning, there were some doubts if this would not become too complex to implement and if the fashion shopping application would not become too slow. After considering this with the technical team, this option seemed to be one of the most simplest and fast working interactions compared to, for example, virtual reality applications(VR) and 3D mirrors.

Figure 9: Virtual interactivity: the camera

System quality

The focus of system quality in this concept was on easy navigation, clear functionality, and security. This means that the navigation,such as that from the mood board, has a high priority in the design, see figure 10. Important design choices that had to be made were the following:

- Which icons are the most intuitive or easiest to recognize by the end user e.g. is a search icon logical or should it be another visualization?
- What type of navigations should be implemented e.g. should the icon be in the right corner or on the bottom?
- Where to place every function e.g. should the adjustment of the setting be in the main menu or under profile menu?

For the system quality, it was important to improve the navigation and clear functionality as much as possible within this project. For example is the functionality of what the mood board does clear?

A security solution was also implemented in a basic way. A password and email address are needed to log in. There is also an option to use touch-id to log in or as an extra security check.

Fast response, transaction time and creating an audio visual experience is left out. To test the response and transaction time a way more advanced prototype is required, which was not within the scope of this project. Nevertheless, fast response and fast transaction time should have a high priority in further development. The audio-visual experience was not within the scope of the FItYourStyle concept and therefore not further researched.

Figure 10: System quality and reward: mood board

Reward

The reward (psychological) of this application has several aspects, all related to interacting with content: content rating, user-generated content and content personalization. The most obvious way to achieve social reward is the use of a comment and rating section on the products, see figure 12. The user can give the products stars and check what other clients thought about a product. Another way to create an extra rewarding dimension in the shopping experience, featured by FitYourStyle, is to allow the user to be creative with their wardrobe and the clothes out of the web shop. This is in fact one way to personalize the application, in addition to the option in FitYourStyle to clearly specify a user's sizes.

Name and Logo

As mentioned above it is very important to be consistent with the name and logo within the application and also in external communications around the application. To emphasize the logo the FItYourStyle startup screen was designed where only the logo of the application is shown. Also (for while) the logo was implemented as a home button within the navigation. However, this was experienced as confusing and was later changed later to a house icon. Also on the homepage the name is mentioned several times. Further to let the name and logo of the application stand out more other logos were not shown, just simply the name and brand were mentioned in one letter type.

Figure 11: Logo and Name: boot screen

Brand content

For the brand content the choice was made to make sure that every item has several pictures and that the copy of the products is complete, see figure 12. The customer relationships are mainly maintained via push messages and email. Sound and video were not considered relevant for this application and therefore left out.

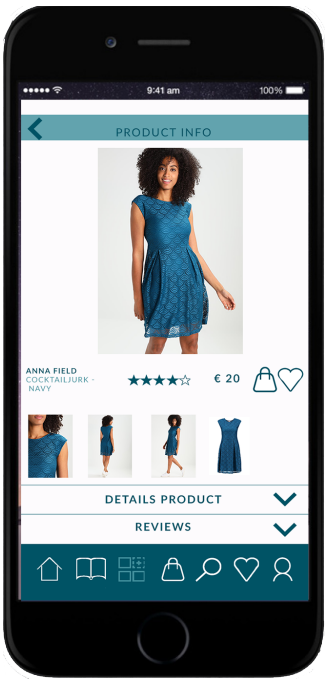


Figure 12: Brand content: product info

Brand design

The brand design consists of the typeface, layout, color, stimuli and presentation style. The typeface used was Lato, see figure 11. This typeface is used in several modern applications and is readable if it is used in the right way e.g. the right color and the right size. The layout is squared and done with strict frameworks, the borders between pictures and text are kept as consistent as possible. The borders, pictures, and text were scaled in magnitudes of 2 (2,4,8,16,32...etc). The colors chosen should represent innovation and neutrality. Therefore

shades of green (turquoise) were used. In this way both male and female users can be attracted. Other colors such as pink or purple could have the risk that the application would look too girly and too young, with as a consequence that a certain target group would have been excluded.

The stimuli or the buttons to stimulate interaction were mainly square and had a clearly distinguishing color compared with the background. To make the application easy to learn all stimuli in the design were kept as consistent as possible. Once a user finds out what button does on a certain screen, this applies to all screens. The whole presentation style of the application should have the desired effect, namely that end user associates the application with its brand values. The next brand values that were chosen for FitYourStyle can be summarized with the following key words: Innovative, Female, Simplistic, Creative, Accessible. Although this seems a contradiction with a earlier statement, namely that the design should be accessible for men as women, the main target group is still women. However men should not be excluded from it. Therefore is also the value Female considered as a core value of FitYourStyle.

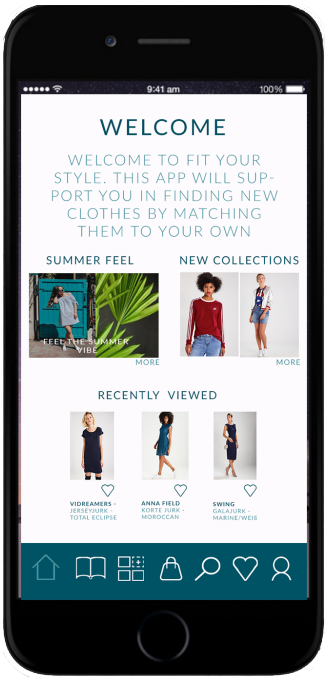


Figure 13: Brand design: home screen

4.1.5 Extension of the main idea

Several extensions to the main idea for FitYourStyle are possible judging by the ideas listed above. The common factor of these ideas is that extra data besides the regular data of the user is required. Interestingly this also means, that when extra data is added to the application new functionalities are also made possible.

Enriching data

The extra data that can personalize the application further may for example include the weather forecast, pictures of clothing, the user 'likes', pictures of the clothes of (Facebook) friends and info about the daily habits of the user (what they wear, their favorite fashion floggers, their daily activities etc).

Extra functionality

The extra functionality which could be interesting, based on this data is to not only to combine clothing but also include make-up that fits with the user's outfit. Another functionality is to make suggestions on clothing styles, after the fashion style of the user is determined. Other possible suggestions that can be made are:

- A style that is the opposite of what a user normally wears
- A style that confirms the user normally wears
- A style that can be based on the style of the user's (Facebook) friends. This can be in generally or more specific to compare outfits from the user friends for specific event.
- What to wear based on the weather forecast

- A style that is based on fashion flogger a user likes
- A style that is based on the newest shopping trends

4.2 Specification

Out of the State of the Art, testing, and brainstorming with a customer the following requirements were distilled. These were used to verify how well the application performs. The requirements were prioritized according to the MoSCoW principle (Karlson,1998) and by the feature category to which they belong: mobile, social or brand. Furthermore an extensive comparison was made with the two most important competitive applications ASOS and Zalando, in order to make sure that the requirements on FitYourStyle are equal to or better than those of the competition.

Structuring the requirements in this way also gave insight in where the FitYourStyle application could be innovative and distinguish itself. The requirements from the must haves, were the requirements R1,R4, R9,R18,R31,R35. It turns out that the two things the FitYourStyle application can excel in are the social reward of the application and the virtual interactivity. Commenting and interacting with other users is limited by ASOS and Zalando: ASOS has no comment section and in Zalando this hidden. Both Zalando and ASOS have a unique way of implementing the virtual interactivity of their application. Zalando has a search option based on photos, ASOS has movies or 360 degree views of all their products. Here the application can also excel by making a type of virtual interactivity possible that also motivates creativity.

The most important requirements (the 'must haves') were implemented in the low and hi fidelity prototypes. These are listed down below. For the the complete list and structuring, see appendix B.

1. The fashion application must have distinguishing/competitive features vis a vis its competitors e.g. Zalando and ASOS (R1).
2. The app must make use of the most standard mobile payment systems (R2).
3. The app must have must allow for one or more delivery addresses (R3).
4. The app must be able must be able to use the mobile camera (R4).
5. The app allows user to find functions intuitively and quickly (comparable to Zalando)(R9).
6. The app must make good and sensible use of the mobile touch screen (R10)
7. The app must have a quick response time (not depending on third parties) (R11).
8. The app must have a quick (financial) transaction time (depending on third parties) (R12).
9. The app must contain the primary function of fashion apps (homepage, filtering/search option, wish list, shopping cart mechanism, user profile) (R13).
10. The app must be secure (R14).
11. The app must allow users to give feedback on products (rating, comment) (R18).
12. The app must allow product information to be shared via a broad mix of (open and closed) social media (R19).
13. The app must use its name and logo consistently(R20)
14. The app imagery must contain at least two pictures of a product (R22A).
15. The app copy (the direct written communication) about products must at least contain the price, brand name, and short-description/name of the product (R23).
16. The app must allow users to mix and match clothes from their own wardrobe with those for sale via the app(R31).
17. The app must also allow to be able also only search for products (without a moodboard function) (R33).
18. The app must allow the user to rate or to give feedback on how satisfied they are with the application (from buying to delivery) (R34).
19. The app must recommend clothing that is based on the sizes filled in by the user within the application (R35).

20. The app must be easy to learn (R36).
21. The app must be able to order clothes for different people via the same account (R37).
22. The app must be able to defines sizes in two ways: via brand and general sizes or via specific measurements (R39).

All the 'must haves'functionalities, were implemented best as possible in the first low fidelity prototype. Of course not everything could be implemented to its full extend, since this was still a prototype. Out of the requirements short use cases were created and an extended one. The most complex use case was signing up via different sizes and was therefore described in more detail. The use cases were used to check if the system was able to do what is should do on a practical level. The use cases were meant to practically clarify what is meant by requirements that are more vague or abstract. For the full description of the (extended) use cases, see appendix B.

After evaluating the low fidelity prototype, it turned out that more focus should be placed on the innovative aspects of the FitYourStyle application. Therefore the number of requirements that were implemented in the high fidelity prototype were decreased compared with low fidelity prototype. These are the following:

1. The fashion application must have distinguishing/competitive features from its competitors e.g. Zalando and ASOS(R1).
2. The app must be able must be able to use the mobile camera (R4).
3. The app allows user to find functions intuitively and quickly (comparable to Zalando) (R9).
4. The app must make good and sensible use of the mobile touch screen (R10)
5. The app must contain the primary function of fashion apps (homepage, filtering/search option, wish list, shopping cart mechanism, user profile)(R13).
6. The app must be secure (R14).
7. The app must allow users to give feedback on products (rating, comment) (R18).
8. The app must use name and logo consistently (R20)
9. The app imagery must contain at least two pictures of a product (R22A).
10. The app copy (the direct written communication) about products must at least contain the price, brand name, and short-descript/name of the product (R23).
11. The app must allow users to mix and match clothes from their own wardrobe with those for sale via the app(R31).
12. The app must also allow to be able also only search for products(no moodboard function (R33).
13. The app must recommend clothing that are based on sizes filled in by the user within the application (R35).
14. The app must be easy to learn (R36).
15. The app must be able to order clothes for different people via the same account (R37).
16. The app must be able to defines sizes in two ways: via brand and general sizes or via specific measurements(R39).

4.3 Realization

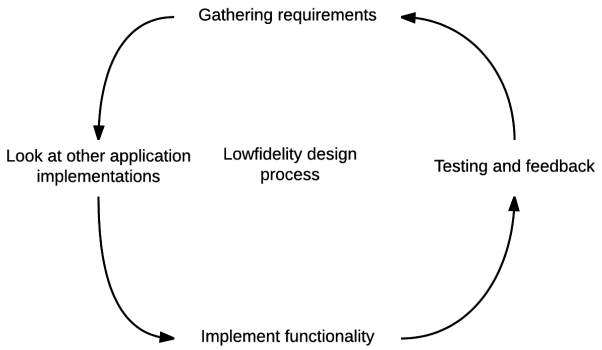
For the realization of the prototype, a choice was made for a functional mock-up (low fidelity) and more graphical aesthetic design. The functional prototype or 'low fidelity' prototype is a pen and paper design. It is used to identify the main functions of the application and to decide on the flow of the program. This kind of prototype is also called a wireframe. The high fidelity prototype is used to give a clear impression of what the real application should look like. The low fidelity prototype was made with the tool Balsamic, and the high fidelity was made with the tools Photoshop and Invision. These tools were chosen for their specialization in rapid prototyping and the ease with which they support user testing.

4.3.1 Low fidelity prototype

The low fidelity prototype implemented all the 'must haves' from the initial requirements list and tried to include all basic functionalities that the competitors also have, see chapter 2.3 Analyzing existing applications. However, on three functionalities, this version of the application aimed to be different: the way a profile is made, the canvas and look book where all combinations made on the mood board are saved. Here a description of the functionalities is emphasized where the application differs with its competitors. This because innovation is an important focus point for FashionFitr and because the testing of the innovative features proved to be the most interesting to test, see chapter 4.4.2 and 4.4.3.

The developments of the low fidelity prototype were done in iterations and discussed with the stakeholders. The iterations of the low fidelity prototype subsequently emphasized the following points: gathering requirements, analyzing the implementation of other applications, implementing and testing FitYourStyle functionality to get feedback on the application, see figure 14.

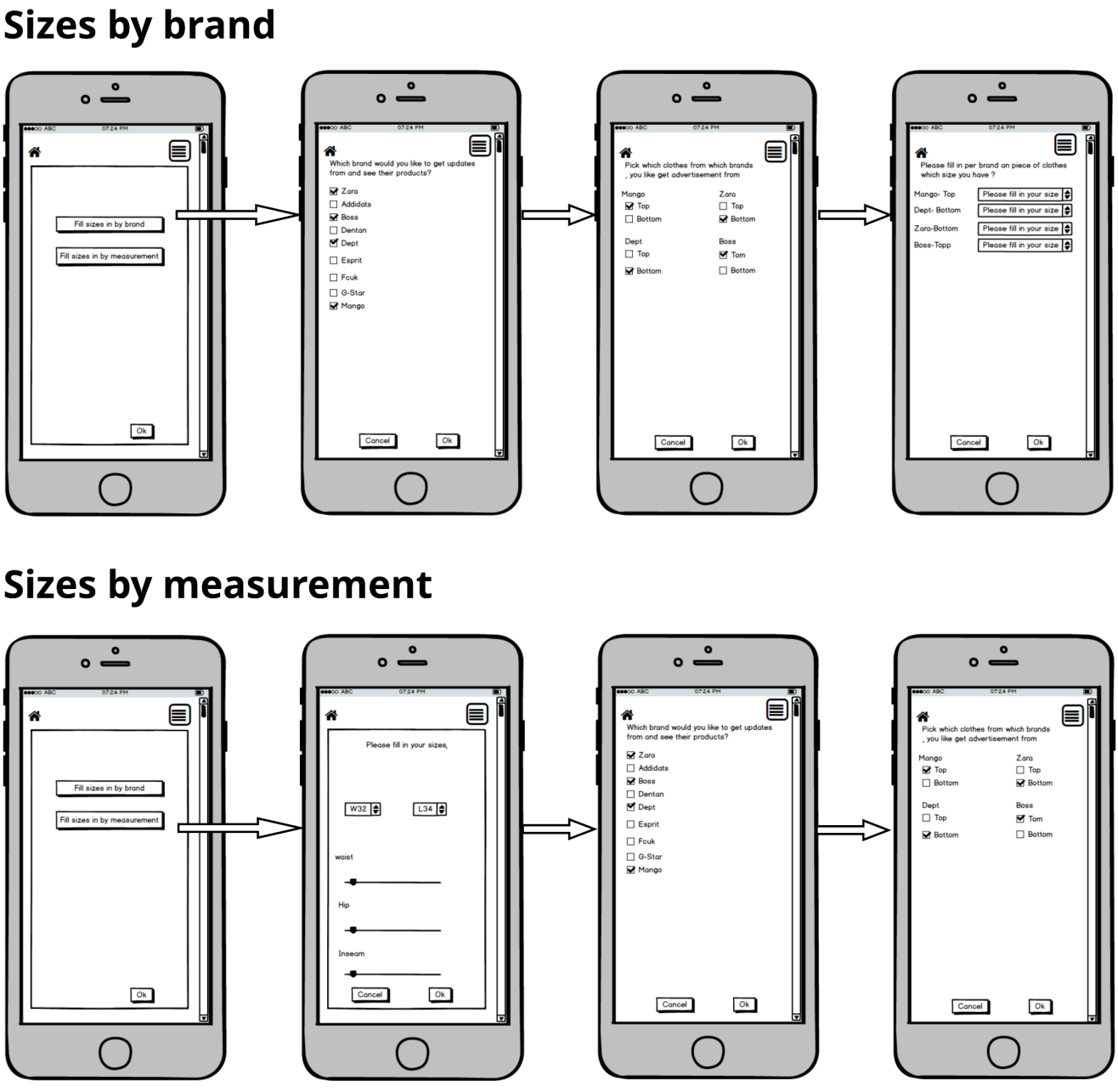
Figure 14: Process for developing low fidelity prototype



Making an profile

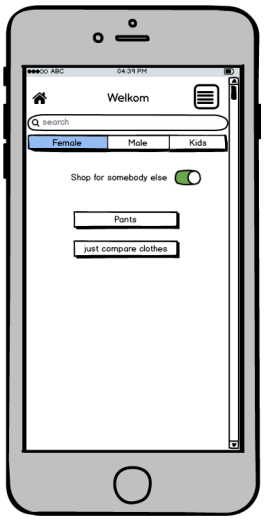
Most fashion applications only ask for general info like the user name, email, gender, etc. The FitYourStyle application aims to make a more elaborate profile of the user, including sizes, see figure 15. The sizes of an end user can be provided to the application in two different ways: via the specific measures e.g. hip weight or via fitting sizes of specific brands. For specific measures, the user will make their own measurements of their body sizes. Alternatively if the user provides measurements by brand, the user specifies which sizes of specific brands fit for 'top' and 'bottom'. In this way, the application will be personalized so that only fitting products will be offered.

Figure 15: Make profile according to the sizes



It is also possible to shop for somebody else. If the end user searches for clothes, the end user can switch the sizes depending on who he or she is shopping for., see figure 16. For more info for this design choice, see chapter 4.4.1 Testing the low fidelity prototype.

Figure 16: Searching for clothes:searching for yourself or others?



The canvas

For this application virtual interactivity and the reward system was implemented with a canvas in the web shop. Pictures of what a user already possesses can be uploaded and can be compared with what is offered in the web shop. The clothes can be uploaded or put on the canvas of the camera roll, via a link or via a picture directly from within the application. The canvas is an extra functionality. It should therefore also be able to search for the product within the web shop without the canvas. Also the other way around, the canvas can be used without searching within the web shop for products. Therefore both the web shop and the canvas can be closed and opened separately from each other, see figure 17.

Figure 17: Canvas

In this way, the application offers a way to be interactive with the content of the web shop and provides an opportunity to be creative.

The look book

The combination on the canvas can be saved within the look book, such that one can later look back at their creations made earlier, see figure 18. These functions differ from the wish or shopping list since the wish list consists of items that come from the web shop and the shopping list contains products from web shop ready to be bought. The combinations in the look book provide a representation of collages from own pictures and pictures from the web shop.

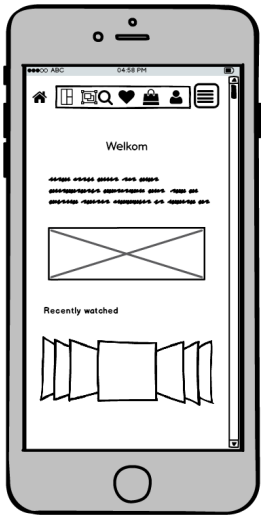
Figure 18: Look book

Navigation

New to the navigation for this kind of Fashion Applications are the two leftmost icons, figure 19 and 20. These buttons navigate to the look book and the canvas in the application. The icon on the far left represents the look book, and the one to the right of it is the canvas. The icon for the lookbook was chosen because it represents a layout, an overview of pictures together. The icon for the canvas should represent the activity of putting photos together and group them. The other icons are pretty straight forward if the end user is familiar with web shop applications. Think of functionalities as searching, favorite clothes from the web shop, shop cart and functions related to the profile.

Figure 19: Navigation

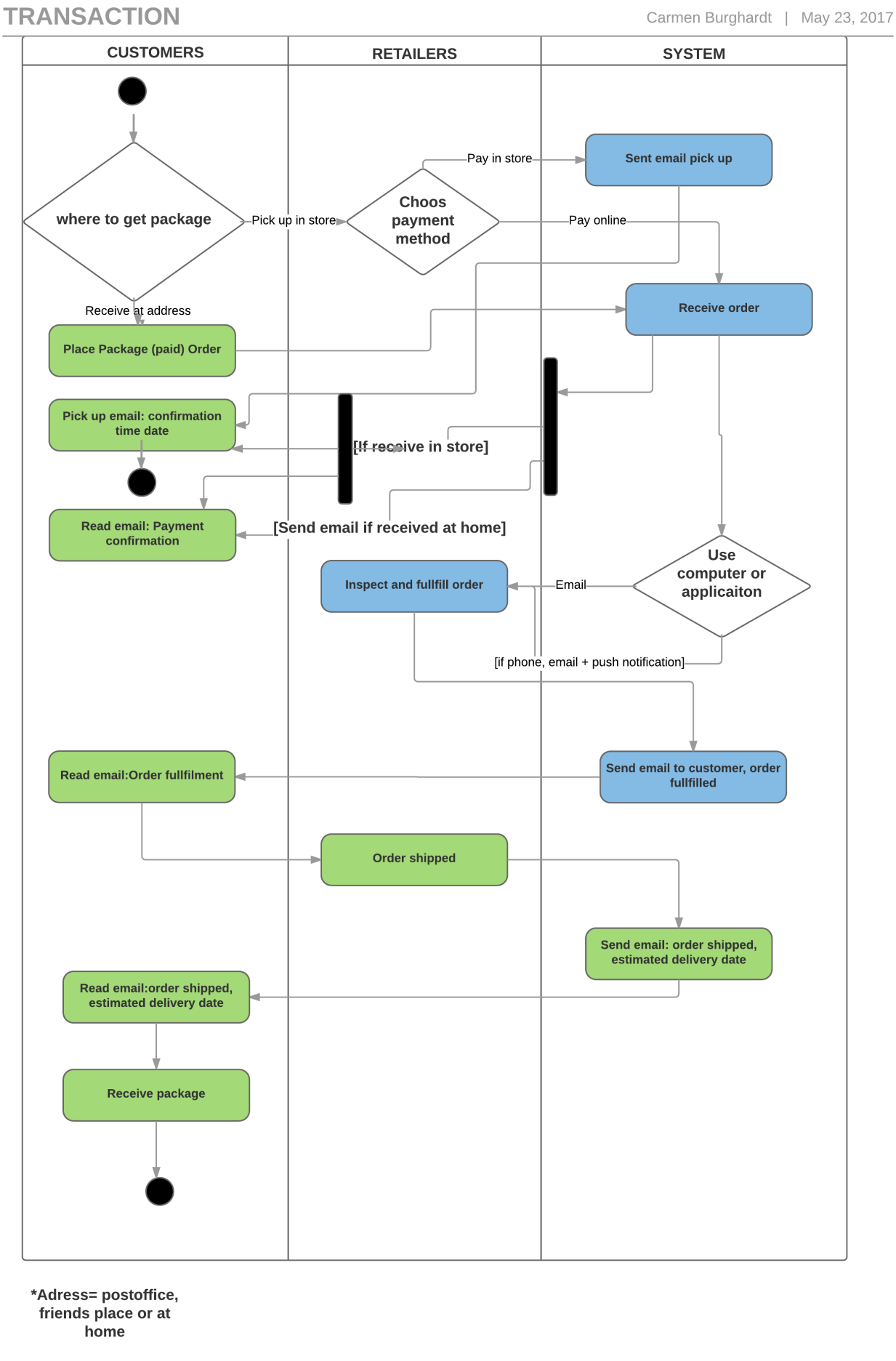
Figure 20: Home screen



4.3.2 Relation of the design with the back of application

Part of the project in general was establishing a connection with the back end of the application which allows retailers to upload information to the system. To clarify this connection between the two systems therefore an Activity Diagram was created. There are of course more interactions in the system but there was no time to delve deep into this subject. The diagrams worked on represent the most obvious use case, i.e. when a product is bought from the webshop and the package has to be delivered, see figure 21.

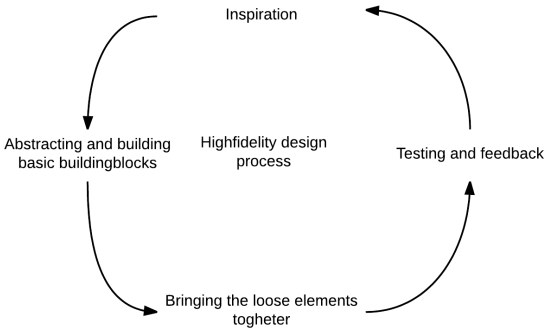
Figure 21: Activity Diagram for buying a product in the webshop



4.3.3 High fidelity prototype

The high fidelity prototype was also developed iteratively. First of all after getting inspiration from literature and other applications, the required elements (buttons,paragraphs etc) were abstracted and designed. The elements were put together making use of the low fidelity prototype. When intermediate high fidelity designs became available, feedback on the designs was given and tests were conducted, see figure 12.

Figure 22: Process for developing high fidelity prototype



Searching for inspiration

To develop the style of the whole graphical design, a mood board was made, with different color schemes, branding values, icons, letter types and visualizations for inspirations, see figure 23, 24, 25 and 26. The color (mood board 1), icons (mood board 2), letter type (mood board 3), graphics (see figure 39, the second from the right) and layout(mood board 4) were inspired by the brand values that were associated with the application:

- Innovative
- Female
- Simplistic
- Creative
- Accessible

Figure 23: Mood board 1

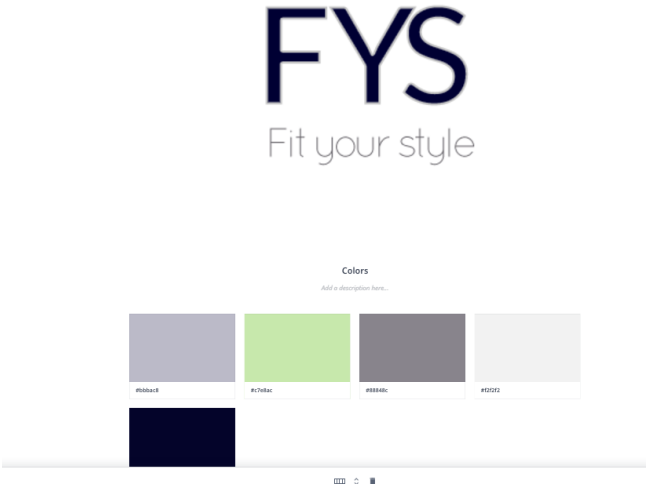


Figure 24: Mood board 2

Figure 25: Mood board 3

Figure 26: Mood board 4

An elaborate comparison was made with different websites and application such ASOS, Zalando, Yogha.nl, Pinterest, Spotify, Lucidchart, Lookbook, and Stylebook, figure 27, 28, 29, 30 and 31. Asos and Zalando were a big inspiration for the way functionality was divided and how to navigate, see figure 27. Yogha.nl had a beautiful design and was a big inspiration for the look and feel of the application, see figure 30. Spotify was an inspiration since it is an application that does a lot on personalization, especially with regard to the design of the log in and sign up, see figure 31. To get a good idea of how to build a mood board several applications such as Pinterest, Lucidchart, LookBook, Stylebook, Pureple, and LiveCollage(Instagram App) were used, see figure 28. They provided inspirations and useful examples of graphical interfaces.

Figure 27: Zalando and ASOS

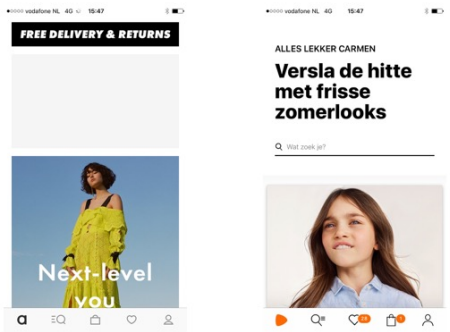


Figure 28: Lucidchart,Lice Collage,Pinterest and Puereple

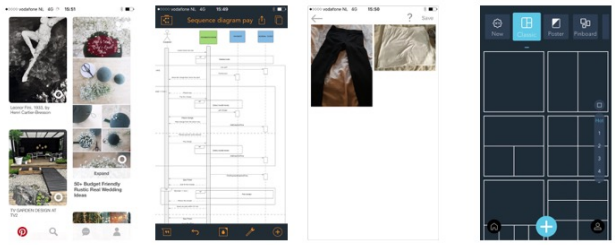


Figure 29: Systlebook and lookbook

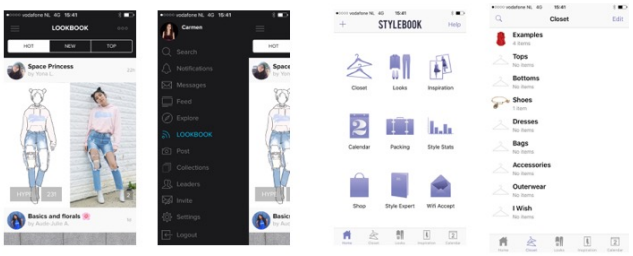


Figure 30: Yogha

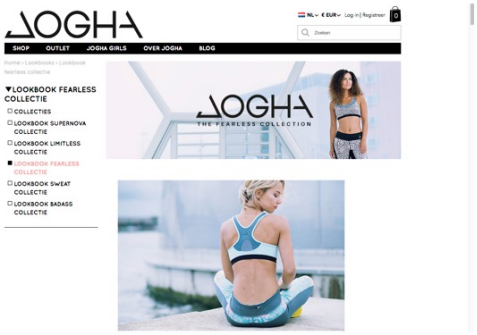
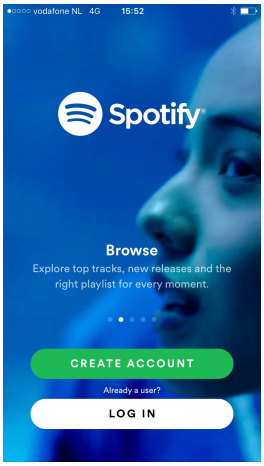


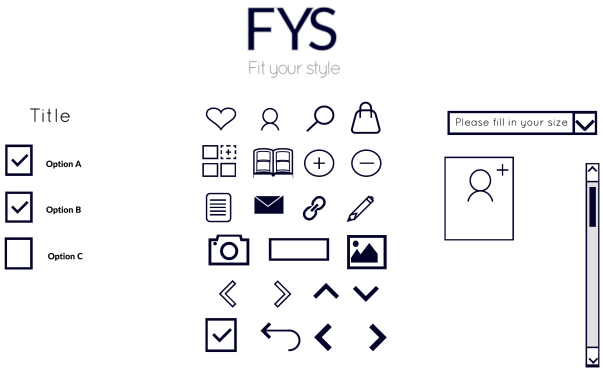
Figure 31: Spotify



First Iteration

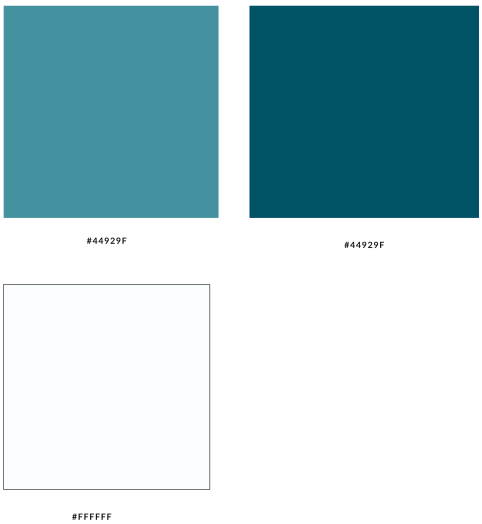
Out the ideation sessions for graphical design, the first designs for the high fidelity prototype were created. First, all elements were designed separately: icons, buttons, style of paragraph, style of the pictures, logo, titles, and subtitles, see figure 32. This design approach aimed for consistency in all graphical design elements. It is expect that this will also make the implementation of the application a cleaner process for programmers. A consistent interface will also have the benefit that uses will recognize elements and learn the application more swiftly.

Figure 32: Buildingblocks of application



To see if the designs have the effect that was intended several people were asked what they thought of the design and what kind of associations they got from it. The logo was well received and was associated with chic and girly. The initial low fidelity design was considered a little childish. To get some insight in why the designs did not the desired effect two feedback sessions with experts on the graphical mobile designs were organized. One expert was a graphical designer and the other was an interaction designer by profession. The first feedback session with the graphical designer proved to be very helpful for improving the look and feel of the application. The color scheme, the typeface and navigation were discussed. The color scheme used up to the session was too simplistic: white and dark blue, see figure 34 and 35. The reason why it was initially kept in two colors, was to get first get an understanding of the main functionality and which components in the should be darker or lighter. Two typeface were used: Lato and Quicksand. We changed the colors to the next color scheme: see figure 33.

Figure 33: Color scheme for FitYourStyle



All the colors are based on green and blue. According to literature blue is one of the favorite colors of the western world. Blue gives a feeling of of water, sky and sea, it transmits trust, calm and harmony. Green gives a feeling color of fortune and money, nature, ecology, hope and it means safety, protection and coolness(Dias, 2009). Green is also the color of fertility and growth (Brand colors: psychology behind the wheel,n.d.). According to the literature white is of color of lightness and cleaning, the color of snow, it means purity, peace, easiness or kindness (Dias, 2009).

The typeface was also chosen considering the the brand values. Lato is used by a lot of new design tools and is very readable on screen. Also the first design for navigation is based on the different designs, see figure 36. The icons were designed and tested on several people. However no clear answer came out of this tests.

Therefore the point of view of the interaction designer and graphic designer was weighted heavily. Both found the navigation in the middle the most intuitive and comfortable for the holding hand of the mobile phone. Namely the thumb or the finger used to navigate does not have to go to the upper corner. Also it can be argued that the type of navigation is a safe choice in design since both ASOS and Zalando use this type of interface. Both companies do a lot of user testing and are very popular amongst users (Kuhr,2013). The second feedback session was with the interaction designer. He had the most feedback on the icons and the canvas. The most icons were well received, they felt as an unity. Only the book icon was considered an issue. Therefore the icon had to be simplified. He advised to design following the modular principle and the 8point grid system.The modular principle supports the idea of reusing elements and make them fitting in the frame by using the same spacing between the elements (Zhang,2017). The 8 point grid system is a theory that focuses on making every element a size based on 8 pixels,so 1,2,4,8,16,32 etc (Dahl,2016). In the new designs the sizes and spaces between the elements are held as consistent as possible with this principle. Another remark was about the structure of the web shop with the canvas. The idea came to make a swiping mechanism. In this way more room becomes available for the the visuals so that the pictures can presented better.

Figure 34: First designs:log in, homepage and canvas

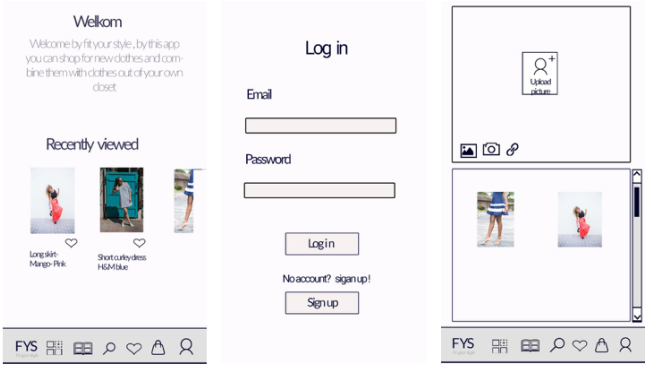


Figure 35: Logo and signup page

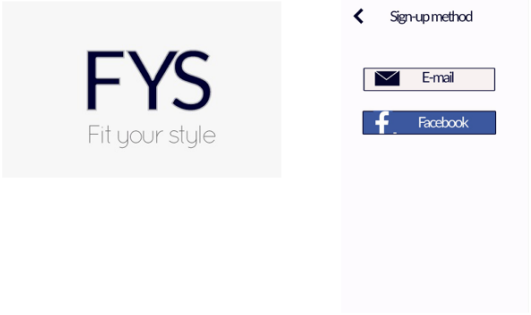


Figure 36: Different navigations

Second iteration

The second iteration on the high fidelity prototype was concerned with making sure that all feedback from the former iteration was implemented. On the fly many opinions from random people were asked for small changes in the design and the look and feel were made. The design looked more professional and more accessible for several target groups. After finishing an 'in-between' version , a third feedback session was he with a former industrial design student. The conversation focused on the design flaws that could confuse the user during the user test. Inconsistencies in the design were fixed, such as the 'backward' button. The choice was made to only include a backward button and not also a forward button, this to prevent confusion. For example in the signing up process now no step could be skipped, although it remained possible to go back to earlier settings. Another point of confusion in the design was in the way brands and clothes could be checked with a check mark, see figure 37. Another change that was made was the button on canvas for moving in up and down. Instead of arrows a new icon was made based on other designs, see figure 38. For some more impressions of the High fidelity prototype, see figure 39.

Figure 37: Change in check marks and buttons

Figure 38: Change in check marks and buttons

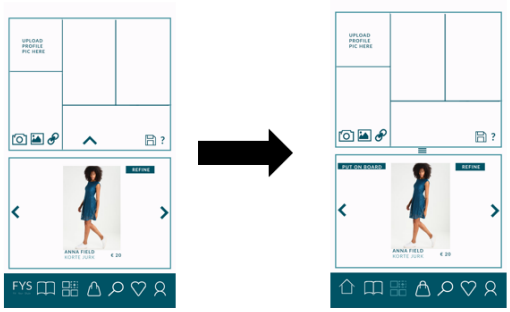


Figure 39: Impression of the new design

5 Evaluation

In this section the test setups and results of the project are discussed. First the results from the user test of the low fidelity prototype are discussed, and subsequently those of the high fidelity prototype.

5.1 Testing from low fidelity prototype

For the testing of the low fidelity prototype several stakeholders were asked to test it in different stages of development. In these iteration the client and the development team were first asked to give feedback. After that the internal supervisor of the University of Twente was asked to do an interactive feedback session while walking through the prototype together. As a last additional step some end users were asked to test the mobile application on specific points such as the navigation and the sizes. This was done, since the development of the prototype focused on exploring the innovative characteristics of the applications. When testing the users an effort was made to interfere as little as possible in their trial activities and also to avoid suggestive questions. This was done to ensure that a correct understanding was obtained of what goes through the user's mind. The setup used for testing was different per stakeholder. The client was initially sent the mock-ups without interactivity, since in this part of the process this an interactive version was not yet available. For the end user a link of the interactive prototype was sent so that the prototype could be tested on a mobile phone. This way tests could be run to see if certain buttons, gestures and some new functionalities were clear to the user.

Out of the testing with the stakeholders it became clear that the check out, or the way the user bought the clothes was not sufficiently well defined. Also the integration with the retailers side of the application did not appear to be clearly defined and structured enough. To work on this a protocol via an activity diagram was developed. Also there were two the ways sizes could be provided by the user. The end user was given the possibility to provide precisely their measured sizes or alternatively to specify their fitting sizes per brand.

For the internal supervisor the most general feedback was that the navigation was not yet completely clear. This was especially for the buttons for the new functionality: the canvas and the look book (the option for saving combinations on the canvas). All functionalities were discussed. Nevertheless a focus was placed on testing the more innovative parts of the application in the high fidelity prototype.

During the test of the low fidelity prototype with two end users it turned out that different methods for filling in the sizes was well understood. Aside from this the user did misinterpret the meaning of the icons for the look book and canvas. The more general icons, wish list, shopping bag and profile were well understood. Also a design flaws were detected. There were some superfluous buttons on the the web page to be removed, and a discussion took place if a return button should be implemented.

Concluding that for the high fidelity prototype:

- Icons should be more intuitively designed
- The mock ups should be clear: no extra buttons if needed.
- More research on the return button
- More focus on the innovative features of the application instead of building an more general application.

The conclusions were of course input for the development of the high fidelity prototype.

5.2 Testing of high fidelity prototype

For testing of the high fidelity prototype a test plan was first developed consisting out of the following steps. First a usability test was done (quantitative), followed by an semi structured interview on the features that may influence customer loyalty. The goal of the test and interview was to answer the questions if the chosen features that influence customer loyalty were well implemented in the prototype. This was an important goal of the project, since the application would then have a higher chance of attracting loyal customers.

The setup of the user test

The usability of the application was tested by letting several users fulfill certain tasks and subsequently filling in a questionnaire making use of the System Usability Scale. This test scores the most important features of usability on a 5-point scale from 'strongly agree' to 'strongly disagree' (Brooke, 2013). For the statements, see appendix C. The reason usability was tested, was because there seems to be a strong relation between system quality and customer loyalty (see chapter 2.2.1 mobile features). Although this test does not cover all the features related to system quality, it is an industry standard and may therefore be trusted to give some indication about the system quality and the usability of the system. For evaluating the tests the scores have to be added and should in total be higher or equal than 68. A rate lower that this indicates that the usability of the test application is far under industry standard and has to become an important priority within the further design process.

A semi structured interview

To find out if the design implemented the features of customer loyalty well a semi-structured interview was conducted. Open questions were asked about every feature. The data acquired by the interviews was analyzed by means of an Affinity Diagram. The comments were associated with the the features identified within the State of the Art . These are:

- Virtual interactivity
- System quality
- Reward
- Name and Logo
- Brand content
- Brand designs

For comments that could not be related to these features, an attempt should be made to identify new themes and categories (Lazar,2011). This was generally not case. However, some miscellaneous remarks were made with regard to the target audience. For an overview of the questions and analysis of the results, see appendix. D and C.

Test Subjects

The end users were women in the age groups 18-30, 30-45, 45-64. Although the application is of course accessible to everybody, the target group is women and therefore this group was tested. To make sure that the test results were not influenced by the technical know-how of the user, it was decided that users should be fluent with apps and the use of smartphones in order to participate with the study. The availability and number of test subjects was limited. According to Nielsen and Landdauer 7 people would be optimal for a small project (Nielsen and Landdauer,1993). However Lazar also states that the circumstances should also be taken into account (Lazar, 2011). Considerartions are then:

- How many participants fullfiling the requirements are available?
- How much time is left for testing within the design process?

Location

The testing was mostly done in a domestic environment because this comes closest to where the application will normally be used. Because the testing was done on a mobile phone, the test could take place at several locations. There were nevertheless some requirements for the test location and the equipment:

- The location preferably must have good internet
- The mobile phone should have a sensitive and not broken touchscreen
- The mobile phone should be able to run Invision or is able to open a web browser

Organization and possible risks

The available test subjects were asked to test the application and were scheduled in for a time-slot during the day. Appointments were made to ensure a sufficient number of subjects was reached. For every test subject a half hour was scheduled for testing the application and filling in the questionnaire. After running one day of testing the time estimated for a test could be scaled down from 45 to 30 minutes.

To ensure that the the testing period would run smoothly, a risk analysis on several aspects was done. For the whole risk analysis see the appendix C. The aspects were considered at risk were: the prototype, organization, location, equipment and the description of the test itself.

Procedure and tasks

Here the testing procedure is described by the amount time a certain activity was going to take.

Time(Minuts)	Activity
0	Welcome & writing down contact details
	Setting up system
	Explanation of Fashion Application and purpose of the test
2	Following the tasks(see table down below)
12	Quick discussion on first impression
13	Filling usability test
18	Semistructured interview
28	End of interview
30	Next participant

Here are the tasks described and how much time they should cost on average.

Time(Minuts)	Task
0	Sign up with Facebook or Email
1	Fill in your sizes according to the Brand Method
2	Go back to the size methods
2	Fill in your sizes according to Precise Method
3	Have a look at the main menu
4	Open the search menu
4	Select in the menu that you are interested in dresses
5	Have a look at the canvas
5	Make the canvas screen bigger
5	Now make the web shop bigger
5	Go to a normal canvas again
5	Make a picture within the application and click on the picture
6	Put the dress out of the webshop on the canvas(board)
6	Upload a profile picture from your camera roll
7	Upload a picture from a link
7	Save your combination
8	Extra time

5.3 Test results from testing the high fidelity prototype

This section describes the results from the test. They consist out of the results from the interviews and the results from the SUS-Test questionnaire. The results will be presented according to the six features of customer loyalty.

In the end, only 5 people were tested because of time constraints. 2 of the 5 test subjects were between 18-30 years and the rest was above the 45 years. There were no subjects between the age of 30 and 45 years simply because the subject couldn't make the scheduled time and there was no opportunity to reschedule. Therefore this age group would be something to test in later studies.

Virtual interactivity

The virtual interactivity of FitYourStyle app, relies on the mobile phone camera and being able to combine those pictures with the pictures of the web shop. It was expected that people would like the interactivity to be creative with their clothings via the mood board. However 3 of 5 test subjects expected another virtual interactivity when they heard about the function of the application. They expected something like a virtual mirror, see figure 41.They would prefer a 3D model on which they would be able to see how the clothes would fit on them. A comparison that was made more often during the interviews, was with the clothing section from the famous game, the Sims, see figure 40 .

Figure 40: Sims dressing room

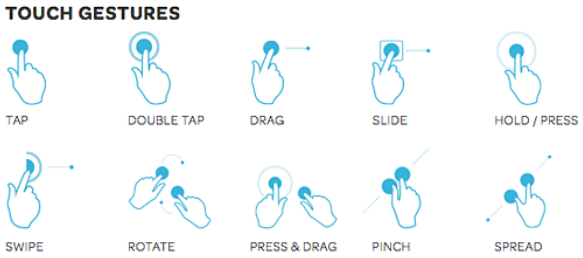
Interactivity also seems to be an important point for people. For 3 of the 5 users they would use this app if the application was more advanced, namely in 3D.

Figure 41: Virtual mirror

System quality

The system quality consists of the style of the design, easy navigation and clear functionality. It was expected that if the design stayed close in navigation and functionality to that of its competitors, this would be sufficient. However even though most of the interactions went well, there were two interactions that were especially difficult for all end users. The first was folding the mood board in and out. Users tended to first misinterpret the instruction and then started to zoom in by making a spreading gesture with two fingers on the screen, instead of tapping on the provided arrows (see figure 42) The second difficulty was the dragging and dropping of clothing on the screen. In prototype the pictures were placed making use of a button, but users found it way more intuitive to be able to drag the pictures with a finger, see figure 42. Possibly is this intuitive, since more modern application using dragging and dropping nowadays in mobile application, to move object and photos such as Curarator (mood board application). However in other application such as LiveCollage it is done with a buttons, which feels more like "classical" technique.

Figure 42: Gestures on mobile phones



Another finding was that the functionality of the application was not always clearly evident to the user, even though everything was explained at the beginning. Four of the 5 users thought that the functionality of signing up with sizes was not clear, they missed the feedback of what was happening with their data. Another remarkable thing related with functionality is that not everybody recognized the search button, especially the women above 45. Interestingly this was common knowledge for women between 18 and 30. A reason for this difference might be a (digital) generation gap.

The canvas was not always well received, 3 of 5 users were not sure what the main goal of the mood board is. Furthermore, 3 of the 5 users also would have liked to have the extra functionality of getting advice on clothes based on comparable profiles to that of their own.

A final result was that the SUS-test score was down below the standard. The whole test scored a 62 while the average SUS-test score in general is 68. So the score is below average. According to instruction of the survey this means that usability should get a high priority, since it is below the industry standard. Of course it was to be expected that the usability was at its best, considering that this was still a prototype. However it was a good indication, on how the usability on this moment was already received.

Reward

It was expected that users would like the opportunity to be creative with clothing. Nothing pointed out they would not like it to be creative with clothing, however the tool that was offered, namely the canvas, was not what was expected by a majority of the test subjects (see results of virtual interactivity). Also the functionality of the canvas, navigation or the signup procedure was not always clear. Nonetheless 4 of the 5 user thought the application was easy to learn once they started exploring the buttons. Also all users thought that the comment section and rating were handy.

Name and logo

The name and logo were integrated in the homepage and start-up screen. It was expected this would be enough for the end user to recognize the name and logo of the application. However the opposite is true. Some of the test subjects had no idea what the application was called after testing.

Brand content

The brand content was well received. 4 of the 5 the test subjects thought that the application looked professional, because of the type of photos used. Every product contained several pictures and had simple background. Also the info covered most of the needs of the end user, although a few topics were missing in the description of the products. The topics that were missed were:

- Products in stock
- Colors available
- New combinations
- Way it was produced
- Related products
- The way the clothes fall/look when they are worn

Brand design

The brand design consisted of the typeface, layout, color, stimuli and presentation style. It was expected that the design would embody the following values:Innovative,Female, Simplistic, Creative, Accessible.

All in all the design was well received. The test subjects thought that the graphical design looked professional and 3 of the 5 end users made positive comments on the color scheme. Also when asked with which brand values the test subjects associated the application, all brand values were mentioned. This is an indication that the core values of FitYourStyle were captured in the graphical design.

Nevertheless there were a number of minor points that deserve attention. First of all, not all icons were correctly interpreted by the first guess, even though they can be easily be learned. Also 4 of the 5 users thought that the letter type was too small. Actually 2 of the 5 users would have preferred to use the application on another device e.g. an iPad or computer, because of the size of the whole graphical design. As might be expected, these two end users were above 45 .

Target group

Last but not least, the test subjects were not sure if they would use FitYourStyle. The people they envisioned using it were quite contradictory. Some users thought that especially younger girls that feel insecure of their body would use it, while others thought that users of this application would be very confident people, aware of their style.

Another contradiction was the context where the application was used. Some users envisioned using the mood board when they went on a physical shopping trip, while others found this typically suited for online shopping from the home.

One thing all subjects agreed on is that they thought that mostly women between the 15-40 would use this application.

6 Conclusions and recommendations

In this section conclusions are drawn with regard to the the results of the complete design and testing process, including the literature study and the answering of the research questions.

The main question is: Which features of mobile fashion applications have the most impact on brand loyalty? The answers to this main question will be built up to from those on the subordinate questions.

RQ1: What features persuade the user to keep on using the fashion application from a technical perspective?
RQ2: How can a fashion app be developed systematically?
RQ3: How can fashion applications offer an experience that goes beyond the basic browsing & selling functionality?

6.1 Conclusions

The purpose of this project was to design an innovative fashion application that promotes customer loyalty and to answer research questions.

To achieve the main goal of this project a framework for analyzing and designing a customer loyal fashion application was developed on the basis of a literature review and two case studies (RQ1). The result of this work revealed that there are six features that persuade a user to keep on using a fashion application from a technical perspective: virtual interactivity, system quality, reward, name and logo, brand content and brand design. All of these features have their own parameters and can be used as a framework to analyze and to create new customer loyal fashion applications. Of these features the two that have the most impact on customer loyalty according to the literature review are: virtual interactivity and system quality.

With regard to virtual interactivity the case studies reveal that successful applications (like Zalando and Asos) each have a special way to implement the feature virtual interactivity with which they distinguish themselves. New applications like FitYourStyle should therefore also develop this feature in a distinguishing way. In the current design this was done by providing the capability to combine clothes from one's own wardrobe with those from the shop on a mood board.

As for system quality, the user tests that were conducted on the prototypes show that more work needs to be done to improve the design with regard to usability. The current prototype scored below industry average on the SUS-test. Improvements can be made by making it more obvious what special functions the application has (via an online tutorial for example) and by trying out more obvious gestures and icons.

The framework clearly had value for systematically developing the FitYourStyle application (RQ2), as the above points show. A way then, to design new fashion applications systematically is to use this framework (with all 6 features, in which priorities may be set) to design new concepts and look closely at what other comparable applications have already done via case studies. After one knows what can be improved or which new ideas are relevant, specifications can be developed. Once the concept is clear, several rapid prototypes can be created to test how well these features, as well as all other requirements, have been implemented in the prototype in the perception of the end user. When testing or evaluating the application, not only end users should be involved but also experts from different domains e.g. marketing, IT, interaction design and industrial design. During this project this provided many insights on different domains and contributed to the professionalism and innovativeness of the application. For example the feedback of the graphical designer and interaction designer helped to develop the desired look and feel of the application. By making use of the experience of the designers of the application, experts from different domains, and the targeted end users, a solid fashion application was developed (RQ2).

The stakeholders should not only be included during the test phase, but during the full development cycle of whole application. It will contribute if the application's success, since the fashion application has a higher chance to meet customer needs. Another side effect for small group of end users is that early involvement in the process also improves customer loyalty . People like to use what they have created and influenced themselves. A method to include the user is the Tang & Hämäläinen model. In this project it was adjusted to support 3 phases not the four phases from the original Tang & Hämäläinen model, namely vision, prototyping and evaluation, which were visited iteratively. The knowledge that is gathered during a former iteration was used as input for a next iteration.

A way to create an experience that goes beyond the basic browsing functionality of a standard shopping application (RQ3) is the use of several features namely: virtual interactivity, system quality and reward, and then especially personalization. A way to create a special shopping experience by means of virtual interactivity is, for example, by the use of 3D mirrors (a desire from end users), special search algorithms (Zalando), 360 degree view of products (ASOS) or a mood board like that the one created for FitYourStyle.

The system quality or usability is also important to come into the flow of the application. If the system quality lacks, it annoys the user and disrupts the experience of the shopping application. Therefore a certain standard of usability or system quality, for example the SUS standard, is important to maintain in order to create a satisfactory shopping experience.

The personalization of the settings of the application is targeted towards meeting individual customer preferences. In the case of shopping applications, personalization will help users to find the right piece of clothing more efficiently. For example, this can be done by sending push messages corresponding to the end user's interests (ASOS and Zalando), making a personal profile (with sizes or without sizes), or by allowing users to create the content themselves. All examples are interesting, but especially the last point give FitYourStyle an extra psychological reward besides the fun of shopping. The user generated content with regard to the own wardrobe helps to build a more personal relationship with the application.

The conclusion that may be drawn with regard to the main question of this project is that virtual interactivity, system quality and personal reward are the most important features promoting customer loyalty. This is supported both by the literature study and tests that were conducted within this project.

6.2 Recommendations and future research

In this section recommendations for future work will be made. The recommendations stem from the result from the of the tests done in the final evaluation phase. The recommendations will be given per feature.

Virtual interactivity

Out of the test result came that several end users expected a 3D mirror as virtual interaction instead of a mood board. Although when it comes to the functionality of combining clothes out of the wardrobe of the end user with those from the web shop, this is still an interesting feature. It is recommended to do more research on possible 3-D animations on mobile phones with the functionality to combine clothes from the own wardrobe with those out of the web shop.

System quality and reward

For the end user is was not obvious why sizes had to be filled in when making a profile and what exactly the functionality of the canvas is. Therefore it is advised to design a small tutorial at the beginning of application, for example a small movie or pop ups explaining the interfaces.

Also the interaction, especially the ones on the mood board, is not always intuitive, therefore another iteration could be done on how to interact with the mood board on a mobile phone. In particular the choice of appropriate icons should be addressed.

End users also made suggestions for extra functionality. In particular getting advice on clothing's based on profiles that are comparable with the one of the end user is considered valuable. This is an interesting idea to make the application "smarter" and more dynamic. Therefore it is recommended to research this functionality and to see if this could have added value to the application.

Logo and Name

The name and logo was not always recognized by the end user. Therefore the name and logo should be mentioned more to the outside world and within the application. Therefore it is advised to start a clear and targeted marketing campaign and to do a redesign of the application where the logo and name are more present.

However this should not devalue the clear functionality of the application, for example by using the logo as home button instead of a house. This is done by the other applications such as ASOS and Zalando and therefore the first implemented in this design also did that . However during testing it turned out that the logo as home button worked confusing and was therefore later changed in a house again.

Brand content

The brand content was generally received well. This was influenced by the standardized pictures in which the background had neutral colors and most models were photographed in the same way. This presentation makes it easier for the end user to compare the products.Therefore it would be advised to invest in a standardization of pictures and to do further research how this could be done best. Furthermore several topics were missed in the copy or product description, therefore a check should be made what info is missing. When doing this in should be noted that the screen space on mobile phones is limited.

Brand design

Out of the research on brand design, it turned out that the interaction on the mobile screen and reading the letters can be difficult. Some of the end users noted they would prefer the application on computer or Ipad instead of a mobile phone. Therefore it would be wise to test this application also on other devices and find out if this is also an application domain for FitYourStyle.

Targetgroup

During testing a lot of users did not envision themselves using the application for various reasons. For example some did not shop online or felt too old for this type of application. The only thing that was consistent for the envisioned target group was the fact that the age would lay between 18-30. Therefore, it is advised to do more research on the core target group.

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8 Appendix

Appendix A: Scenario

Scenario:Michelle Burghardt

Michelle Burghardt is a female 31 years old. She likes horse riding and dancing. She lives together with Chris her fiance, next summer she going to marry him. Her clothing differs from place to place. If she is at home, she likes jogingspanses and at the horses some special horse clothing. When she goes out or are work, she is wearing comfortable but elegant clothing. She shops eight times a year online and normally she shops shoes, pants, blouses and sweaters. If Chris needs something, they search on internet together or they discuss what to buy. She buys several items of clothing preferably at once, such she does not have to bother afterwards anymore. Normally she spends something around 300 euro, but since she lives in Switzerland and therefor the prices are also higher. Also, she has a job, so she has a good income. The brands she likes when she shops online are Zalando, Hunkemoller, Benetton and Esprit. When shops physically she like to go to the Bijenkorf, which sells the same brands. She normally shops or online or physically, but never does first research online and then buys it physically. Also no the other way around. Michelle is very brand aware. The thing she buys from certain brands depends on what she needs. For example a Jeans she will buy at G-star since she knows they have a good assortment of jeans.

Appendix B: Requirements and use cases

Requirements list

		General /Mobile/ Social/B rand	Functi onal/N on-Fun ction	MoSCoW	In comp arison Zolan do	In compa rison ASOS	Notes	Source
R1	**The fashion application must have distinguishing/competitive features from its competitors e.g. Zalando and ASOS**	G	X	M	Better	Better		Literature
R2	**The app must make use of the most standard mobile payment systems.**	M	F	M	>=	>=		Literature
R3	**The app must have must allow for one or more delivery addresses.**	M	F	M	==	==		Literature
R4	**The app must be able must be able to use the mobile camera**	M	F	M	==	better		Literature
R5	**The app could make use of virutal reality**	M	F	C	==	==		Literature
R6	**The app could scan QR or Bar Codes**	M	F	C	==	==		Literature
R7	**The app could work with a virtual mirror on the phone**	M	F	C	better	better	Non existing in the other apps	Literature
R8	**The app must be able to filter products by gender, price, size, brand, sale, new product and color**	G	F	M	>=	>=		Literature

R9	**The app allows user to find functions intuitively and quickly (comparable to Zolando)**	G	N	M	>=	better		Literature
R10	**The app must make good and sensible use of the mobile touch screen**	M	N	M	>=	>=		Literature
R11	**The app must have a quick response time (not depending on third parties)**	M	N	M	>=	>=		Literature
R12	**The app must have a quick (financial) transaction time (depending on third parties)**	G	N	M	>=	>=	To be measured	Literature
R13	**The app must contain the primary function of fashion apps (homepage, filtering/search option, wish list, shopping cart mechanism, user profile)**	G	F	M	==	==		My idea
R15	**The app could create an audio visual experience (where the audio is not annoying)**	G	N	C	better	>=	General feature of the app (not a specific retailer)	
R16	**The app could make use of touch ID security**	M	N	C	>=	>=		Literature
R14	**The app must be secure**	M	N	M	>=	>=		Literature
R17	**The app could provide a platform to interact with other users synchronously (chat)**	M	N	C	Better	Better	Non existing in the other apps	Literature
R18	**The app must allow users to give feedback on products (rating, comment)**	S	F	M	Better	Better	My design: already existing in Zalando not in ASOS	Literature
R19	**The app must allow product information to be shared via a broad mix of (open and closed) social media**	S	N	M	>=	>=		Literature
R20	**The app must use name and logo consitently**	B	N	M	==	==		Literature

R21	**The app won't use logo's of other brands**	B	N	W	==	==		Literature
R22A	**The app imagery must contain at least two pictures of a product**	B	N	M	>=	>=	Brand content	Literature
R22B	**The app imagery background (to products) won't distract from the products themselves**	B	N	W	==	==	Brand content	Literature
R23	**The app copy (the direct written communication) about products must at least contain the price, brand name, and short-descript/name of the product**	B	N	M	==	==		Literature
R23B	**The app copy (extended product information) should be better than that of competitors**	B	N	S	better	better		Literature
								Literature
R24	**The app should be able to turn push notification on or off**	B	N	S	>=	>=	Brand content - includes such extra info	Literature
R25	**The app must allow feedback on the app as such**	B	N	M	>=	>=		Literature
R26	**The app should support communication next to that via the app (e.g. mail, telefphone)**	B						Literature
R27	**The app could provide sound & video for specific products**	B	N	C	Better	>=		Literature
R28	**The app typeface must be readable on mobile phones**	B	N	M	>=	>=	Brand desgin	Literature
R29	**The app colors mix should support the core values (desired image) of the app (e.g. "young" "solid", "reliable")**	B	N	S	differ ent	differe nt		Literature
R30	**The app typeface, colr, layout and stiuli must combine in such a way that the core of the application are intuitively recognized.**	B	N	S	differ ent	differe nt		Literature

R31	**The app must allow users to mix and match clothes from their own wardrobe with those for sale via the app**	G	F	M	Different	Different		My idea
R32	**The app could allow swapping of clothes between users**	S	F	C	Different	Different		My Idea
R33	**The app must also allow to be able also only search for products(no moodboard function).**	G	F	M	>=	>=		Via feedback session expert(Robert)
R34	**The app must allow the user to rate or to give feedback on how well full filment (from buying to delivery) was.**	B	F	M	>=	>=		Via feedback session expert(Robert)
R35	**The app must recommend clothing that are based on sizes filled in by the user within the application**	F	F	M	Better	Better		Via feedback session expert(Robert)
R36	**The app must be easy to learn**	F	N	M	>=	>=	De app moet niet hoogdrempelig zijn om te gebruiken	Via feedback session expert(Robert)
R37	**The app must be able to order clothes for different people via the same account.**	G	F	M	>=	>=		
R38	**The app should be able to also log in via Facebook**	S	F	S	>=	>=		Via Experts
R39	**The app must be able to defines sizes in two ways: via brand and general sizes or via specific measurements.**	G	F	M	Better	Better		Via experts

COULD = Possibilties for future versions
MUST & SHOUD -> Will be assumably used in my prorotype
Won’t = Things you never want
`1
General = ALl devisces including mobile
F= Funtional
N= Non- Functional

Requirements and use cases

	Requirement	**Usecases**
R1	**The fashion application must have distinguishing/competitive features from its competitors e.g. Zalando and ASOS**	G
R2	**The app must make use of the most standard mobile payment systems.**	M
R3	**The app must have must allow for one or more delivery addresses.**	M
R4	**The app must be able must be able to use the mobile camera**	M

Use cases short description

	Usecases	Extension from	Short description	Status pen and paper prototype
U1	**Install the application**		After the user find the application in the app-store the user installs the application on their mobile phone	Check
U2	**Make an profile**		After the application is downloaded the first thing the user does making an profile.	Check
U2a	Fill in email adress,password, gender and nationality		By making the profile the first thing he fills in his adress, password, gender and nationality	Check
U2 b	Fill in sizes		After filling in basic details the user fills in waist, hip,inseam and legnth.	Check
U2c	Fill in prefered brands		After the basic sizes are entered, the user fills in the brand from which they like to receive messages	Check
U2 d	Fill which clothes you are interested in		Optional you can tell per brand/ which kind of pieces of clothing you are also interested in	Weet niet zeker of mensen hier geintresseerd in zijn.
U3	**Adjust profile**		The user adjust its details of its profile: delivery address, sizes,	

			brand, or personal details.	
U3a	**Save delivery address**		The user saves the adress where he or she likes to receive their packages	Check
U3 b	Adjust sizes		The user adjust the sizes of their clothes	Check
U3c	Adjust brands		The user adjust brands he or she is interested in to receive advertisements for and what to see in the webshop.	Check
U3 d	Adjust email address,password, gender and nationality		The user adjust he or shes emaill address,password,gender,	
U4	**Adjust settings**		The user can adjust here the setting related to the program: security, push messages and…?	
U4a	Adjust extra features related to security		The user can here adjust extra settings with security, for example Touch ID	Check
U4 b	Adjust settings for push messages		The user can here push notifacation on or off.	Check
U5	**Look at orders**		The user here can look at the status of the product he or she bought.	
U6	**Search for product**		The user can search for the product he or she is interested in.	Check
U6a	Select product interested in		The user can select the piece of clothing of interest.	Check
U6 b	Filter on gender, price,size,brand, sale, new product and color		THe user can filter the clothings on gender, price, size ,brand,sale, new	Roughly

			product and color.	
U7	**Give feedback on app**		The user can give feedback or ratings on how the application works.	
U8	**Upload picture for comparison**		The user can upload pictures of jelewery or clothes out their own closet of interest in the moodboard to compare it with the product in the webshop.	Check
U9	**Save combination on mood board**	**U8, U13**	The user can save the combination made on the moodboard in a sort of “look book”.	Almost
U8a	Upload picture from camera roll		The user can upload pictures on the mood board via the camera rolle of its phone.	check
U8 b	Upload picture direct from camera		The user can upload pictures by taking them direct via its camera.	Check
U8c	Upload picture via link		The user can upload pictures via link of internet.	Check
U9	**Select an item**		The user can select clothes out of the webshop .	Check
U10	**Add item to shopping card**	**U9**	The selected item can be added to the shopping card .	Check
U11	**Pay for clothes**	**U11**	The item on the shopping card can be bought via digital payment.	Check
U12	**Watch product detail**	**U9**	The user can see the selected items product details.	
U13	**Put product on moodboard**	**U9**	The user can put the selected item on the moodboard for comparison.	Check

U14	**Put product on wishlist**	**U9**	The user can put the selected item on the wishlist, if does not want to buy it but just want to save it.	Check
U15	**Give feedback on item**	**U9**	The user can give comments or feedback on a specific product.	Check
U16	**Logging in**			Check
U16 a	**Logging in via Facebook**			Check
U16 b	**Logging in via account**			Check

Use cases extended description

U2: Signing up

Actor action	System response
1.Start application	2. System shows login screen, where can be logged in via email and password. Another option is to sign up.
3.The user presses sign up button.	4. System show two option, if you wanna sign up with facebook or via email adress.
4. The user chooses to sign up via email adress.	5. The system shows data entry fields for first name,second name, password, confirmation password, gender,current email address and the checkbox if you agree with the privacy agreements.
6.. The user fills in first name,second name, password, confirmation password, gender,current email address and accepts the privacy agreements and presses the ok button.	7. The system show two option for filling in your sizes : fill in sizes by brand(fit by brand) or fill in sizes by measurements(fill in fits by measurements)
8. The user chooses to fill their sizes by brand and presses OK	9.The system show a list of brands the webshop offers
10. The user can choose from the list which brand he prefers to get advertisements from and clicks ok.	11.The systems show per brand the type of clothes offered .
12. The user pick from which brand he likes what kind of clothing he likes to have advertisements on and presses OK.	13. The system ask for the general(S,M OR L) sizes based on which clothing the user wanted to receive.
14. The user fills in its general sizes and presses OK.	

Alternatives:

2. System shows login screen, where can be logged in via Facebook.

4. The user chooses to sign up via facebook. If so step 5 and 6 can be skipped.

8.a The user could also chooses to fill in their sizes by measurement.

b The uesr have to fill specifice measruements like: length weight, hip and Inseam. Step 13 can be skipped.

Appendix C: Risk analysis

Prototype and equipment

- The prototype fails or does not run on the mobile phone: To solve this problem the prototype should be tested on the targeted test subject. But also the link tot he prototype should be tested on several differnt mobile phones, such in case of fail the mobile of the user itself can be used.
- The mobile phone batteries are low : To make sure the mobile phone does not run out of battery the mobile phone should always be plugged in by a charger. If the charger is forgotten and the battery turns low the link tot he prototype can be used by another mobile phone.
- The prototype contains flaws such that it impaired the user to fulfill an certain task : If flaws are found such that several users can not full fill a certain task, the prototype has tob e updated and new test subjects and new tests should be scheduled.
- The mobile phone is not able to run Invision or open a web browser:If this is the case another mobile phone should be used via the link or via the Invision application.

Organization

- It is hard to find users to user test: If the targeted test subjects are hard to find, the user group will be extended and the requirements for the test subjects decreased. Though certain limitations such as no experience with mobile phones should be noted within the study.
- The user becomes too late: If the user comes to late, the test can still tried to be conducted. However if the test subject comes so late there is no reasonable chance to finsih the test and mess up the schedule a new appoinment wil have to be made.
- The user forgets to fill in a the survey: Before the test takes place contact info will be asked, such that if the user forgets to fill in an survey or certain components it, the user can be contacted to fill in the gaps or fill in the survery.
- The user give unclear feedback: Before the test takes place contact info will be asked, such that if certain awnser are unclear clarification can be asked.
- The user has to leave early: If the user has to leave early, only the practical part can be done of the prototype and the feedback can be done at home or an new appointment can be made. If the test subject has to leave so early that the practical part can not be finished an new appointment has to be made.
- The user uses the wrong prototype: If the user uses the wrong prototype, the test will be finished. Switching between certain prototype would change the background knowledge of the test subject and would therefor would not be more objective

Location

- There is no Internet access: If the locaiton has no wifi another location should be looked at or a hotspot should be created.

Description of the test

- There are typos within the test: If there are typos within the test or prototype clarification by the observer may be given and the test subjects can write the feedback on a paper.
- A task or several tasks are unclear to the user : If there is one or more tasks unclear the observer may give further explanation or formulate differently what the tasks is about.
- The test subject has no tests: If the test subject has no test the test subject can be asked for feedback but the test should be considered as invalid.
- Certain feedback get lost: If certain feedback or a questionnaire got lost there will friendly requested if the test subject wants to fill in the test again or enlighten again the feedback on a certain mater.

Appendix C: Question list

Questions list:

System quality

1.a. What do you think of the product in general?
1 b. Where think that were striking or you liked to comment on ?
Virtual interactivity and social reward
2.a What did you think of the way you logged in?
2 b. Would you prefer signing up by brand or by measurement? And why ?
3. Can you explain me what the functionality is from the canvas?
4. a.What do you think of the canvas? And why do you think that?
4 b. Do you like this features, could you imagine you use this for your own shopping routine?

Brand content

5. What do you think of the product information or product specifics?
6. Is there anything you missing there on info or what you like to know?
Visualizations? Info of certain topics?

Brand design

7. What do you associate by this app? Can you describe it in several words?
8.What do you think of the graphical design of the application? For example the the typeface, color combination, the icons, the way they fit together?

SUS SURVEY

I think that I would like to use this system frequently.
I found the system unnecessarily complex.
I thought the system was easy to use.
I think that I would need the support of a technical person to be able to use this system.
I found the various functions in this system were well integrated.
I thought there was too much inconsistency in this system.
I would imagine that most people would learn to use this system very quickly.
I found the system very cumbersome to use.
I felt very confident using the system.
I needed to learn a lot of things before I could get going with this system.

Appendix D: Results from tests

Algemene thema's

	Eva	Inneke	Angelika	Thea	Alma	Totaal
-Doel van het aanmaken van de maten is niet altijd even duidelijk(size)	Ja	Nee	Ja, maar niet geheel duidelijk/nee	Ja	Ja	
-Lettertype bij productinfo te klein	Ja	Ja	Ja(liever een computer)	Ja	Ja	
-Werd ervaren als proffesioneel *	Ja	Ja	Ja	?	JA	
-De functie van de canvas goed begrepen	Ja	Ja	Nee	Nee	Ja/nee	
Men leert snel de applicatie	JA	Ja	Ja	Nee	Ja	
Men vind dat ze niet binnen de doelgroep past	Ja	Nee	Ja	Ja	Ja	
Pijltjes niet intuitief	Ja(veranderd van piljtjes)	Ja	Ja	Ja	Ja	
Plaatsen van foto op bord niet inutitief vanuit webshop	?	Ja	?	Ja	Nee	
Plaatsen van foto's vanuit cameraroll niet intituitief	?	Ja	Ja	Ja	Nee	
Andere verwachting een 3-D Model	Nee	NEe	Ja	Ja	Ja	
Zouden graag recommendations terug zien	?	?	Ja	Ja	?	

	Eva	Inneke	Angelika	Thea	Alma	Kenmerken
Virtueel interactivity	x	x	Expected an 3D model instead of moodboard(ALSO SYSTEM QUALITY) Type: virtual mirror	Expected an 3D model instead of moodboard(ALSO SYSTEM QUALITY) Type: virtual mirror	Expected an 3D model instead of moodboard(ALSO SYSTEM QUALITY) Type: virtual mirror	
System quality	Icons that are not clear: • Shopping bag • style book • moodboard • In en uit klappen van canvas • Inloggen is duidelijk Type: Style of design and easy navigation B	• Lookbook en poppetje • Inklappen van van canvas niet intuitief • Achtergrond icon • Back and forward pijltjes zijn wel constant • Plaatsen van fotos op de canvas niet intuitief • Inloggen is duidelijk Type: Style of design and easy navigation	• Pijltjes niet intuitief • Profile picture from camera roll(navigatio) • Inlogschermen waren heel helder	Iconen waren niet intuieitef: - Search niet logisch - Boekje wordt geassocieerd met catalogus - Canvasop Type: Style of design	Iconen niet intuitief: -Search was moeiljk te vinden -Pijltjes oniutief	

	Idea behind sizes not clear -METHODS X Type: Clear functionality:	Sizes are clear -MEASUREMENT PREFERED Type: clear functionality	Logic with the sizes is uneasy, prefer to first watch the webshop. Neutral in sizes Type: Style of design	Liever op maten dan op brand, gezin het je meer oplevert. -brads zijn interssant als adviserende rol.	-Idea of whole system is not very logigcal: - -Feedback van het invullen van de sizes mist een beetje`T -Ik zou altijd gaan voor de lazy method: by brand, precise meassurement is te moeilijk Type: clear functionality	
	Fast response of prototype Type: fast response			Consistentie op de tekst en de buttons, bijvoorbeeld iconen in de tekst. Type: Style of design	Response tijd is niet zo lekker Type: fast response	
		Extra info would ben ice with ? icon!SUGGESTION! Type: Easier navigation	?	-Vooral interessant dat andere mensen die vergelijkbaar profiel ehebben jou dingen gaan aanraden.Dat verbreed haar horizon - Meer info over hoe het werkt Type: New functionality		TUTORIALS???
	CANVAS GOED BEGREPEN: - Type: clear functionality	CANVAS GOED BEGREPEN Type :clear functionality	Canvas niet goe begrepen -WEbshop and canvas difference not clear	Canvas niet helemaal begrepgen: Vooral verschil tussen canvas en webshop niet duidleijk:maar als het er bij zou staan waar het voor bedole is zouhet al enorm helpen Type: clear functionality	Canvas : -Wat ik wel de moeite vind van de canvas is het idee om het bij elkaar te brengen van verschillende kleding.De manier waarop is moeilijk -Moeite tussen canvas en webshop	

			Type: clear functionality		-Wat is de toegevoegde waarde -Zijn de kleuren naast mekaar op het moodboard, via foto's hetzelfde? Type: clear functionality	
					Liever de applicatie op ipad of computer	
	Product info goed te vinden					
Reward	Mensen leren de applicatie snel Type: inter action with content	Mensen leren het snel, voorwaarde is wel dat je al eerder computer heb leren gebruiken Type: interaction with content	Heeft een snelle leer curve was Type: interaction with content	Neutral	Almost easy to learn	4 of the 5 people thaught it was easy to learn
	Het nut van het inlofffen is nog niet helemaal duideljk Type: content personalization	Nut van het inloggen wel er duidelijk Type: content personalization	Zelfde	Zelfde	Zelfde	4 van de 5 vonden het soms nog moeiljk om de twee sizes methods uit elkaar te houden
			Zelfde	Zou wel graag iets 3-D willen , om te zien hoe het staat Type: interactive with content	Zelfde	3 of the 5 think that a 3-D model to see how clothes fit would be interesting
			Suggesities gebasseerd op anders mans profielen Type: Interaction with users and content interaction	Suggesities gebasseerd op anders m Type: Interaction with users and content interaction ans profielen	Type: Interaction with users and content interaction Zelfde	3 of 5 user think that suggestions about what type of clothes they could were based on comparable profiles would be interesting

Brand content		Bevestigings mail na het aan maken van je profiel? Dat is wel nice dat ik meteen doorkan Type: relationships feature				
	Fotos laten de applicatie professioneel ogen (Homepage) Type: imagery	-Homepage categorien een beetje verwarend -Visualizatie vande maten was goed! Type Imagery		-Sizes: schouder missen nog bij de visualizatie -Bevat het systeem wel alle merken ?		Imagery is belangrijk en moet nieuwschierigheid uitlokken
	-Info belangrijks is die gemist word/hoe het gedrukt word - Verminderen van type info. Type:copy	-Is de kleding op voorraad -Kleuren combinaties -Geen extreme visualizaties Type:copy	-Type materiaal waar het van gemaakt word, ik ben namelijk allergiesch	-Welke kleuren zijn er nog meer? -Gerelateerde producten	-Hoe valt de maat?	COPIES THAT ARE MISSED: - -
Brand design	Letter type te kleing Type: letter type te klein	Letter type goed te lezen	LetterType te klien, zou de applicatie dan ook liever gebruiken op een laptop	Lettertype te klien en te licht.	Lettertype te kleing.	4 van de 5 vinden het lettertype te klein, zeker voor ouderen. Lettertype zou aan gepast moet worden zodat iedreen het kan lezen. En ook een app voor op de Ipad of Computer kan worden overworgen.

	Innovatief, modelook stylist hip	Toegankelijk,Proffesioneel(kleuren en de stijl, simpel, modieus, actueel, usefull	Sustainability, speels, adviserend en beslissend	Tool voor online shopping, vergemakkelijking van combitnaties, overizchtelijk	Mode kleding app,voor vrouwen die moeite hebben met shoppen, shiek, stylish	
	Voor de product info liever ander kleur letter type en in twee tabellen Type:Colour	Kleuren erg mooi van de applicatie Type: Colour	“”	Kleuren vond ze mooi en niet te druk, wel hadden de kleuren meer functioneel gemogen. En de kleuren van de lettertype ware soms iets licht. Speciale tool om de kleuren per persoon in te stellen is te moeilijk Type: coulour		De basis kleuren van de applicatie zijn goed. Wel moet er goed getest welke kleueren er gebruikt moeten worden voor lettertype als ze wat kleiner worden.
	Productinfo: spacind layout Type: Layout					
		Iconen kunnen verwarrend zijn veoor de oudere generatie Type: Stimuli				
STIMULI	Icons that are not clear: • Shopping bag • style book • moodboard • In en uit klappen van canvas	• Lookbook en poppetje • Inklappen van van canvas niet intuitief • Achtergrond icon • Back and forward pijltjes zijn	• Pijltjes niet intuitief • Profile picture from camera roll(navigatio) Inlogschermen waren heel helder	Iconen waren niet intuieitef: - Search niet logisch - Boekje wordt geassocieerd met catalogus - Canvasop Type: Style of design	Iconen niet intuitief: -Search was moeiljk te vinden -Pijltjes oniutief	

	• Inloggen is duidelijk Type: Style of design and easy navigation B	wel constant • Plaatsen van fotos op de canvas niet intuitief • Inloggen is duidelijk Type: Style of design and easy navigation				