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UNDERSTANDING HOLISTIC USER EXPERIENCE: CASE OF AN ONLINE MAGAZINE WEBSITE

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ABSTRACT

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The aim of this master's thesis was to understand, explore and analyze the User Experience (UX) of interacting with an online media platform with the holistic angle. In order to achieve the target, the UX of a case online magazine website was studied. The main research question was formulated as follows: How can the user experience exploration benefit online magazine development?

The theoretical part of the study focused on the nature of UX, its dimensions and components, and its connection with design process. The empirical part of the master's thesis is a single qualitative case study. Two rounds of experiments were conducted among the representatives of the target audience of the online magazine, which resulted in 27 UX reflection sessions.

The results of the study indicated that UX can be explored with three dimensions: perceived usability, affect (and emotion and aesthetics) and user value. The results of the study have proven to become beneficial for further design and iterations.

The thesis contributes to the understanding of user experience in the context of online magazine website, while giving practical implications of designing for UX.

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1 INTRODUCTION

The introductory chapter outlines the initial setting of the study by providing the context of the research, the reasons behind it and the importance of the subject.

1.1 Background of the study

Contextual setting: the online

Fast paced technological progress together with the infrastructure development other megatrends have driven the ICT revolution, tremendous growth in ICT access and connectivity (ITU, 2015). As the society becomes more and more digitalized and information centered, businesses take reactive and proactive measures, in order to modify the strategy and modernize based on the changing behavior of a consumer. Reactive approach is leaning towards the adaptation, whereas proactive approach is rather built on taking advantage of the existing technologies and participating in the future progress of the society. Both approaches proved to fulfill the commercial goals of business, however a late take off or inability to take timely actions for changing environment may lead towards losing attractive opportunities or in the worst-case scenario - to the close of business operations. (Kliem et al. 1997)

Digitalization, e-commerce and the Internet changed many aspects of business and life. Today online is the new way of communications, educations, work and entertainment, to name a few. It is the business opportunity, the phenomenon and the daily routine. There are 3.2 billion Internet users worldwide (ITU, 2015), and based on the data by International Telecommunication Union (ITU, 2015), the number of Internet users increased sevenfold over the last fifteen years: from 6.5% to 43% of the population.

While the percentage of Internet users is 43.4% of the global population, this figure is 82.2% for the developed countries alone (ITU, 2015), which signifies that the users in Europe might be more advanced in their Internet behavior and the web browsing experience. It is crucial for businesses to understand the trend and therefore adapt to capture evolving opportunities without being left behind the competition.

Dabholkar et al. (2003) also highlight that technology advancement and subsequent changes in the interaction between companies and consumers have led to the evolution of the concept of "technology-based self-service". Such changes also contribute to the growing body of research in the field of e-service delivery. Importance of the e-service is increasing both to seek the reasons behind success and failure of e-commerce and understand the ways of providing superior experience of interacting with the information flow (Yang et al., 2001; Santos, 2003).

Website development and user research

While the World Wide Web is expected to expand drastically, it is vital to understand, what the users want in a website, because it is a primary user interface for Internet enabled business (Straub and Watson, 2001), provision of information and promotional activities (Alba et al., 1997; Jarvenpaa and Todd, 1997; Schubert and Selz, 1998). As indicated in the previous discussion on the development of the online phenomenon, its size is large, which proves the need to explore the area of user behavior online (Straub and Watson 2001).

Reflection of the user needs during the process of website development is highly important for both design and management employees of the company (Prices, 1997). Usability and other criteria must be taken into account, in order for the user to be satisfied and for the website owners to achieve success (Nielsen, 2000; Pearrow, 2000; Shneiderman, 1998). For instance, user interaction with a website with better than average usability has proven to be related to performance improvement (Took, 1990), whereas performance improvement of user success is also linked to user-centered navigability (Nielsen, 2000). It is important to note here, that one of the primary reasons behind the failure of many high-profile websites has been found to be poor interface design (Buschke, 1997; Chain Store Age, 1997).

The critical need to improve the functionality of the website for achieving success online became clear. However, both business practitioners and researchers have identified the need to not only investigate the usability aspect, but also the other factors leading towards the success of the website owner online. For example, not only

the application of usability principles (Nielsen 2000, Shneidermann 1998), but also media richness theory (Palmer and Griffith 1998, Schubert and Selz 1998, Trevino et al. 1990) and marketing concepts (Hoffman and Novak 1996) have proven to have effects on the web site design. The last indicates that the research scope started to slowly expand beyond the usability focus.

1.2 Research gap

Human-computer interaction (HCI) researchers have originally been the pioneers and led the direction of the academic research in the area of usability research. However, the rapid technological development and user sophistication have initiated expansion of the original science fields and blending of the scientific boundaries. (Rosenzweig, 2015)

During the past decade human-computer interaction (HCI) researchers have been observing the shift from purely usability oriented research towards the holistic approach, which is also known today as user experience research. User experience (UX) has become a common word in the discussion among business practitioners as well. The evolution of user experience research has been rapid for the past few years with the growing IT orientation of the modern society. Despite such rapid evolution of the concept, it remains to be unstudied, and thus is seen as subjective, dynamic and context-dependent (Law et al., 2009). For instance, Lallemand et al. (2015) mention that UX belongs to one of those concepts from the HCI field, which are used on a common basis by practitioners, even though the lacking empirical research has created gaps in grasping fully their understanding and influence. The increasing meaning of user experience in the marketing field is supported by growing importance of Internet-based applications. Marketing specialists give more weight to the investigation of online consumer behavior, in order to delight the consumer and improve the overall customer experience with the online service. (Wind and Mahajan, 2001)

Unlike the concept of usability, UX is rather new. Its interpretations vary in both the research and the business setting. The term of UX is defined broadly. Practitioners believe that it is about growth, customer satisfaction and innovation; also, fashion

and visuals (Klein, 2013). Researchers have continued to consider UX as a term embracing many more aspects along with usability, such as emotions and context (e.g. Hassenzahl and Tractinsky, 2006; Hassenzahl, 2003; Hassenzahl, 2010; Mahlke, 2008; Thüring and Mahlke, 2007; Tractinsky and Zmiri, 2008; Norman, 2004; Desmet and Hekkert, 2007; Wright et al., 2008; Saariluoma and Jokinen, 2014). However, no cohesive theory or definition exists and researchers join efforts in investigating theories applicable for UX research, models and approaches, which is why UX was a phenomenon of interest for this study. The studies embracing empirical exploration of the *holistic UX* in its entirety, which would include both objective and subjective investigation, are also limited.

On the other hand, UX has also *not been widely studied in the context of media industry*. Although the Internet today can be said to become one of the principal sources, if not the most, for interacting with digital media, the research regarding users' experience with websites with the entertainment content is still somewhat limited. Similar UX oriented research studies focus on social media interactions, interactions with the news websites (e.g. O'Brien and Lebow, 2013) and particularly e-commerce platforms (Bilgihan, 2016). For instance, the recent study by Bilgihan (2016) aimed at developing and testing a comprehensive model that could explain the development of loyalty in the context of online shopping.

Previous studies on online magazines mostly focused on researching online platforms from the perspective of the role of online platforms, innovation capabilities for online as well as consumer behavior, brand, loyalty and media theories (Johansson et al., 2012; Nienstedt et al. 2012; Sonkamuotka, 2013; Ellonen et al. 2015; Ellonen et al., 2010a; Ellonen et al., 2010b, Horppu et al., 2008; Kuivalalinen et al., 2007) rather than UX oriented investigations. For instance, Ellonen et al. (2015) pointed that previous studies on the role of online platforms have usually been based on quantitative designs capturing self-reported behavior and attitudes, rather than actual behavior.

1.3 Purpose of the study and research questions

The purpose of this study is therefore to understand, explore and analyze the user experience of interacting with online media platform with the holistic angle. The study

aims at exploring the overall user experience and its benefits for the online magazine website development.

The study setting is the digital media industry, where understanding of the user behavior and experience improvement are crucial for business. Top media firms highly prioritize new revenue stream creation and maintenance of the existing revenue sources (Ellonen et al, 2015). The user experience analysis will take place in the case-specific setting of one online magazine maintained by the case company.

The practical implications of the following study will be based on revealing and analyzing the experience of the users with regards to the old and new versions of the website platform, an online magazine costume.fi. The discussion of the revealed findings in the scope of this study will contribute to existing body of research in the field of holistic UX and provide considerations for developing the online magazine website to improve user experience.

Given the purpose of the study and its target for the mentioned practical implications, the main research question has been formulated as follows:

How can the user experience exploration benefit online magazine development?

Sub questions accompanying the main research question as follows:

1. How can the total user experience of the online magazine website be explored?
2. How can the user experience exploration benefit ongoing iteration of online magazine website design?

The first sub question seeks to support the main research question by revealing the essence of the user experience and applying it to the context of the online media industry. The second sub question aims at exploring the benefits of understanding the UX for the ongoing and further iterations in online magazine. The iteration process of the launched website was triggered by a recognized opportunity to improve user base and profitability.

1.4 Theoretical framework

Based on the research question and its sub questions, the framework for the theory has been formed. It positions website in the center, where business is able to iterate the website through a process of design and re-design to meet its business goals, which subsequently impacts the user experience; whereas the user experience is a result of users' interactions with the website to achieve their goals. The dimensions of the study are represented below in Figure 1.

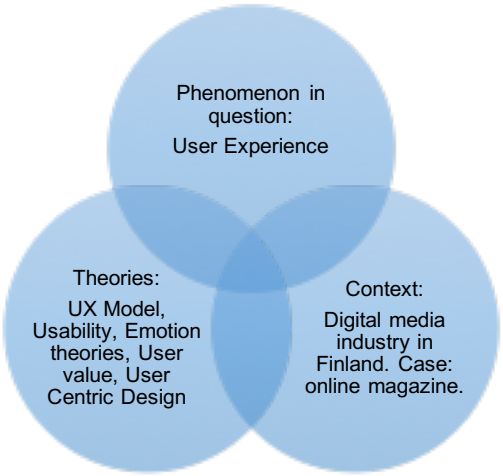


Figure 1. Research dimensions.

The preliminary scheme of the framework is presented below in Figure 2:

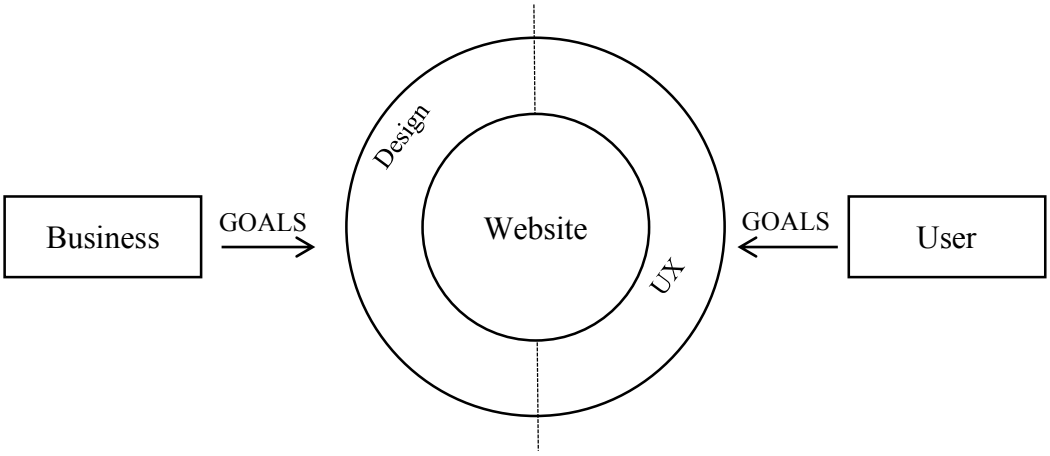


Figure 2. Conceptualization of study framework.

1.5 Defining User Experience

As experience is a comprehensive term, the common concept and definition of UX have still not been accepted by researchers and experts (Law et al., 2008). The existing UX definitions are diverse. The diversity indicates that the user experience take place in any industry, however today the discussion on UX usually takes place in the context of digital platforms and online. The diversity also indicates that UX is an evolving term and UX research is an interdisciplinary field. The scope of the UX for this study was originally meant to be represented by the entire list of definitions below – they have been grouped by the author accordingly to holistic, evaluative and context-based depending on the focus authors assigned to them. However, due to experimental difficulty to include the context, the context-based viewpoint has been omitted. The list, however, demonstrates that UX terms evolve quickly, as the later definitions of the user experience, from the holistic view point in particular, have more structure and component break down. The holistic definitions describe UX as *both functional and emotional relationship between a user and an artifact*, which is the focus of this study, as it aims to explore the entire user experience and treat it as an umbrella term for multiple sub-components.

Holistic	"UX covers all the aspects of how people use an interactive product - the way it feels in their hands, how well they understand how it works, how they feel about it while they're using it, how well it serves their purposes, and how well it fits into the entire context in which they are using it, and how well it contributes to the quality of their lives." Alben (1996) "The user experience is the totality of end-users' perceptions as they interact with a product or service. These perceptions include effectiveness (how good is the result?), efficiency (how fast or cheap is it?), emotional satisfaction (how good does it feel?), and the quality of the relationship with the entity that created the product or service (what expectations does it create for subsequent interactions?). Kuniavsky (2010) "The entire set of affects that is elicited by the interaction between a user and a product, including the degree to which all our senses are gratified (aesthetic experience), the meanings we attach to the product (experience of meaning), and the feelings and emotions

	that are elicited (emotional experience)." Desmet and Hekkert (2007) "A person's perceptions and responses that result from the use and/or anticipated use of a product, system or service." ISO 9241-210 (2010) "A consequence of a user's internal state (predispositions, expectations, needs, motivation, mood, etc.), the characteristics of the designed system (e.g. complexity, purpose, usability, functionality, etc.) and the context (or the environment) within which the interaction occurs (e.g. organisational/social setting, meaningfulness of the activity, voluntariness of use, etc.)" Hassenzahl and Tractinsky (2006)
Context-based	"A result of motivated action in a certain context. User's previous experiences and expectations influence the present experience; this present experience leads to more experiences and modified expectations." Mäkelä and Fulton Suri (2001) "The value derived from interaction(s) [or anticipated interaction(s)] with a product or service and the supporting cast in the context of use (e.g., time, location, and user disposition)." Sward and MacArthur (2007) "The user experience considers the wider relationship between the product and the user in order to investigate the individual's personal experience of using it." McNamara & Kirakowski (2006)
Evaluative approach	"UX is a primarily evaluative feeling (good-bad) while interacting with a product or service." Hassenzahl (2008) "Users' judgement of product quality arising from their experience of interaction, and the product qualities which engender effective use and pleasure." Sutcliffe (2009) "Users' perceptions of interaction that constitute qualities of use." Colbert (2005)

1.6 Defining other important concepts

Website

For this study the definition by the European Commission (2017) has been adopted. It states that a set of pages can be considered a website, if the set of pages meets three criteria: thematic, navigation, and visual. “Thematic criterion refers to a set of pages having a link through a common theme. Navigational criterion on the other hand requires pages to have a common integrated navigation system, and finally, visual criterion demands that they have the same look and feel.” (European Commission, 2017).

Magazine

Daly et al. (1997) state that a magazine is a periodical publication that contains articles, essays, reportage, fictional stories and photographs. Typical magazine would have a defined audience, pages and certain frequency of publication. In 2006 Finnish Periodical Publishers’ Association also added that magazines have a subscription possibility or wide availability and they are not necessarily in paper format, but can be a web publication only.

Iterative design

The definition of iterative design in this study is examined in the scope originated by Nielsen (1993). He suggested that a methodology of iterative design does not represent the interface element replacement with new design ideas. “Iterative design aims at refinement based on the lessons learned from the previous iterations”. (Nielsen, 1993)

1.7 Research methodology

The research methodology selection for this study was inspired by the study conducted by O’Brien and Lebow (2013), who used mixed-methods approach for measuring user experience in online news interactions. In general, the study can be defined as qualitative.

This study was conducted to include various methods. It is a study, in which 27 people participated in an experiment, which consisted of interaction with an online mag-

azine website, followed by post-session reporting of experience and reflective interviews. The collected data included recorded physiological and behavioral responses (i.e. eye-tracking and emotional recognition), self-reported responses on the perceptions of user experience and recorded interviews.

1.8 Delimitations

This thesis research paper will strive to investigate the phenomenon of user experience in the context of online media industry. This study excludes the detailed examination of user experience from the perspective of software architecture and performance based usability studies. Thus, the following study does not aim to reveal detailed performance-based usability suggestions, for instance, measuring the degree to which users are able to accomplish a task. The study setting pre-defines that the users are not required to use the website on a daily basis in the frames of their job, where efficiency would be the key driver. Instead, it is a source of entertainment. The research is delimited to investigating the satisfaction of the users with the service only, leaving out the details of purely performance based usability. The following study rather aims at looking into overall user experience, which means extending it beyond the instrumental basics.

1.9 Study structure

The study first introduces the existing literature relevant to the study subject. The literature review focuses on the introduction of UX as a phenomenon, existing research in the area of UX, as well as UX practices and approaches for designing for UX. The literature outlook also touches upon the existing research of similar concepts in the context of online magazine and publishing industry. The literature review is followed by the chapter describing methodology and data collection approach of the study. Findings and analysis are presented next, followed by the chapters of discussion and conclusion.

2 LITERATURE REVIEW

The following chapter provides theoretical basis for the study and focuses on providing the setting for the discussion of the empirical part. The review focuses on exploring the relevant theories in the scope and the logical order of the following flow: the shift of usability to UX, the holistic UX, UX components and designing for UX.

2.1 Research on UX

2.1.1 From usability to UX

The rising topicality of the UX as a phenomenon has produced a need for the respective theoretical discussion around UX research and practice. Lallemand et al. (2015) argue that UX research has evolved relying on such trends as activity theory, distributed cognition, usability research and design. The importance of UX research has been rising together with the ongoing shifts in the field of HCI research from usability oriented concepts towards user experience, which includes a wider scope of emotions, motivations, values and other behavioral and emotional factors together with basic product functionality (Law et al., 2009; Marcus, 2011).

Tullis and Albert (2013) discuss that human factors and ergonomics were the historical precedents for the usability field. They believe that early focus of usability was focused on performance data, whereas ongoing adoption of UX as a term simply provides the basis for observing the entire experience of the user with the products. They also underline that Usability Professionals Association has changed its name to User Experience Professionals Association in 2012. For instance, the study by Bargas-Avila and Hornbaek (2011) indicated the shift of moving towards wider scope of usability research and showed that such dimensions of UX as emotions, enjoyment and aesthetics were assessed most often in the studies from 2005 to 2009. Argumentation by Tullis and Albert (2013) has led them towards conclusion that delight, joy, trust, fun, challenge, anger, frustration are important components when understanding the UX.

2.1.2 Disciplines

HCI context is one of the most common settings for UX discussion and this is the reason, why HCI literature has abundance of design and methodology related investigations. Despite that fact, the problem of lacking theoretical focus remains (Obrist et al., 2012). Obrist et al. (2012) conceptualized user experience theories to seven major blocks:

1. Human/user focus
2. Product/artifact focus
3. User/artifact/environment relations
4. Social nature of UX
5. Design focus
6. Frameworks involving several themes
7. Even broader frameworks related to human existence

The theories from the above blocks can be further subdivided to nine different disciplines: Psychology, Sociology, Marketing, Philosophy, Communication, Education, Art, Anthropology and Design. Obrist et al. (2012) conclude that Psychology is a major setting from the theoretical point of view. For instance, the human focused field of UX research (Human/user focus as per above) focuses on understanding emotions, motives, cognition and is based on psychological models and theories and momentary experiences. At the same time the relationship between users and artefacts (User/artifact/environment relations as per above) can be defined as combination of design, psychological theories, highlighting the context and situation in UX formation (Obrist et al., 2012).

From the theoretical perspective, this study will include views from many different disciplines, focusing on HCI, design, psychology and marketing studies. However, the nature of this study fits one specific block of user/artifact/environment relations (number 3 in the list), as it aims at *exploring the interactions between a user and a product*.

2.2 Holistic UX

Hassenzahl and Tractinsky (2006, p. 95) claim that user experience can be referred to as a concept with broad perspective, involving individual's entire interaction with

and perception of the system (including feelings, thoughts and perception). They highlight that UX is driven by user goals, which are non-instrumental, hedonic or non-task-oriented.

Hassezahl and Tractinsky (2006) believe that UX is about technology that fulfils more than just instrumental needs in a way that acknowledges its use as a subjective, situated, complex and dynamic encounter. They also identify UX to be "a consequence of a user's internal state (predispositions, expectations, needs, motivation, mood, etc.), the characteristics of the designed system (e.g. complexity, purpose, usability, functionality, etc.) and the context (or the environment) within which the interaction occurs (e.g. organisational/social setting, meaningfulness of the activity, voluntariness of use, etc.)". The UX scope is therefore based on instrumental usability, or pragmatic aspect, as well as emotional, or hedonic, and experiential dimensions. (Hassezahl and Tractinsky, 2006; Hassenzahl, 2003; Mahlke, 2008). Hassenzahl's UX model (2003) will also be further discussed later in the literature review.

Hassezahl and Tractinsky (2006) examine three major perspectives revealing the facets of UX research (Figure 3): beyond the instrumental, affective and emotional, and experiential. None of the dimensions can fully capture UX, but each dimension represents the scope for understanding the interaction of the user with technology and at the same time shares the certain scope with other perspectives.

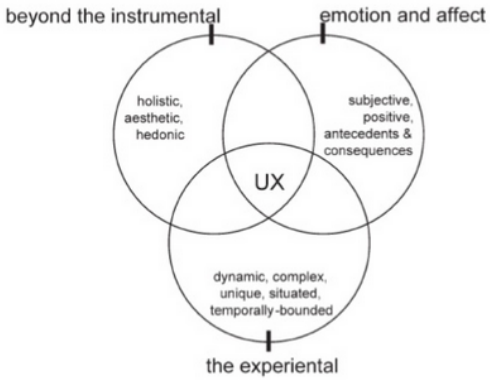


Figure 3. Three facets of UX (Hassenzahl, 2003).

Roto at al. (2011) in an attempt to examine the scope of the UX and concluded that user experience is related to active and passive encounter with a system. Jetter and Gerken (2010) and Nielsen, Norman and Tognazzini (2011) support the same conclusion and add other details in their research, e.g. effect of a context on formulation of UX and factors that are related to the incorporation of total user experience. As per above mentioned, Hassenzahl and Tractinsky (2006, p. 95) discussed that UX is a consequence of characteristics of a system, user's internal state and the context of use. As examples of elements that affect the formation of UX, these writers mentioned among others user's needs, motivation and mood, product's complexity and purpose as well as social settings and meaningfulness of the activity. However, Jetter and Gerken (2010) had a more flexible view on what the total user experience consists of. They concluded that apart from traditional qualities (e.g. usability and reliability), holistic UX is created through combination of various new concepts from psychology, design and marketing.

Some researchers believe (e.g. Boehner et al., 2007) that the holistic approach to user experience makes it difficult to complete a dimensional analysis and the subsequent operationalisation. However, others have a different opinion. For example, Brajnik and Giachin (2014) believe that UX can be examined as an umbrella concept, embracing a range of properties that deal with many psychological, physiological and social human phenomena. Therefore, they believe that apart from usability, UX covers at least the following aspects: emotions, aesthetics, perceived usability, hedonic attributes, cognitive load, interactivity, social responses, persuasion and acceptability. Thüring and Mahlke (2007) considered users' perceptions of usability and aesthetics and emotions as important factors of user experience. Park et. al (2013) have the most complete and all-encompassing scope, as they have concluded that the overall UX breaks down to usability, affect and user value. Park et. al (2013) refer to usability, affect and user value as the degrees of easiness of use, appearance appealing and subjective values respectively.

2.2.1 Usability

Usability studies are usually considered to be the field of UX's origin (Lallemand et. al, 2015), where in the key UX models (Hassenzahl, 2003; Mahlke, 2008), "pragmatic" or "instrumental" system qualities are related to the effectiveness and efficiency usability. According to Lallemand et al. (2015) usability and UX are a part of the User-Centred Design (or Human-Centred Design), "an approach to interactive systems development that aims to make systems usable and useful" (ISO 9241-210, 2010).

ISO (1998) defines usability as "the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency, and satisfaction in a specified context of use." Usability can be considered as an ability of the user to accomplish a task with the help of certain technology (Tullis and Albert, 2013). Hassezahl and Tractinsky (2006) draw the core difference between usability and UX: instrumental, pragmatic or task-oriented goals are associated with usability. On the contrary, user experience can be referred to as a concept with broad perspective, involving individual's entire interaction with and perception of the system, including feelings, thoughts and perception (Tullis and Albert, 2013).

Nielsen (2012) outlines five elements of the usability, which can also be used as product qualities: learnability, efficiency, memorability, errors and satisfaction. Learnability is about the easiness of carrying out the task during the first encounter with the system. Efficiency stands of the speed of task performance. Memorability represents the speed of relearning the skills. Errors stand of the number of errors made by users, their seriousness and easiness to recover from. Satisfaction would answer to the question of "How satisfying is the design to use. Utility can also be described as a similar concept to usability, which Nielsen (2012) described as functionality related user needs. Both usability and utility are important for determining the function usefulness, however they both ignore such aspects as easiness to perform or user's desire to have the function at all. The functionality may take place, but the problems will occur again in the case of bad design. (Nielsen, 2012)

Park et. al (2013) have broken down usability to simplicity, directness, efficiency, informativeness, flexibility, learnability and user support (see Appendix 3). Some of the dimensions collide with those of Nielsen (2012) and expand on those further.

2.2.1.1 Perceived usability

Perceived usability and perceived aesthetics have been emphasized as one of the principal criteria of users' evaluation of products (van der Heijden, 2003). It is important to understand the difference between perceived usability and usability. The users might perceive a product with high level of usability to be unusable and a product with a low level of usability – usable. Users' responses to the objective values of the same design features can differ, depending on the background and experiences, (Thüring & Mahlke, 2007). Several research papers (Ben-Bassat, Meyer, and Tractinsky, 2006; Thüring and Mahlke, 2007; Tractinsky, Katz, and Ikar, 2000; van der Heijden, 2003) have argued that perceived usability is also highly correlated with perceived aesthetics. However, other studies (Hassenzahl, 2004; van Schaik and Ling, 2008) did not agree with the strong interrelationship between perceived usability and perceived aesthetics.

Perceived qualities are independent of context. Thus, the perceived usability will not be influenced by the specific characteristics of the current context. (Hassezahl and Monk, 2010). The interaction between users and products can be described in terms of perceptions of instrumental qualities, perceptions of non-instrumental qualities, and emotional reactions through these two perceptions (Thüring & Mahlke, 2007). The perceptions of instrumental qualities and non-instrumental qualities can correspond to perceived usability and perceived aesthetics, respectively. Users' judgments and behaviors are affected by these factors, which are related with product features, user characteristics, and task and goals. Both perceived usability and perceived aesthetics for products affect users' emotions in product-use situations. These influences show the importance of emotional responses in examining the interaction between users and products.

2.2.2 Affect, emotion and aesthetics

Lallemand et al. (2015) highlight that despite being originated from the concept of usability, UX concept is evolving rapidly and is starting to include emotional, subjective and temporal aspects involved in the interaction; or else, so called" hedonic" system quality that is related to satisfaction. Many researchers agree that usability and aesthetics are not the only factors contributing to user experience, but in fact emotion is at the core of user experience (Hassenzahl and Tractinsky, 2006; Thüring and Mahlke, 2007; Tractinsky and Zmiri, 2008; Norman, 2004; Saariluoma and Jokinen, 2014). However, Hassenzahl and Tractinsky (2006) also highlighted that emotional design per se is not possible, but context establishment is.

Damasio (1994), Kahneman (2011) and Scherer et. al (2011) suggest that emotions should not be understood as the opposite of rational thinking, but rather a part of decision making and learning. As mentioned earlier, a lot of user experience researchers highlight the central role of emotion in the user experience (Hassenzahl and Tractinsky, 2006; Thüring and Mahlke, 2007; Norman, 2004; Saariluoma and Jokinen, 2014). In fact, a few researchers agree that the overall introduction of the term "user experience" was done to highlight the role of emotions in human-computer interactions (Hassenzahl, 2010; Desmet and Hekkert, 2007; Norman, 2004; Wright et al., 2008).

It is believed that emotional design theories (Jordan, 2002; Norman, 2004) have established the connection between UX and emotion generation. However, affective design (Helander & Khalid, 2006), Kansei engineering (Nagamachi, 2011), emotional design (Norman, 2004), design for pleasure (Jordan, 2000) and funology (Monk et. al, 2002) all examine user experience with the focus on emotions. The researchers using the mentioned approaches suggest that *emotions should be considered for design process*.

Jokinen (2015) highlights that recently subjective and emotions oriented experiences have been received attention in the field of HCI and design research. Both aim at emphasizing feelings of the users, involved in the process of interaction with artefacts of technology (Bødker, 2006; Hassenzahl, 2010; Desmet and Hekkert, 2007; Norman, 2004; Wright et al., 2008).

Despite the fact that the discussion on emotion measurement of UX is extensive, many believe that operationalization is not possible (Law et al., 2014). Jokinen (2015) claims that it is based on the fundamental disagreements regarding the nature of emotions and the "reluctance to theorise and operationalise emotional user experience stems from the foundational notion that user experience is holistic" (Hassenzahl and Tractinsky, 2006).

2.2.2.1 *Understanding emotions in UX*

According to Hassenzahl (2016), there are two approaches for understanding emotions in UX. One is understanding emotions as consequences of product use (Kim and Moon, 1998; Desmet and Hekkert, 2007; Hassenzahl 2003; Tractinsky and Zmiri, 2008). The other is to concentrate on understanding the importance of emotions as antecedents of product use and evaluative judgments (Singh and Dalal 1999; Norman 2004).

In his book Norman (2004) discussed the underlying model of affect in HCI, according to which visceral, behavioral and reflective levels of the nervous system are coupled and intertwined within rich feedback loops, which allow humans to appraise situations from affective perspective (i.e. arousal and valence value assigning). Norman (2004) claims that this in turn has an effect on the affective state, which then influences the thoughts and behavior, as well as the way, how the situation is appraised; creating a complex feedback loop.

Jokinen (2015) conceptualized emotional user experience based on the appraisal theory of emotion. The theory suggests that the goal congruence of the interaction events and the task-independent traits of an individual are the underlying factors of the user′s emotional response. The research results concluded that subjective emotional experience is influenced by different factors relating to individual differences in coping and task events. Jokinen (2015) analysed emotional user experience by applying a competence–frustration model of emotion, and concluded that emotional UX is dependent on the user's technological problem-solving tendency, frustration tendency, pre-task self-confidence, and task performance.

2.2.2.2 *Emotional Valence, Arousal, and Engagement*

The emotional responses of the users are two-dimensional. First dimension is valence, which is the direction of behavioral activation and the degree of positive (toward) or negative (away from) emotion for a stimulus. Arousal is the second dimension and represents the emotional activation intensity for a stimulus or the physiological state of emotional reactions. Valence and arousal are independent (Lang et al.,1993). Waldstein et al. (2000) also suggested one more measure, which is engagement. Engagement can be described as the emotional involvement with tasks in product-use situations; and it is based the experiences of the users when using product or system.

2.2.2.3 *Appraisal theory*

Appraisal theory is one of the profound theories of emotion. It states that emotion is a cognitive process (Power and Dalgleish, 1997; Scherer, 2009; Scherer et al., 2001). According to appraisal theory emotions arise as functions of meaning structures, which are used to evaluate, or appraise, the personal significance of an event (Frijda, 1988; Lazarus, 2001; Scherer, 2009). The latter focuses on the subjective event interpretation when explaining emotion, a perspective that is in line with the general user experience discourse. Hence, the use of appraisal theory as the theoretical framework for emotional user experience psychology is supported (Jokinen 2015).

The process of appraisal has been identified to have many levels, layers, interconnections, and phases (Scherer, 2009). However, two main appraisal types are distinct (Lazarus, 2001). The primary appraisal can be understood as the situation assessment under the perspective of personal values and goals; it establishes the subjective significance, or meaning, of an event, whether or not the event is relevant to the individual's goals, and it is pleasant or not. Secondary appraisal is the assessment of the ability of a subject to cope with the consequences of the event: the subject's control over the event, and adjustability. These two forms of appraisal are responsible for changes in autonomic physiology, action tendencies, motor expression,

and subjective feeling, which produce relevant emotional responses to events (Scherer, 2009).

It is important to note that we are also conscious of our emotions and can explicate emotional experience (Jokinen, 2015). In the appraisal model, conscious emotional experience is defined as feeling (Scherer, 2009), which is a mental representation of an emotional experience (Saariluoma and Jokinen, 2014 and Scherer, 2009). It has been suggested by Jokinen (2015) that mental representations are "entities that are about something", and in this research, they are about emotional states. Modal states are the states occur more frequently than others (Scherer, 2009). Modal emotions such as anger, fear, or joy are not assumed to be from a small set of physiologically hard-wired emotions, as posited in the theory of basic emotions (Scherer, 2009).

Emotional contents of mental representation are the key to studying emotional user experience, and explanation of emotion in human–technology interaction (Saariluoma and Jokinen, 2014). Taking into consideration the assumption that mental representations cause other mental states and behaviour (Fodor, 1985), the emotional contents of mental representation can be applied for understanding and explaining thinking and behaviour. In HCI, the user appraises the events of the interaction. In this uninterrupted and mostly unconscious process the subject can mentally represent emotional states and thus have a conscious emotional experience (Jokinen, 2015). The contents of these representations might be different; however, a certain set of modal emotions is familiar to all of us and frequently useful in describing our feelings (Saariluoma and Jokinen, 2014; Scherer, 2009). Emotional user experiences can therefore be researched through verbalization or indication by the users of the emotional contents of their mental representations related to the modal emotions. Protocol analysis and various questionnaires (Saariluoma and Jokinen, 2014) are represented as tools of data collection regarding the contents of mental representations.

2.2.2.4 *User satisfaction*

Emotions are an important concept that can explain the interaction between users

and their surroundings and as a complex set of interactions among contextual factors inducing affective experiences (Dubé & Menon, 2000). Emotional responses of the users are psychological phenomena and have been used to explain the behavior decision making. These emotional responses are directly connected to user satisfaction, which affects users' intent to use products (Thüring & Mahlke, 2007).

Alben (1996) and Arhippainen and Tähti (2003) have originally pointed out that UX is gained through interaction process between users and products or services. I would also like to refer to Keinonen (1997), who discussed the relationship between users and products. He mentioned that interactions, when using products or systems, can be studied through user satisfaction criteria. Keinonen (1997) summarized that satisfactions criteria include such factors as usability, aesthetics, functionality, information quality, brand, and price. Lee and Koubek (2012) have been highlighting the perceptions of the user and concluded that product satisfaction degree depends on the user perception of these criteria, entailing emotional experiences. Numerous authors concluded also that user satisfaction is heavily influenced by usability and aesthetics (Hartmann, Sutcliffe, & de Angeli, 2008; Schrepp, Held, & Laugwitz, 2006).

Park et al. (2013) broke down affect to color, delicacy, texture, luxuriousness, attractiveness and simplicity (see Appendix 3 for details on subsequent attributes).

Aesthetics

Hassenzahl (2008) describes aesthetics as affect-driven evaluative response of the users and their attitude about visual attributes. Unlike usability, the inherent characteristics of aesthetics are limited to users' subjective judgments, being embedded in contextual factors. Just like perceived usability, perceived aesthetics follows the same logic - users may perceive a product with a low level of usability to be usable, or that with a high level of usability to be non-usable and these phenomena is also observed in the relationship between users' perceptions of aesthetics factors and the objective evaluations for aesthetics factors (e.g., the degree of which aesthetics factors can meet visual design guidelines). Based on the background and experiences of the users, they might have different responses to the objective values of the identical features of design (Thüring & Mahlke, 2007). Perceived usability and perceived

aesthetics have been emphasized as two principal criteria of users' judgments for products (van der Heijden, 2003).

2.2.3 User value

The majority of the user experience researchers also agree that UX is not only about usability and affect (Alben, 1996; Carkir, 2000; Hassenzahl, Diefenbach and Göritz, 2010; Hassenzahl & Tractinsky, 2006; Horn & Salvendy, 2009; Law & Van Schaik, 2010; Pahnila & Warsta, 2010). More recent studies include user value as an important component that influences UX (Park, 2013). Park and Han (2013) emphasize that value has been one of the key UX components. They also define user value as "desirable states of existence or modes of behavior which are satisfied when using a certain product or service". Park and Han (2013) underline that user value is a part of life value, and the elements of user values depend on the service in question. The user value also varies over time and can occur during the usage of service. They also identify product/service value: the difference between product/service value and user value is the perspective. Product/service value is attached to a product or service by users according to their preference or evaluation, while user value can be satisfied by buying or using a product or service.

Park and Han (2013) observed that value research has two streams: (1) the perspective of business administration, where customer value is a profit that a company makes from a customer over a product lifetime; (2) and the perspective of psychology and sociology, where human value is the subjective feeling, goal, or worth, also happiness, freedom, and self-respect.

Original value studies

Value studies began with Maslow (1943), even though he did not specify the term "value", the research demonstrated values that individuals may pursue. Maslow (1943) specified five basic needs of a human being: physiological, safety, love, esteem, and self-actualization. He stated that a physiological need is the most fundamental and should be met before the secondary or higher level needs, although he also agreed that this framework is not applicable for all people. For example, some

are driven by a love or belonging need, even in the situation, when physiological needs are not met. Rokeach (1968) conducted a full-scale study and thought that value is important per se and is not related to external objects and events.

Maslow's theory has a significant influence on the VALS framework (Yankelovich and Meer, 2006), a tool to evaluate value developed by Mitchell and colleagues at Stanford Research Institute (SRI) (Strategic Business Insight, 2010). VALS combines 'value' and 'lifestyle'; it differentiated types of human beings in terms of value. Americans were classified into nine types according to VALS: survivors, sustainers, emulators, achievers, belongers, I-am-me, societally conscious, experiential and integrated. Although the framework has been criticized that people could not be classified just into nine types boldly, VALS has seen significant success in business. Despite criticism that all people cannot be divided into only nine types, this framework succeeded in business. Maslow's theory greatly affected the VALS framework (Yankelovich and Meer, 2006).

Value and product use

Gutman (1982) introduced means-end chain theory, according to which the properties of a product influence the subjective user value. According to the theory, attributes of a product lead to consequences associated with personal value. Gutman (1982) believed that value influences product choices, as he also stated that products are "potential satisfiers of people's value" and that products can be grouped into sets to reduce the choice complexity. Functional groupings then could produce consequence: the user may consider consequences and consider making a purchase based on that. Gutman's model served as a basis for numerous marketing studies (Jensen, 2001; Overby et al., 2005; Parasuraman, 1997; Woodruff, 1997) and also served as a framework of MECCAS, Means-End Conceptualization of the Components of Advertising Strategy, a famous method for advertisement analysis (Reynolds and Gutman, 1988).

Parasuraman (1997) researched value acceptance over time. He sorted customers into four groups based on when they bought certain products (i.e., first-time, short-term, long-term, and lost). He stated that first-time customers understood products at

the attribute level, whereas a customer came to understand value at a consequence level or goal level only after some time.

Value and HCI

The website or an online service needs to provide value to the user, while the irrelevance tends to have direct negative impact on the interest from the users' side (Stenfelt & Lundberg, 2012). Goldman (2010) described customer loyalty as a key to success in e-commerce. Understanding of the user needs therefore becomes relevant for increasing the customer loyalty to an online service (Sun, 2010).

Boztepe (2007) and Park et al. (2011) defined and grouped the elements of value. Unlike researchers in the fields of marketing and business administration, they did not consider the costs of products or to trade-off. Park (2013) believes that user values can be broken down to self-satisfaction, pleasure, customer need, sociability and attachment (see Appendix 3). Boztepe (2007) suggested eight elements of value: utilitarian, excellence, emotional, aesthetic, social, esteem, altruistic, and spirituality.

Recently, a variety of studies have used means-end chain theory by Gutman (1982) to investigate user value of mobile phones and services (Leitner, Wolkerstorfer, Sefelin, & Tscheligi, 2008).

2.3 Designing for UX

Jetter and Gerken (2010) have stated that usability is not a reason for people to make purchases, but people' goals go much further than that, for instance in recognition seeking. Thus, a usability test could reveal how well somebody could accomplish a task, but not whether he or she would like to do it and why. Therefore, intended user experience can then be placed in a central role of the specific context and design process (Jetter and Gerken, 2010).

2.3.1 Approaching design process

2.3.1.1 Product development view

Seo et al. (2015) positioned UX as an approach for product development, which focuses on understanding of the user interactions. They were underlining that despite the fact that technology development contributes to the growing number of interactive products designed to meet the user needs of various kind, users may face difficulties using the products due to operational and design complexities found in the products. They have suggested that the following aspects of product development can help in finding the right approach for closing that gap: (1) managing of the new product development process and establishing product-specific business models; (2) investigating the links among principal and contextual factors in developing or using products and managing interaction processes; (3) analyzing market values of the products and optimizing profit models. Seo et al. (2015) therefore concluded that the second approach represents user experience investigation.

2.3.1.2 Organizational view

Kuniavsky (2003, p. 60–69) was examining UX from three design angles: information architecture, interaction design and identity:

1. Information architects aim to understand the user insights and the type of mental information models they have (e.g. structure, prioritization, semantics and other). Task analysis, card sorting and diary analysis are typical research techniques; the results are used for e.g. determining features and for marketing purposes.
2. Interaction designers control immediate user experience. They prefer limited amount of information. The questions of interaction designer are related to whether users will accomplish what they want to do. For instance, performance-based usability testing can be used for research – it will identify how well certain tasks are accomplished and reveal potential design flaws. However, it will not reveal, what people want and why.

3. Identity design is part of the brand. Identity designers communicate organization's values, visual style, tone, vibe, editorial voice, evoked associations and many other aspects of the whole service. The role of identity designer is to make online service experience enjoyable, unique and memorable. This differs from marketer's goals, which might be more about convincing people to visit the site or to subscribe to premium model. The identity designer is looking for details regarding people's immediate emotional responses, memories and evocations, direction of their attention and their references and associations. Research can be done with e.g. interviews and competitive analysis. Latter could for instance include 19/83 research of competitor's service features and testing which of them would be the most valuable for the users.

2.3.1.3 E-service view

The service design view is similar to the UX model by Hassenzahl (2003) in a sense that it attempts to understand the relationship between the user and the product creator, but from a different perspective.

Alter (2010) suggested that the design of an e-service has two dimensions, because it encompasses both the service design and the design of an IT artifact. Goldkuhl and Perjons (2013) outline five different ideal types of e-service design. They differ in their views on the main goals of the e-service design; their views on the service providers' and customers' roles and responsibilities in the design process; and their views on the focus of the e-service design process.

Goldkuhl and Perjons (2013) identify that e-service functions as a medium between the provider and the customers. The provider goes through specific tasks to provider the e-service to the customers and manager user interactions with the service. At the same time, the customers interact with the service to consume it. Moreover, the e-service design can be done by a professional developer, or developer-as-designer (employed by the provider organization), or even carried out by the provider-user or customer-user, called a user-as-designer.

The service perspective of the e-service design recognizes the difference between a provider-driven and a customer-driven design. The IT perspective recognizes the

difference between developer-driven and a user-driven design. Figure 5 summarizes different designs according to their historical development.

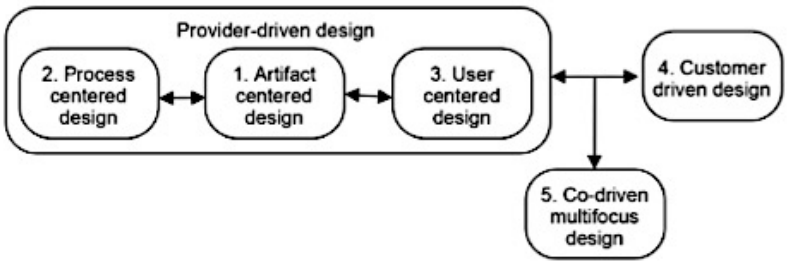


Figure 5. E-service design ideal types.

The first three ideal types are all provider driven. They differ in the focus dimension: the focuses on the artifact, the second on the provider's internal processes, and the third on the customer-users' interaction with the artifact. The fourth and fifth ideal types introduce a radical shift of view: with the fourth the design of the e-service is customer driven in order to design innovative solutions for customer-users; whereas the fifth ideal type emphasizes the e-design process as co-driven by both the provider and customer, having a multifocus considering the e-service fit in business processes on both the providing organization's and the customers' side.

2.3.1 Modelling UX

Hassenzahl (2008) was describing a gap between designer intentions and user feelings and wishes. When studying the importance of hedonic simulation, Novak and Schmidt (2009) found that positive user attitude towards the system was strongly related to hedonic attributes. Väänänen-Vainio-Mattila and Wäljäs (2009) have developed both pragmatic and hedonic evaluation heuristics for web service user experience and concluded that the task is challenging, while it remains to be of interest, because many attributes belong to both the hedonic and pragmatic sides. According to Hassenzahl (2003) pragmatic and hedonic sides are hard to interpret, whereas their dependency and independency vary.

A few different models of UX exist, majority of which refer to and are based on Hassenzahl's model of UX (2003) (Figure 4). The UX model suggests that each individual user assigns different attributes to a product when using it. User experience is represented by a set of consequences of these attributes and a context. Thus, the model focuses on the behavioral consequences related to product features and provides grounds for understanding the perspective of the behavioral consequences on the designer's and user's levels.

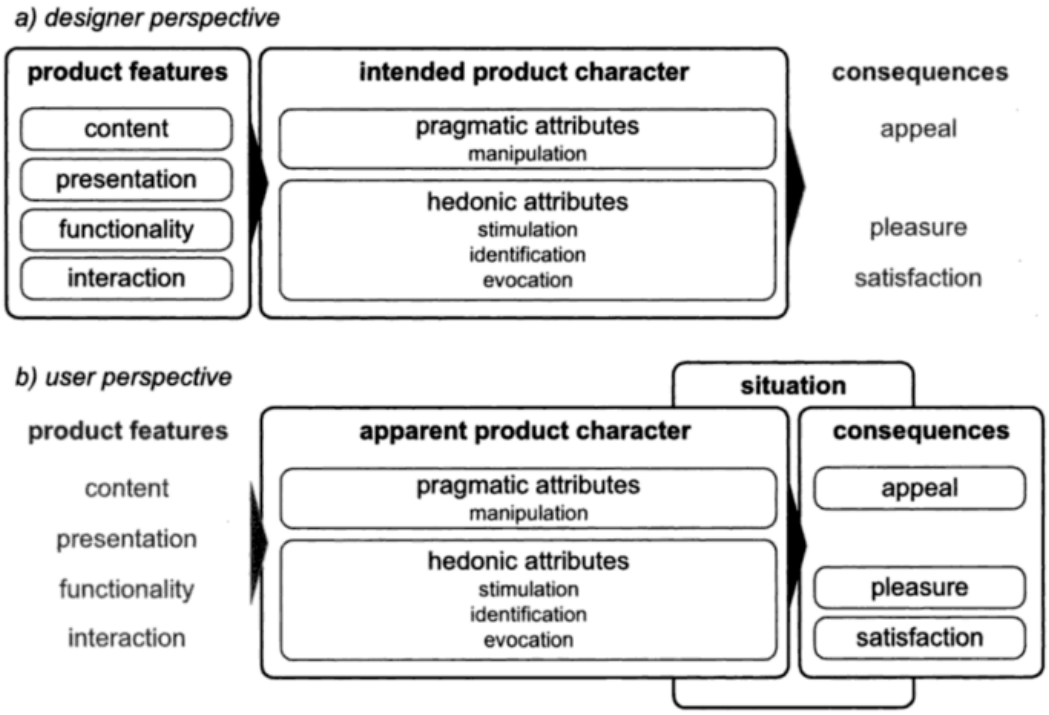


Figure 4. Key elements of the model of user experience from (a) a designer perspective and (b) a user perspective.

The attributes can be categorized into four groups: manipulation, identification, stimulation and evocation. These categories can, on a higher level, be grouped into pragmatic and hedonic attributes. Whereas the pragmatic attributes relate to the practical usage and functions of the product, the hedonic attributes relate to the user's psychological well-being. Understanding the divide can help us to understand how to design products with respect to UX, and the split also clarifies why UX itself cannot be designed. (Hassenzahl, 2003).

2.3.2 UX design process

The recent study by Pennington et al. (2016) summarized strategies for UX improvement to include: utilizing basic UX principles when designing sites and interfaces, analyzing quantitative data to investigate the service utilization, recruiting strategies for user studies and streamlining user experience. The strategies however can be completed with much broader perspectives and examining various studies on operational design for UX, which are below.

2.3.2.1 The performance marketing triggers UX design

Performance marketing is driven to improve the revenue streams. Performance marketing and UX are tightly interconnected, because performance data can often serve as a trigger for UX considerations.

Significant part of the marketing budget and effort is about user acquisition. However, user retention is even more important. The experience how they perceive it and interact with the website falls within the UX design domain with the frequent utilization of conversion terminology. Conversion usually refers to getting the users to sign up or buy products, as well as intended empowerment, delight and engagement. (Ryan, 2016)

2.3.2.2 Understanding phases of UX design process

The holistic viewpoint emphasizes three various time phases of UX: before, during the use and after the use of the website, including users' emotions, believes, preferences, physical and psychological responses, perceptions, behaviors and accomplishments. The anticipated use of the product (before use) is related to the envisioned use of the product and subjective expectations. The website use (during use) is related to the completion of goals, while the experience after use can be referred to as reflective thoughts and feelings. (Ryan, 2016)

According to Ryan (2016) a commonly accepted method for design based on the user needs, is user centered design process (UCD). In iterative design and development process (also known as agile and lean practices), research, design, proto-

typing and testing are to be revisited a number of times before, during and after the product release.

At the research stage, not only the user needs should be understood, but also the needs of the business and stakeholders. For instance, a typical process of user-centred design in a web design project would consist of the following stages: research, model/concept, prototype, design, implement, optimize (with user testing being integral part in all of them).

Often post-launch performance is evaluated to make changes to design, in order to address deficiencies and improve overall experience. Performance can be assessed through a wide range of methods, including website analytics and regular UX testing.

2.3.2.3 UX design considerations

Ryan (2016) has suggested a hierarchy of design considerations, which has a similar logic to Maslow's hierarchy of needs and includes the following pyramid layers: desirable (might do), usable (can do), persuasive (will do) and emotional (loves to).

Designing for desirability means implementing thorough user research to create a product that truly addresses the user needs. Designing for usability is about infrastructure that delivers product accessibility and means the integration of principles from the fields of ergonomics, cognitive psychology, HCI and usability engineering. Designing for persuasion means influence and action stimulation and the integration with the principles of social psychology and behavioral economics. Designing for emotion means creating emotional impact and stimulation of an appropriate emotional response in target audiences.

2.3.2.4 Guiding UX design

Ryan (2016) suggests that the level of design guidance can be split into three parts: high level (principles and heuristics; human based and universal), flexible yet tangible (design patterns; technology based) and strict (guidelines; technology based and focused, not resilient).

Principles, which are often named to be heuristics, establish the fundamentals for

designing and interactions. The principles give objective approach for assessing design and addressing issues. Earlier research on the subject, which have put the basis for further investigations, have been the pieces by Norman (1988) and Nielsen and Molich (1990).

Norman (1988) outlined the following principles of design/interaction: visibility (controls and easily located information), affordance (physical form directs function), signifiers (visual form directs function), mapping (logical and clear correspondence of control to effect), constraints (minimized options to direct action), feedback (action confirmed clearly and immediately) and consistency (aesthetically and functionally, internally and externally).

Nielsen and Molich developed web usability heuristics in 1990 and the principles are still extremely valid today. The principles include visibility of system status, match between system and the real world, use control and freedom, consistency and standards, error prevention, recognition rather than recall, flexibility and efficiency of use, aesthetic and minimalist design, help the users to recognize and recover from errors, and help through documentation.

Design patterns represent a more basic level corrections, for instance utilization of design elements to meet the user goals. On the organizational level, companies may develop own domain-specific pattern libraries to be used internally and avoid common mistakes to have a unified standard, but at the same time allow individuality and creativity.

Prescriptions (guidelines) are platform and technology specific and include details on element appearance and behavior.

2.3.2.5 Persuasion layer

Ryan (2016) suggests that persuasion is about reducing procrastination to stimulate action. Conversion rate optimization should be based on persuasion assessment. Cialdini's principles of persuasion (Cialdini, 1987) include reciprocity, scarcity, authority, commitment, social proof, likability. These fundamental principles are describing the nature of human psychology and can be applied strategically (e.g. designing persuasion paths) and tactically (e.g. for landing page design). Reciprocity is

about feeling psychological indebtedness, thus providing users with free information, tools, free shipping or making them feeling special in other ways could subsequently trigger the users to do what you ask them to. Scarcity is about making the users feel exclusive to stimulate the desire to obtain products and services of short supply. Scarcity tactics could be abut signaling the limited number of availability, or signaling exclusivity or competition for an item. Authority is about trustworthiness and credibility, and can be achieved through endorsements or expert opinions. Commitment is equivalent to consistent behavior and can be triggered by building on initial action and public commitment. Social proof is in fact related to public commitment and signaling intents publicly, which can be triggered through social media and communities. Likability is about complying with the requests from the people the users like. (Ryan, 2016)

2.3.2.6 Personalization and trust

Personalization and trust are at the foundation of successful online activities (e.g. Ryan 2016; Nielsen, 1999).

Ryan (2016) summarized well that targeted ads and personalized messaging have been the two categories that have originally triggered personalization. Today programmatic ads, intelligent content platforms and omni-channel marketing develop personalization further. The consumers are more and more selective, and thus will be willing to attend to highly targeted content. (Ryan, 2016)

Nielsen (1999) stated that trust is a foundation of successful e-commerce, while years later Ryan (2016) has also stated that trust is truly a commercial advantage.

A websites' openness regarding their security and private data handling influence trustworthiness a lot. However, trust is much wider than security aspect. For instance, they users should be able to reach everything they would like the site, if the site works as intended, and if the users are able trust the information on the site (good quality images, spelling, grammar, expressions etc.). (Nielsen, 1999)

Users should be able to feel comfortable with the website and factors that influence the user. Trustworthiness can be communicated with four approaches:

1. Use a high design quality, clear navigation and no typos.
2. Show all the important information like delivery charges regarding the order from the beginning.
3. Use good shots with high quality of all products and the show correct image for all products.
4. Do not isolate the site, link and let the users read reviews about the site on third-party sites, which is a sign of confidence.

(Nielsen, 1999)

2.4 Online activities in magazine business

The industry in the recent past identified that it is important to develop online activities, because overall magazine business model is positively influenced by these in the form of spillover effect. Online activities boost engagement, brand awareness and brand loyalty that have an impact on the rest of the portfolio, such as subscriptions to printed issues. (FIPP, 2014; Ellonen et al., 2010a; Ellonen et al., 2010b, Horppu et al., 2008; Kuivalalinen et al., 2007). Over a decade ago Gallaugher et al. (2001) were able to identify profitable opportunities for revenue creating online features, although just a few. They came to a conclusion that there are in fact four revenue models related to the online activities in publishing industry: subscription to online content, subscription to print publication, sales of online advertising and and content sales to third-party distributors. Vasisht and Gutierrez (2004) have also found out that content syndication was effective for revenue generation (sales of content to third parties). Posnock (2001) has also indicated that for the most part online operations do not generate profit in the early post-launch phases.

Barsh et al. (2001) and Kaiser (2003) suggested that online activities in magazine business improve brand development, new audience acquisition, customer value improvement and profitability.

Interesting findings by Ellonen et al. (2015) indicated that their data questioned the general assumption that online platforms are key components of a contemporary magazine's business model.

Horppu et al. (2008) were writing about positive impact of the website on online and

offline revenue sources: editorial content online boosts subscription sales and support brand loyalty and familiarity. Chandra and Kaiser (2014) concluded that sponsored and native online advertising allowed magazines to have advertisers invest in cross-media advertising campaigns, which would result in the increase in advertising sales offline.

Today consumers are connected across various platforms to magazine brands across multiple platforms and mix existing and new, which allows to build deeper emotional ties with the reader and their receptiveness to advertising (FIPP, 2014). The paper of FIPP (2014) also indicated that the audience profile is moving towards digital platforms, while advertisers are offered a proposition, which is more appealing than before.

2.4.1 User behavior on magazine websites and motives

Ellonen et al. (2015) researched the connection between online user behavior and the online activities aiming at both direct and indirect revenue generation (e.g. clicking an advertisement and brand exposure). Ellonen et al. (2015) also classified how consumer behavioral patterns on magazine websites link to the business model in a shorter and longer term. Ellonen et al. (2015) had a perspective of consumer online behavior and used as a baseline the separation between two primary types of consumer online behavior. Goal-oriented behavior is driven by extrinsic motivation (subsequently intentional and selective exposure to certain content) and exploratory behavior is driven by intrinsic motivation (subsequently ritualized media use) (Hoffman and Novak, 1996; Moe and Fader, 2004; Moe, 2003; Novak et al., 2003).

Sonkamuotka's study (2013) concluded that women use both printed and online magazines for vague motives, such as entertainment, inspiration, passing time and relaxing, and the focus is on the medium versus specific content. Sonkamuotka (2013) found out that exploratory behavior is typical when visiting online magazines.

Ellonen et al. (2015) indicated that exploratory behavior is linked to more direct (support online ad sales and print subscription sales) and indirect (brand familiarity, loyalty and identity) positive business implications. Ellonen et al. (2015) also pointed out that not all the interactions with the content of online magazines and other readers

happen on the magazine website. They also take place on other platforms and via many different devices. Different forms of social media today are becoming more dominant rather than supporting. Magazines host blogs, Instagram accounts, YouTube accounts, Facebook pages, Snapchat and Spotify channels (World Media Trends, 2015). The media landscape continuously changes together with technological advancements, therefore revisiting the matter of online activities in the magazine business is important (Ellonen et al., 2015). The study by Horrpu et al. (2015) revealed that satisfaction and trust set the basis for strong development of website loyalty. The same study also indicated that brand-level experiences can also have an impact on satisfaction, trust, and loyalty online.

2.4.2 Trends in digital editions and publisher websites

Ryan (2016) suggested that the ultimate goal of many businesses today is to increase the engagement. Even though other metrics can be important for digital strategies, engagement is the metric that has seen the largest growth in focus over the last few years; in the website experience context, it is the website dwell time or community activity (Ryan, 2016).

Trends in digital editions

According to FIPP (2014) the readers of digital editions value portability, easy access and interactive features. While one of the most attractive target audiences for advertisers is educated, affluent and young population, the audience's attention can be captured better by interactive features to result in longer reading times. Digital editions also allow for deeper engagement and thus better reception of digital advertisements. The performance of digital ads has been shown to be either equivalent or better than printed ads.

Trends in publisher websites

According to FIPP (2014) print editions and websites complement each other. Trust of the print brand transfers onto website trust and thus rubs off onto advertisers.

Magazine websites are also natural for native ads. In general, the ads, for instance, editorial content are highly relevant to the readers. Original content sites (such as magazine websites) perform better for advertisers than portals or social networks. The multiplier effect from using a brand's print and website properties benefits advertisers, and key performance indicators improve. Advertising on magazine websites has been proved to lift sales significantly.

2.5 Framework re-formulation

The study follows two targets: to explore UX and empathise with the users and to understand how the exploration is beneficial to iterative design of the website for achieving user and business goals. The original model has been reworked and formulated for this study with the development of the literature review (Figure 6). The framework is presented next.

The publishing house continuously develops intended features in order to meet their revenue goals through a process of web design. This results into iterative design process following principles, patterns and guidelines. The users in their turn interact with the online magazine website following satisfaction goals and thus its attributes, which become apparent to them; which is translated to certain user behavior. This interaction results in User Experience, which is comprised of perceived usability; affect, emotion and aesthetics; and user value. Through a process of iterative design the publishing house can influence the User Experience by designing to achieve the intended UX, which would be desirable, usable, persuasive and emotional.

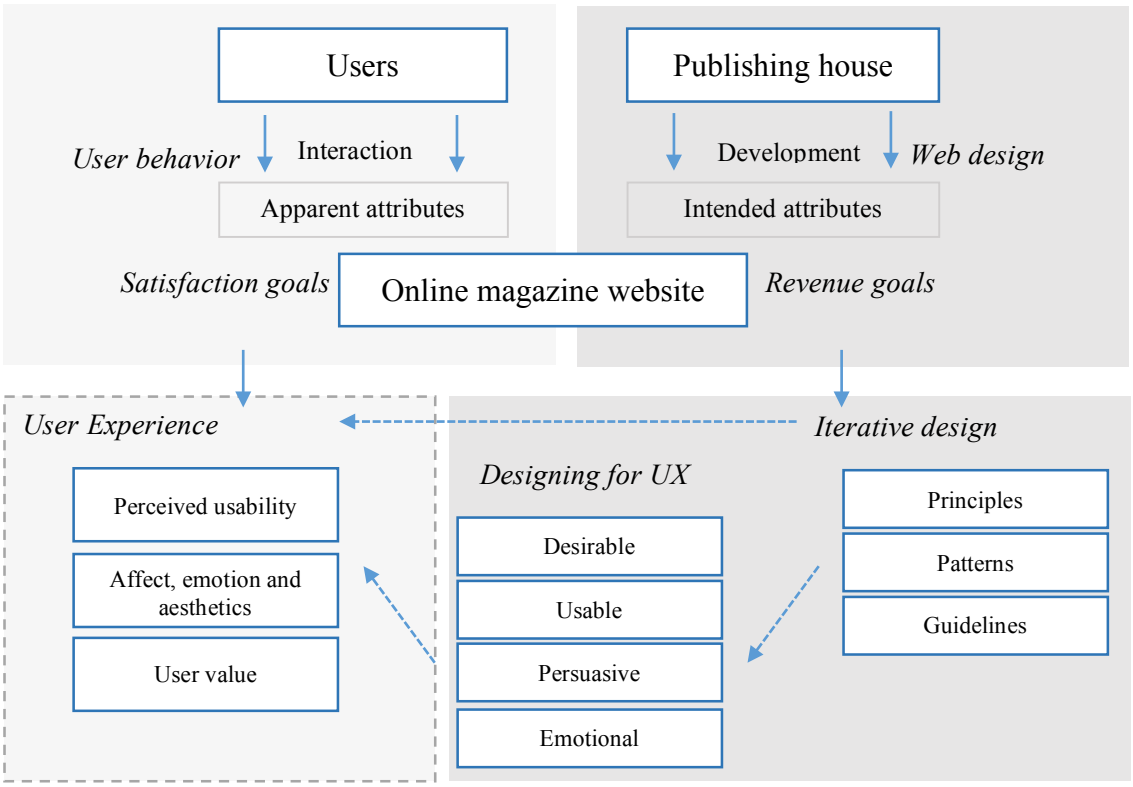


Figure 6. Framework re-formulated.

3 DATA AND METHODS

The following chapter provider brief description of the online media industry in Finland and the case in question, as well as thesis methodology.

3.1 Case context

According to Yin (2003), a case study aims to understand a phenomenon in its natural context. The following study can be identified as an exploratory single-case study with the aim of UX exploration. Tellis (1997) indicated that case study is the right choice, if the study aims at a holistic view and the use of various data sources.

3.1.1 Digitalization and media industry in Finland

As a developed society, Finland has a large number of Internet users falling under the general statistics for Europe pointed earlier. The new ways of accessing content are rapidly explored and taken into use by the population, even though traditional media is still retaining its positions at the moment. While search engines, news and social networking platforms are the most popular websites, online activity is on the rise: user generated content and commentary are common. (Open Society Foundations, 2014)

Digitalization has facilitated the change in various media platforms and made the business environment more competitive. It has also shifted the trends in the industry towards faster publishing, faster expansion of online operations and faster movement towards cost efficiency. (Open Society Foundations, 2014)

As the environment changes towards the transition into the digital era, media companies are faced with economic challenges. The industry has seen that media companies are experiencing difficulties in adapting business models. One of the key changes in the overall business cost structure is the significant increases for online advertising. (Open Society Foundations, 2014).

Following the global online trend, online media industry in Finland is also on the rise (Pernu, 2012), whereas the most active users are youngsters and young adults (16–35 years old) (Official statistics of Finland, 2012). The users from the same age

group are also the most active in creating UGC, user-generated content, primarily in forums, blogs and social networks. Selfpublishing has the second share as the next popular UGC activity, which includes uploading self-produced content. The results of the survey concluded that in certain cases UGC has proved profitable for users. For example, a few food bloggers received a publishing contract for writing a cookbook.

3.1.2 Case company

Aller Media Oy is a media and marketing house established in 1992. The parent company of Aller Media is Aller Holding A / S, a 141-year old Danish family business operating in the media industry. With the current 3 million users of monthly reach, Aller Media positions its business approach as a combination of tradition and innovative concept development. Aller Media started from working with journal publishers and further expanded to online, as the new sources of media evolved in time. Aller Media manages the following magazine brands in Finland: Elle, Divaani, Fit, Katso, Koti ja keittiö, Olivia, Oma Aika and Seiska. Aller Media's subsidiaries also include image photography agency All Over Press, media community Suomi24 and social business expert organization Dingle.

Vision of Aller Media is based on "offering the best and the most profitable marketing services for companies and high-quality content to consumers". While the quality content is the business core, the channels construct important part of business as well: both traditional print media and different digital publishing channels are used for content distribution. (Aller Media, 2016a)

3.1.3 Case service

Costume.fi is an online media platform, and one of the brands managed by Aller Media. The website is targeted at 18-30-year-old young adults interested in shopping, fashion, beauty and entertainment. The website also offers user-generated content created by the website active users and bloggers. Costume.fi targets trendy consumers curious about outfit ideas, trends, tips, evening content for relaxation and inspiration. It is positioned as "The trendy life guide". (Aller Media, 2016b)

Business model is based on the advertising revenue, the working team behind the brand aim to boost the traffic by seeking and implementing new ways of online magazine improvement, current piece of research being part of it. The magazine aims at having a strong digital presence and to interact with users to attract them for participation in co-creation. User orientation of Aller Media has thus provided grounds for research, which would offer additional insight from a scientific perspective.

3.2 Overview of user research methods

Before providing a reader with the detailed overview of data collection and data analysis, it is important to illustrate the path, which consequently led the author towards the choice of research model. Selection of research tools originated from examining the user research tools and different metrics available.

Daae and Boks (2014) have been able to summarize user research tools in a well-presented manner and have classified the methods as three separate categories based on the ways the information is gathered from the users (Table 1). It is important to note, that methods for communicating with the user can be associated with subjective measures, whereas methods for investigating what users do can be identified as objective metrics.

Table 1. User research methods. Adopted from Daae and Boks (2014)

Methods for communicating with the user	Methods for investigating what users do:	Methods investigating both what users do that include communicating with the user
Interview	Observation	Applied ethnography
Focus group	Studying documentation	Contextual enquiry
Survey	Video ethnography	
Verbal protocol	Shadowing	
Conjoint technique	User testing	
Wants and needs analysis	Empathic design	
Card sorting	Culture-focused research	
Group task analysis		
Probes/diary study		

Tullis and Albert (2013) highlight that the choice of user experience metrics depends on the type of study in question, whereas understanding of the user goals reveals

the choice. Tullis and Albert (2013) identify UX metrics as the measures of personal experience when interacting with a product. They may focus on effectiveness, efficiency and satisfaction. Effectiveness and efficiency measures correspond with performance goals, whereas satisfaction metrics correspond to satisfaction goals.

Performance is considered to be about actual interaction of the user with the product. Performance-based metrics involve assessing the degree of the ability to accomplish the task, the time required to perform different tasks, amount of effort, number of errors occurred and other. Satisfaction goals refer to thoughts and feelings of the user when interacting with the product (Tullis and Albert, 2013). They propose ten various study scenarios, for which different complementary metrics are appropriate (Table 2). The next section 3.3 describes in further details, how the choice was made based on the scenarios presented below.

Table 2. Common usability study scenarios. Adapted from Tullis and Albert (2013).

Usability Study Scenario	Task Success	Task Time	Errors	Efficiency	Learn-ability	Issues-based Metrics	Self-reported Metrics	Behavioral & Physiological Metrics	Combined & Comparative Metrics	Live Website Metrics	Card-Sorting Data
1. Completing a transaction	X			X		X	X			X	
2. Comparing products	X			X			X		X		
3. Evaluating frequent use of the same product	X	X		X	X		X				
4. Evaluating navigation and/or information architecture	X		X	X							X
5. Increasing awareness							X	X		X	
6. Problem discovery						X	X				
7. Maximizing usability for a critical product	X		X	X							
8. Creating an overall positive user experience							X	X			
9. Evaluating the impact of subtle changes										X	
10. Comparing alternative designs	X	X				X	X		X		

3.3 Research design and data collection

According to Hair et al. (2015) the study nature and its purpose define the methodology behind the data collection process. This research has been triangulated, which means that the specifics of the data collection process have been determined on the basis of methodological data triangulation. Data triangulation stands for the utilization of several validation sources for researching one phenomenon (Smith & Kleine,

1986), whereas methodological triangulation is the application of multiple methods for data collection process (Mitchell, 1986).

The aim of the study focuses on exploring the overall user experience of the case service. Based on Tullis and Albert (2013) self-reported metrics and behavioral and physiological measures are the common tools utilized in the scenario drawn from the research question and sub questions established, therefore self-reported metrics and interviews, as well as behavioral and physiological measures have been chosen to collect the data for this study.

In this study, behavioral and physiological data collection took place via eye tracking and emotion recognition experiments, as the most common tools for gathering behavioral and physiological data, whereas self-reported metrics were deployed in the form of post-session questionnaire with further interviews for additional feedback and clarifications.

Research design has been built to first collect the background data of the participants, followed by the collection of behavioral and physiological data, self-reported data and interviews. Figure 7 below describes the data collection process applied for every participant of the experiment.

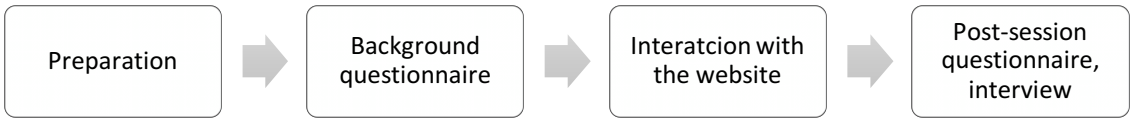


Figure 7. Experiment flow.

The participant sample for both experiment sessions (old version and new version of the website) consisted of 27 (15 and 12) participants from the target demographics, i.e. Finnish speaking females 18-30 years old. The frame of the background questionnaire has been adopted from the questionnaire utilized by the research group of Lappeenranta University of Technology (refer to Appendix 1).

The data collection was conducted in two non-consecutive rounds. During the first experiment the participants were exposed to the initial version of the case-specific website and were respectively inquired about their interaction with the website,

whereas the second round presented the participants the updated edition of the platform. A total of 27 sessions were conducted over two rounds, first with a version of the site before any changes, and the second round of experiments once the redesign had been carried out. The length of experiment session with one participant averaged to 30 minutes, including all the steps, interviews, interactions and questionnaires.

3.3.1 Collecting behavioral and physiological data

In order to collect the data on the website interaction, eye-tracking equipment and facial expression camera have been deployed. Due to the fact that the original objective of the study aims at measuring *overall* user experience, the behavior of the user was of exploratory nature.

The design of the interaction process consisted of three tasks:

- *Task 1. Website exploration.*
- *Task 2. Selection of the three most favorite elements.*
- *Task 3. Selection of the three least favorite elements.*

The interaction part has also included the short interview with the participants regarding Tasks 2 and 3 of the session, where they were asked to describe and explain the choices they have made. Please, refer to Appendix 2 for the details of this phase.

3.3.2 Collecting self-reported data

Self-reported metrics are usually associated with collecting subjective or preference data. Bergstrom and Schall (2014) point out that UX research is “often limited to overt observable behavior” and researchers usually deploy subjective measures (for instance, questionnaires, think-aloud protocols) for understanding cognition and emotional insight about the user. At the same time Kretschmar et al. (2013) highlight that subjective behavioral self-judgments cannot always represent the actual neural activity.

With the introduction of UX term, importance of measurement of feelings occurring

during the human-computer interaction process has risen (Hassenzahl, 2010). This is the reason, why subjective experience is emphasized in human-technology interaction research and design (Hassenzahl, 2010).

Self-reported data provides the researcher with the information on user's perception of the system and his interaction with it, as well as user's feelings. The most common way to collect self-reported data is via implementing rating scales in questionnaires, whereas numerous usability studies benefit from adding the open-ended questions in addition to the Likert scale based questions. (Tullis and Albert, 2013).

For the development of the post-session questionnaire for this study, the questionnaire design developed by Park et al. (2013) has been adopted to serve as a key reference. The questionnaire represents 22 dimensions, which are to describe overall UX by splitting it to three elements: usability, affect, and user value and their subelements. Park et al. (2013) refer to usability, affect and user value as the degrees of easiness of use, appearance appealing and subjective values respectively. The questionnaire design has been adopted to meet the objective of the current study and excluded such elements initially present in the reference basis, as flexibility and user support and texture as they are relevant for hardware studies only. The original questionnaire is presented in Appendix 3 and is followed by a logic developed based on the original frame of reference, and post-session questionnaire developed for the following study. It is important to note, that the final questionnaire has been formulating by applying the frame of reference by Park et al. (2013) and UX questionnaires used for collecting self-reported metrics by WAMMI (Website Analysis and Measurement Inventory) and Opinion Lab, which are Software Usability Measurement Inventory (SUMI) and ACSI survey for a website. Based on the latter, the reflective interviews were also used to walk through the post-session questionnaire (once it has been filled) for additional clarifications and open feedback. The interviews (as well as comments for the selected items during interaction with the website) were recorded with the permission of the participants and supported with notes. The interviews and other verbal discussions were later transcribed.

The final question of the questionnaire follows the approach developed at Microsoft by Benedek and Miner (2002). It is based on the set of 118 product reaction cards. The users are in their turn supposed to choose the cards, which they believe should

describe the system. In the following study, the concluding questionnaire summarized the overall experience of the users from the website. The participants selected top five adjectives, which described the website best in their opinion.

3.3.3 Collected data

The collection of data resulted to multiple sets of digital and printed raw data: background questionnaires, post-session overall UX questionnaires, speech recordings with answers to open questions and reflections for the post-session questionnaire and discussion for the reflection on the interaction with the website, recorded eye-tracking data and facial recognition data for emotional recognition.

3.4 Data analysis

Physiological and behavioral response data

The experiment related data has been recorded automatically by the eyetracking and facial recognition software used. The most common way for visualizing eye movement of multiple users is a heatmap, where the brightest areas (red) are the areas of greater density and fixations. They indicated the areas of the page attracting more and less of visual attention (Tullis and Albert, 2013). Eye-tracking data analysis is usually implemented by measuring visual attention on specific regions. Most researchers are not interested in the distribution of visual attention across the page, but whether participants noticed certain things and how much time they spent looking at them. This is especially relevant for marketing studies, where the success of an ad campaign is directly connecting to getting customers to notice something. (Tullis and Albert, 2013)

Self-reported questionnaires and interviews

The quantitative part of the data has been transferred to Excel for further analysis and visualizations. The open feedback and the interviews were later transcribed. Content analysis and standard qualitative coding techniques were used for sorting the data for further data analysis (Hair et al., 2015).

All the qualitative parts were coded and quantified. Free open source tools, such as www.wordclouds.com were also used for creative data visualization. To mention once more, *verbal discussions took place during website interaction to explain the favorite/disliked elements and later to clarify the choices in the post-session questionnaire and provide open feedback*.

3.5 Reliability and validity

According to Carmines and Zeller (1979), in order for the study to be applicable for the future research and to draw conclusions from the research, it should be ensured that the study has reliability and validity. Golafshani (2003) concluded that reliability and validity are conceptualized as trustworthiness, rigor and quality in qualitative paradigm.

Validity

Validity can be subdivided into construct and internal validity, where construct validity is required for making sure that the study is measuring the right concept in question, and internal validity is required to understand how well defined the relationships between the variables are (Yin, 2003). Yin (2003) also suggests the way to achieve construct validity, which is through utilization of multiple evidence sources. The following study has truly used several data sources, described earlier in detail. As for internal validity, the UX has a direct relationship with the design process: they are inter-connected and influence each other.

Reliability

Golafshani (2003) writes that the difference in quality evaluation purposes for quantitative and qualitative research is “one of the reasons that the concept of reliability is irrelevant in qualitative research”.

Reliability in qualitative research is generally accepted to be lower because of the subjective nature of data collection. Thus, for instance according to Stenbacka (2001) the entire definition of reliability for qualitative research is misleading, as its use would conclude that all the qualitative studies are not reliable. However, for in-

stance, Eisner (1991) defined that a good qualitative study can help “understand a situation that would otherwise be enigmatic or confusing”.

Thus, it can be stated that by the nature of qualitative research, the reliability cannot be considered high in this study, if the concept of reliability should be brought. However, the study provides an insight on understanding the UX in a specific context.

4 FINDINGS AND ANALYSIS

The following chapter will describe findings and analysis of the findings as per the two rounds of experiment: interaction with the first version of the website and the second one accordingly (after the changes). The presentation style of the findings and the analysis is based on the best practices for reporting findings by Barnum (2011, p. 227-318).

4.1 Background

The target audience for the study has been originally pre-defined based on the target audience of the magazine. Both experiments have very similar distribution of participants in terms of age. No significant differences in the audience profiles were also found (see Charts 1,2).

The background questionnaire identified that over half of the respondents in both experiments were 21-25 years old, followed by a slightly smaller group of 26-30 and a minority of under 21 years old. In both cases, only about 30% of the participants used costume.fi before (about 70% did not), however with the printed version in the first experiment close to 70% read the magazine versus a bit over 30% in the second experiment. In the first experiment the participants also read similar to costume.fi pages more than participants in the second experiment. Those familiar with the magazine used it infrequently (see Charts 1,2).

In the case of first experiment, there were more experienced participants in terms of using online media, while most of the participants in both cases said that they were medium, while nobody answered that they were unexperienced.

In both cases the majority of participants considered themselves as average in terms of online activity, however in the second experiment, there were more of the passive types (see Charts 1,2).

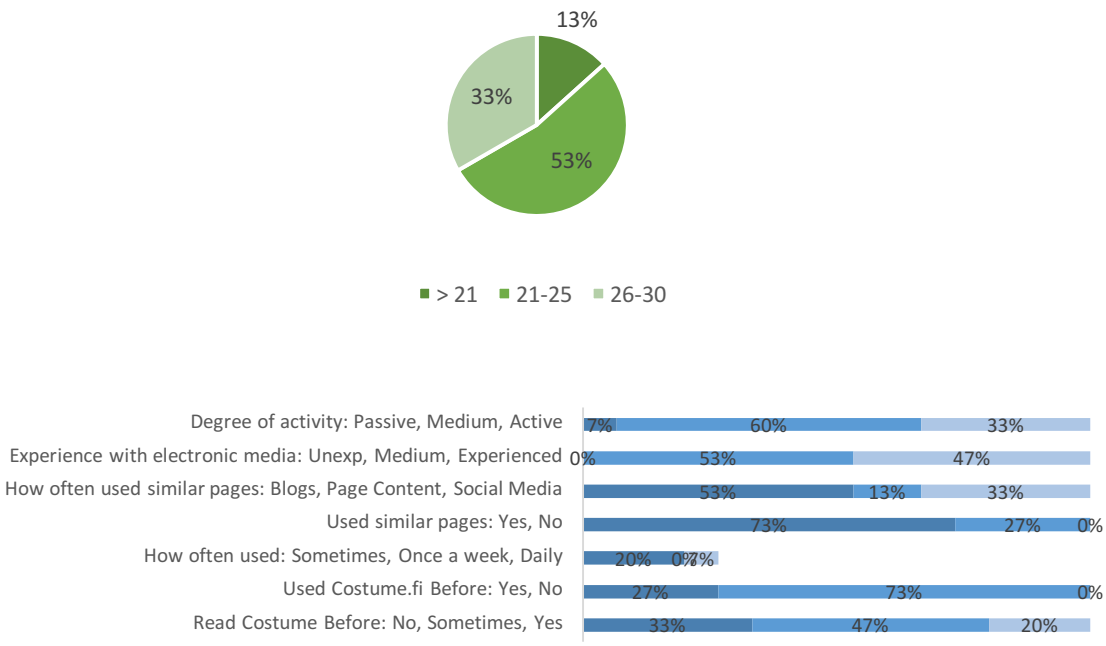


Chart 1. Background data – first experiment.
Chart 1a (upper). Age of respondents.
Chart 1b (lower). Background questionnaire on frequency of online activity.

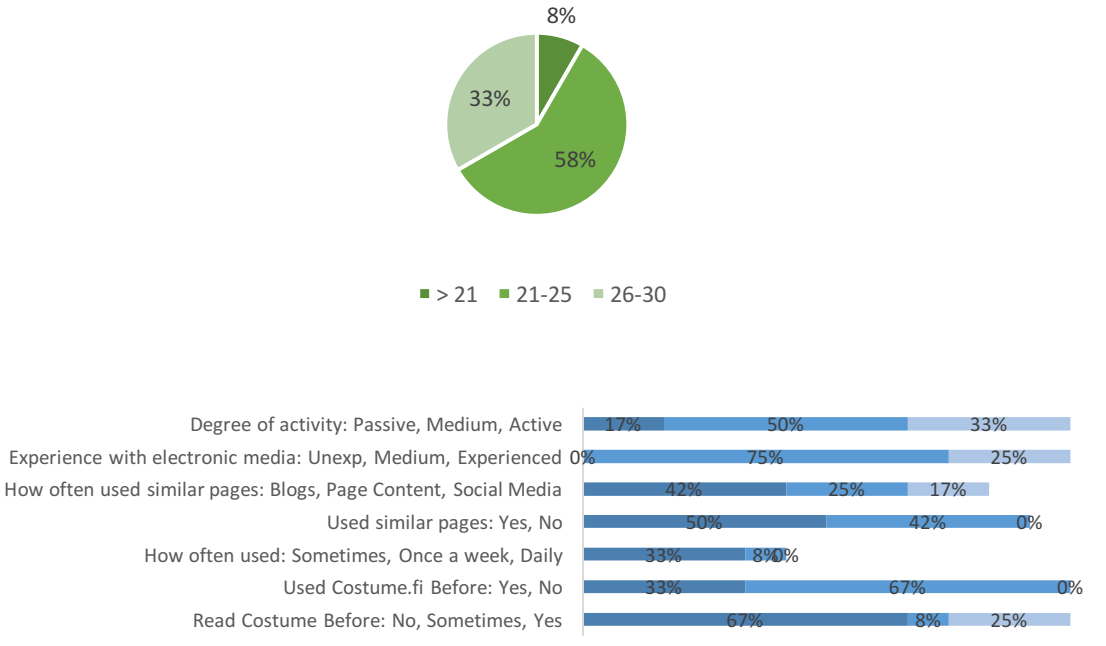


Chart 2. Background data – second experiment.
Chart 2a (upper). Age of respondents.
Chart 2b (lower). Background questionnaire on frequency of online activity.

4.2 Subjective UX measurement: questionnaire and interviews

The chart below introduces the summary of the two experiments' self-reported data recorded via questionnaire. It indicates that the new site clearly improved compared to its older version, however if looking at averages presented, the similar trend is observed for both in terms of categories: perceived usability is ranked the highest, followed by affect and user value accordingly (see Chart 3).

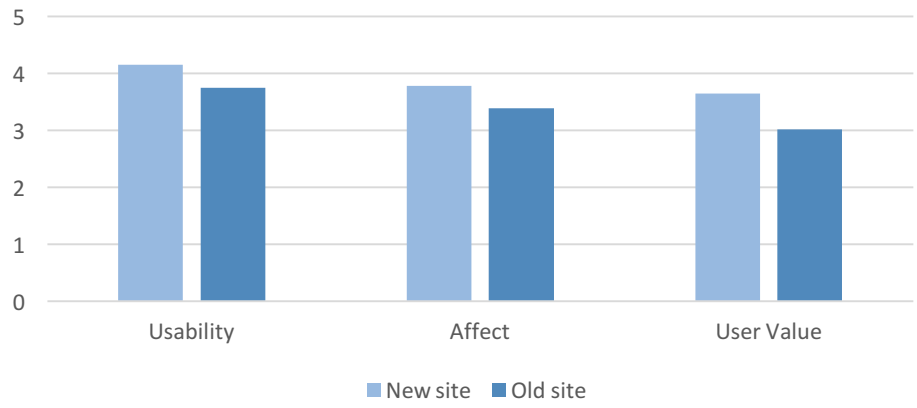


Chart 3. Summarized averages for Likert evaluations of two versions.

4.2.1 Perceived usability

Please refer to Appendix 6 for the relevant charts with data visualization for each attribute. The findings from the data analysis are presented below.

Analysis of Likert scale questions

Simplicity

All the respondents agreed that the new website is simple and easy to use, i.e. the way it works is simple and uncomplicated. In the case of the old website, majority agreed that it was simple, although there were respondents who disagreed or had neutral opinion.

The new version of the site clearly was shown to be simpler than the old one, and the respondents agreed more on its simplicity.

Directness

Majority of respondents in both cases perceived that it was easy to move around the website, i.e. they had direct controlling of user interface.

Directness had more respondents, who also received more positive outlook than in the case of the older version.

Efficiency

In the case of new website, there were no answers indicating that the it was difficult to find what they wanted, i.e. that the product/service does not enable a task successfully without wasting time or energy. Although in the case of the first experiment, a few thought so, there were also more people who strongly agreed that the website is efficient.

Informativeness

The answers of the respondents in both cases were very similar, although in the case of new version, it had more positive outlook (there were respondents who strongly agreed that the content is of high quality and nobody strongly disagreed that the content quality was low; in the case of older version, there was nobody who strongly agreed that the content quality was high, although there were answers indicating the strong disagreement that the quality was high). The answers presented in a diagram resemble normal distribution with the majority of answers concentrating in the neutrality towards the statement.

Learnability

Just like in the cases of simplicity and directness for the second experiment, the similar trend has been shown here as well. The respondents agreed that the logic of the website was easy to learn. Thus, the answers of the respondents suggest that the website was intuitive and consistent. In the case of the older version, the trend was similar, although there were a few answers towards more negative perception.

Open feedback analysis (issues)

The open feedback provided an opportunity for the respondents to mention and clarify the issues or problems they have encountered when using the website and have a structured and guided discussion to offer them a basis for elaboration.

The open feedback in free format, which was recorded, was later coded to generalized categories for a possibility to conduct qualitative analysis.

Based on the analysis of the open feedback for perceived usability category, it can be stated that the new version of the website was more usable. This can also be seen in the previous section with analysis, as *simplicity* and *directedness* received relatively high scores and the majority of the respondents had no issues of using to share. However, navigation was most mentioned problem area, followed by the lack of search function: as *efficiency* was lower than other perceived usability parameters, this is also reflecting through the previous section, but adds more insight. In the first experiment, the parameter of *efficiency* was also evaluated lower than the others, so as was *informativeness.* The open feedback has revealed that unstructured layout was the main reason behind lower scores for *efficiency* (versus navigation in the case with older website), whereas weak editorial content was a common problem among the majority of the participants in terms of *informativeness* (Figure 8).

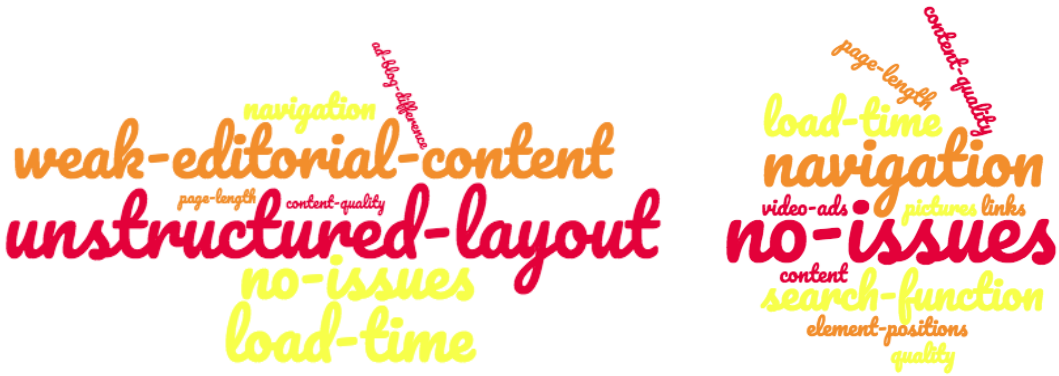


Figure 8. Visualization of open feedback analysis for perceived usability (issues).
Figure 8a (left). First experiment (old site).
Figure 8b (right). Second experiment (new site).

The following representative quotes support the analysis of the old site and highlight the problems identified within *efficiency* and *informativeness* domains during the first experiment:

> *"It wasn't difficult, but there were so many things and the same things were appearing on the different sites then. I wasn't sure how I should go back to*

find something because, they put the information so that it's easy to find but then, it was kind of, everything was everywhere." (Respondent 1.1)

"The layout was busy." (Respondent 1.5)

"The actual layout was messy." (Respondent 1.11)

"I preferred the design and the visual elements to the content. It was, white and pretty, clear even though there were many things." (Respondent 1.7)

Several representative quotes supporting the analysis of the new site (second experiment) are presented below. They indicate that *simplicity* and *directedness* have had no issues, whereas in the domain of *efficiency* the users had issues (reflecting in navigation problems):

"No issues really. I mean, everything opened up very quickly. You scrolled and you get everything, up there. So, everything you know that the website will offer, it's right there in front of you." (Respondent 2.3)

"I had a couple of times a little difficulty with the menu. Because it, opened under it and then when I moved I suddenly was in the other section. Even if I didn't mean to do that but I, learned that quite quickly how it worked so it was only in the beginning. (Respondent 2.5)"

4.2.2 Affect, aesthetics and emotion

Please refer to Appendix 6 for the relevant charts with data visualization for each attribute. The findings from the data analysis are presented below: first the findings from the Likert scale questions, followed by open feedback on feeling towards the appearance of the website.

Analysis of Likert scale questions

Color

In the case of the second experiment (new website), the colors were liked and considered appealing: the majority of respondents believed that the color used in a product/service is likable or vivid. In the case of the older version, the answers were leaning more towards the left side of the Likert scale, however still the majority of participants answered positively.

Delicacy

In the case of the later experiment with the new website, the respondents did not have disagreement that the website is elaborate, or finely and skillfully made. However, in the case of the older version, the respondents leaned more towards agreeing the website is delicate (the quality of the website design and visual elements high), although there were also respondents who disagreed.

Luxuriousness

In the case of the new website, there were no strong agreement or disagreement towards luxuriousness and the website being expensive and superior in quality. The older version results resembled normal distribution of answers, majority being neutral. Altogether Luxuriousness looked better for the new website.

Attractiveness

In the case of the new website, the users in majority perceived it to be pleasing, arousing, and interesting. The case of the older website leaned more towards the left side of the Likert scale with answers of strong disagreement and disagreement available. When compared, new version can be said to be more attractive. Also, open feedback from the participants (who participated in both experiments) supports this conclusion.

Simplicity (affect view)

Older version of the website gained more agreement for simplicity. The users perceived the way the product looks simple, plain, and uncomplicated (i.e. clean layout).

Open feedback

Based on the analysis of the open feedback (they were asked to explain about their feelings towards website appearance) for affect category, it can be stated that the new version of the website was perceived stronger in appearance for its clean layout, good color choices and positive feeling about the first impression, although lack of uniqueness was the next most mentioned problem area (Figure 9). This can also be reflected through visibly more positive perception for *color, delicacy* and *attractiveness* seen in the previous section with the analysis. The content quality (in this case aesthetics view) that was a major focus point in the first experiment, was not mentioned as much at all (although comments about unattractive pictures took place

still). However, for both times the participants emphasized the averageness of the website and its lack of uniqueness, which explains biased distribution of ranking for *luxuriousness* in the previous analysis. The open feedback went in-line with the responses gathered from the multiple-choice questionnaire and opened up more details regarding each category (Figure 9).

Figure 9. Visualization of open feedback analysis for affect category (feeling).
Figure 9a (left). First experiment (old site).
Figure 9b (right). Second experiment (new site).

Several representative quotes supporting the analysis of the old site (first experiment) are presented below:

> *"It's quite normal. There is nothing special or, really nothing fashionable or something. It's clean, good and easy to use but there are no special things that, when I enter I would be wowed by, i.e. interesting design for instance." (Respondent 1.11)*

> *"The visual elements are little bit boring." (Respondent 1.6)*

Several representative quotes supporting the analysis of the new site (second experiment) are presented below:

> *"It was quite appealing from the first sight and looked clean, there are many nice pictures and especially pictures of some design of space and rooms and interior design. But, I cannot say that it was luxury or superior." (Respondent 2.3)*

> *"Basically, some of the adverts that didn't really go with the style." (Respondent 2.9)*

4.2.3 User value

Please refer to Appendix 6 for the relevant charts with data visualization for each at-

tribute. The findings from the data analysis are presented below: first the findings from the Likert scale questions, followed by open feedback on user value.

Analysis of Likert scale questions

Self-satisfaction

In both experiments the majority of the users agreed that the website satisfaction with oneself or one's achievements. However, in the case of the old version some users also disagreed that the website met their expectations; in the case of the new website there were no users who disagreed.

Pleasure

In the case of the new website, the users in majority were pleased interacting with the website. The case of the older website leaned more towards the left side of the Likert scale with answers of strong disagreement and disagreement available.

Customer need

The similar trend with the previous category can be observed. In the case of the new website, the users in majority were pleased how functions and appearances of the website satisfy the user needs. The case of the older website leaned more towards the left side of the Likert scale with answers of strong disagreement and disagreement available.

Sociability

In the case of the second experiment, majority of the respondents either agreed towards the statement regarding satisfaction of the user's desire to be sociable. In the case of the old website, majority of the users were neutral.

Attachment

In both cases the participants were neutral about the ability for the user to attach subjective value to the website. however, in the case of older website strong majority were neutral, whereas in the case of the new website, a few users also had strong agreement on the attachment.

Open feedback

Based on the analysis of the open feedback for user value category, negative feedback dominated for both, in particularly for the low content value (e.g. *customer need*) and unlikeliness to recommend (e.g. *sociability*). However, the new version of the website had more positive statements, such as likeliness to return and recommend. The content quality (if in the affect category it was referred to visuals, here more in the value aspect) that was a major focus point in the first experiment, also appeared in the new website. The open feedback went in-line with the responses gathered from the multiple-choice questionnaire and opened up more details regarding each category: it indicated that user value is the weakest category and seeks for improvements the most. (See Figure 10)

Figure 10. Visualization of open feedback analysis for user value category.
Figure 10a (left). First experiment (old site).
Figure 10b (right). Second experiment (new site).

Several representative quotes supporting the analysis of the old site (first experiment) are presented below:

> *"I think I could go there a few times like give them a chance, if they have something else in there would it be more appealing to me, something. But I think I wouldn't be a regular user." (Respondent 1.6)*
>
> *"I doubt I would go back. I was expecting more because, somehow I think if you have a magazine that you would have a lot more content, on a website." (Respondent 1.7)*
>
> *"If I end up to that kind of page, I might be engaged and then browse around, but if I have no reason to go there. I might not recommend it to someone." (Respondent 1.14)*

Several representative quotes supporting the analysis of the new site (second experiment) are presented below:

> *"I might actually return to see the lifestyle part. That was nice. And some of the, of course now the summer is coming so you're looking for summer trends and tips and that kind of stuff." (Respondent 2.9)*
>
> *"I don't see myself as recommending a website to a person." (Respondent 2.3)*
>
> *"I couldn't find any information that would attract me. I think I'm more like person who would like to see something concrete. It would be nice to have some calorie calculator or, calculator of how many calories you have lost or what diet can be or don't know. Fashion trends this spring or this summer. Something concrete." (Respondent 2.5)*

4.2.4 Overall

The last question of the questionnaire measured the overall values of user's experience from interacting with a website, when users had to select five adjectives to describe their overall experience from interacting with the website. Figures 11 and 12 represent a summary of the words they picked visualized through a word cloud.

As can be seen from Figure 11, in the case of the experiment with the old website the users used the words *easy*, *ordinary* and *clean* the most to describe their experience, followed by *expected, fresh, inspiring* and *simplistic*. Other words that were used more than twice included: *boring, clear, friendly,* and *impersonal*. It indicates well that users found the website to be usable and regular, however with lacking user value and some affect.

As can be seen from Figure 12, for new version of the website the participants used *easy* and *inspiring* most frequently, followed by *sophisticated, clean, clear* and *entertaining*. Among other words, that were mentioned more than twice were: *appealing, consistent, convenient, fresh, friendly* and *simplistic*. All these are quite positive, compared to the list presented for the older website. User value was positively brought up, as the words *sophisticated* and *entertaining* were frequent.

Figure 11. Word cloud based on reaction cards, the last question in the overall subjective UX measurement (questionnaire). First experiment.

Figure 12. Word cloud based on reaction cards, the last question in the overall subjective UX measurement (questionnaire). Second experiment.

4.2.4.1 Comments from respondents, who participated in both experiments

The users, who have participated in the first session, have clearly indicated that the website has significantly improved since the first session. According to the respondents, the improvements were mostly associated with the content of the website in terms of user value, the look and feel of the website (affect) and the overall experience of interacting with the website.

Clean design has been mentioned more times, than any other elements, which respondents felt positively about:

> *"I liked that it was clean. Clean-cut and well-organised. The adverts weren't intrusive, like last time. They were kind of, they were there but you didn't really pay attention to them. And the content was a lot better." (Respondent 2.10)*
>
> *"Overall new site is better than previous, improved layout, ease of use, content." (Respondent 2.8)*
>
> *"I liked that the pictures were bigger and more visible. And the, I suppose also the fact that the design of the website had changed into a*

more clear-cut and well-presented, wholesome presentation. That you found what you were looking for, and then the, I suppose the text for the different titles were also, more improved. Because they seemed more interesting this time." (Respondent 2.9)

At the same time, the advertisements were the element, which was disliked the most, saw an improvement according to the user, who participants in the first wave of experiments.

4.2.4.2 Interviews

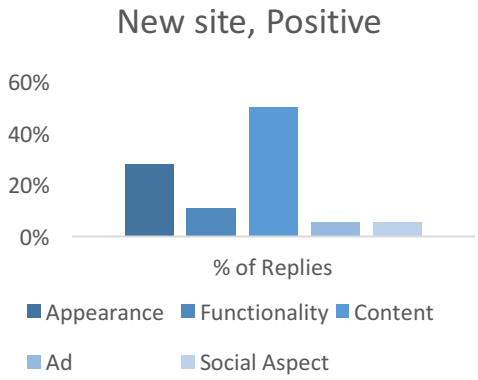
As a part of the sessions, interviewees were asked to describe three elements they liked, and three elements they disliked about the website at the time to locate deeper insights from the users to present for the party that commissioned the thesis. This section will therefore present the findings from the discussions with the users on the three elements they liked in particular and the three elements that they disliked.

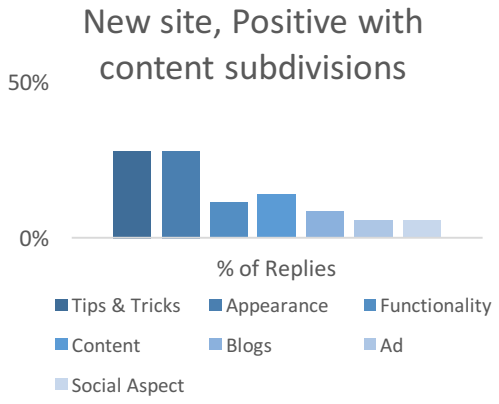
The results of the study were presented to the commissioned party 3 months after the experiments took place. They included business relevant results with more details as to the specific blogs, celebrity endorsements and deeper insight on the specific details of the website elements. Due to the academic nature of this paper and for the purpose of focus, but also to follow the goal of this paper, the detailed findings on the specific elements will be omitted here and the more generalized summaries will be presented.

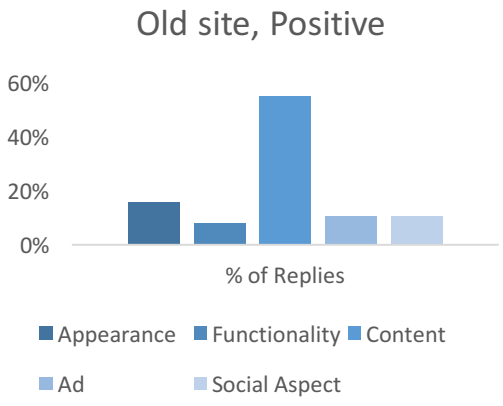
The free form answers were categorized thematically. The categories that showed up regularly in the answers were as follows: Appearance, Functionality, Content, Ads, and Social Aspect. Categorization was subjective to the interviewer's (author's) judgment, and answers were allocated to the categories based on which they fit the best. Each positive finding was scored categorically separate from negative findings, so as to present the distribution of answers for both positives and negatives. It should also be noted that the category of Content included the following most discussed elements (which were also clustered based): Tips&Tricks, Blogs and Page content (coded as Content in charts with subdivisions). The category of Social Aspect could be further subdivided to User community and Social Media categories,

when the users discussed about the community page of the website, as well as embedded elements of sharing and embedded social media platforms (e.g. Instagram was the most mentioned one, but also Spotify and Facebook).

It can be observed from Chart 4a, that in the case new site, Content was the most discussed positive thing, followed by Appearance and Functionality. Very similar trend can be observed also in the case of older version of the website: Content was the most discussed positive element, followed by Appearance and Functionality. Ads and Social Aspect were talked more about in the case of older version, whereas the Appearance was talked about less. As for the deeper insight into Content, the detailed Charts 4a and 4b (right), indicate that in the case of the new website version, Tips&Tricks Content was favorited as many times as the elements related to the Appearance of the website. As for the case with the old website, Blogs were a clear favorite.







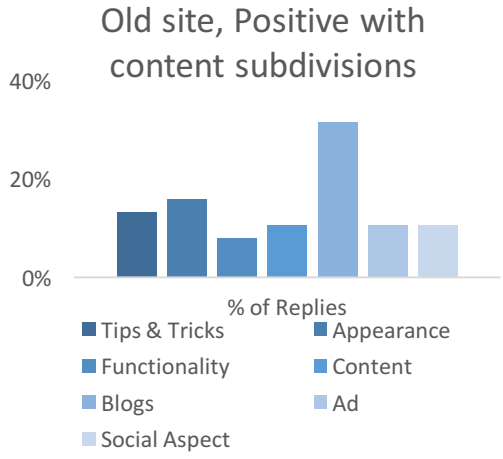


Chart 4. Quantified data on discussion about the three most liked elements.
Chart 4a (upper left and right). Experiment with the new website.
Chart 4b (lower left and right). Experiment with the old website.

It can be observed from Chart 5b, that the old site had a clear issue with the content, even though as can be observed from the earlier discussion, content elements were also the most liked ones. The detailed split of Content into subdivisions (Chart 5b right), demonstrates that Page content was disliked the most, followed by Ads and social Aspect. In the case of the new website, Ads were disliked the most, followed by Functionality.

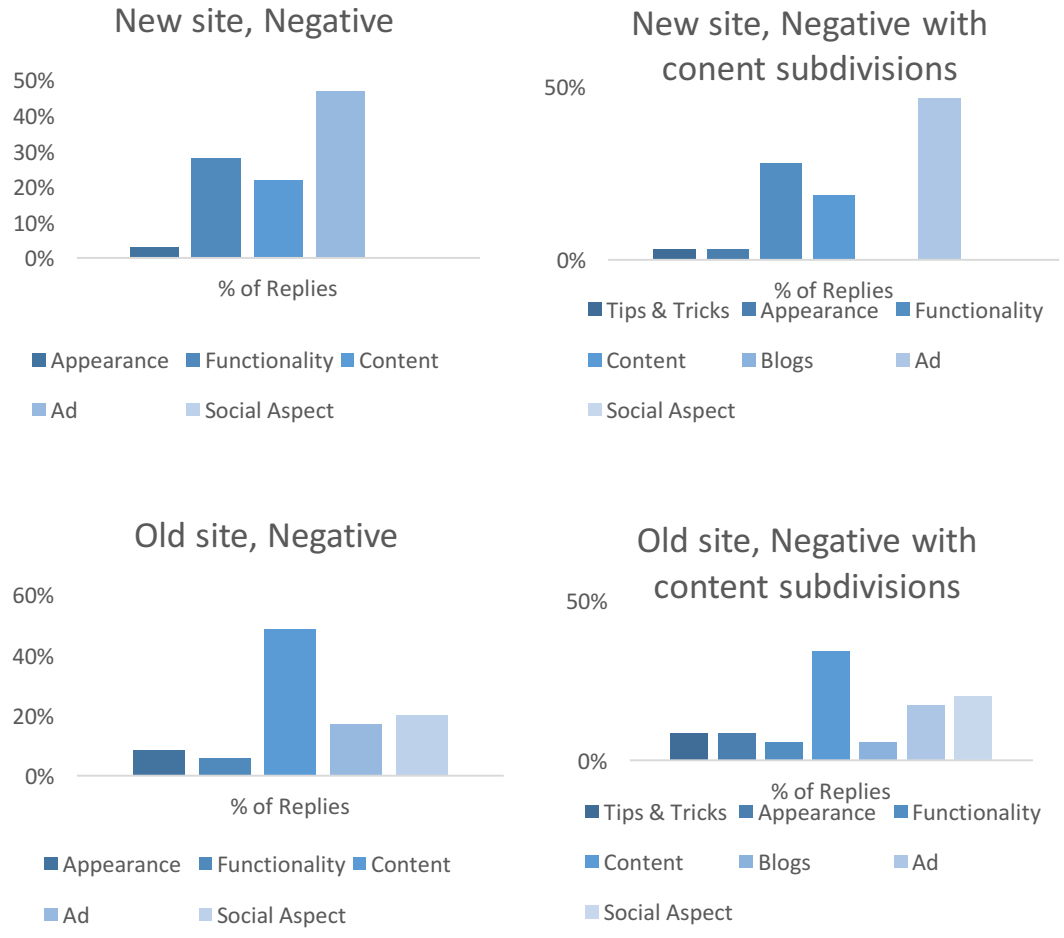


Chart 5. Quantified data on discussion about the three most disliked elements.
Chart 5a (upper left and right). Experiment with the new website.
Chart 5b (lower left and right). Experiment with the old website.

Advertisements and celebrity endorsement: additional insight

Some elements clearly stood out in the discussion, thus Escada and Ellos (top background) advertisement was noticed, remembered and liked by the big majority of respondents, who mentioned that it *"blended with the environment and the theme of the website", "was appealing"* and *"beautiful".*

The advertisements, which fell into the category of disliked elements, did not have the content associated with the website theme. For example, the advertisements of canned pineapple, bread sticks and skin renewal, which appeared on the front page, have been noticed by the users and remembered with the negative angle, however they have affected the trustworthiness perception of the website by the users.

As for the celebrity endorsement, one interesting fact stood out: the picture with Victoria Beckham, a famous celebrity, has been noticed a talked about a lot. However, the picture was perceived in a relatively controversial way. Thus, independently from the website experiment, users perceived her either in a very positive or a very negative way.

4.3 Objective UX measurement: physiological and behavioral responses

4.3.1 Heatmaps

The data recorded through eye-tracking sessions has resulted in the data output in the form of tables with fixation and other information and heatmaps. Several selected heatmaps (the most representative) are presented in Appendix 4. Heatmaps allowed to understand the real user behavior and identify, how participants react to the content and other specific behaviors, but also provide insights for page optimizations and content interactions. More detailed and specific findings on certain elements and interactions have been presented to the party commissioning the research, however they were omitted here and generalized to stay focused with the purpose of the research.

Engagement

As it was discussed in the literature review, engagement is one of the most crucial marketing metrics today for website optimization. The heatmaps revealed that the users were engaging with the majority of all the content on the page, which was considered to be important, in this case advertisements.

Distraction

The heatmaps indicated that the visitors were not distracted in general, as the cursor activity was not spread all over the page, but it was focused on the pages' key messages and call to actions. However, in the case of new website it could be observed that in some of the heatmaps, a clear pattern of focusing on selected pictures could be seen, which could mean that the users are not interested in other content on the page, as there is high activity on very small areas.

The users have also engaged with the navigation heavily on both versions. It could mean the high level of complexity in navigation (the users are confused with the structure) or it could also mean that the users were not able to find easily what they needed. This has also been revealed in the open feedback and self-reported metrics through problems with *efficiency* and *informativeness*.

Depth

The heatmaps show that the readers mostly reached all the content in the entire scroll of the page. However, the reach was not an issue. As some of the findings from self-reported metrics suggested in the case of the new version in particular, the elements to ease the scroll were missing to make it more efficient and fast (e.g. *efficiency*).

The heatmaps (Appendix 4) indicate that the users focused on top part of the website independently of the page they were visiting in both cases. Thus, it can be seen that participants followed the most common or wide spread reading pattern, an F-shaped pattern, when they were scanning through website pages. According to the research by Nielsen (2006), F-shaped pattern is a typical web page reading behavior. The top bar of F is represented by the users' initial focus on a horizontal move-

ment across the top part of the content area. The lower bar of F is formed, because then the users move down the page to read across the second horizontal movement covering a shorter area than the previous one. The stem of the F is form when the participants scan the content's left side vertically, which is often a slow and systematic scan appearing as a solid stripe. When the users move faster, they create a spottier heatmap. (Nielsen, 2006)

Attention to advertisements

One of the design intensions was to make the users interact and see the advertisement content. In both cases, but stronger in the new version, certain advertisements have had focused attention of the users, particularly, if they have been well-integrated and appealing, such as the one located in the top of the page and in-content ads. Picture content had focused attention as well. The intensity of fixations was high according to the red color appearing on the maps. However, although the users have seen the advertisement, their perception of this element was often negative, as could be observed through discussions with the users.

Both the eye-tracking data and the self-reported data have indicated that participants selectively memorized certain advertisements, which clearly were sticking out of the website environment, whether or not they were related to the theme of the website content. However, the advertisements, which were not related to the website theme or were badly designed, have not been perceived well and thus impacted also *trustworthiness* in the user value and various parameters in the affect category.

4.3.2 Responses collected via facial recognition

The preliminary basic analysis of face expression data has produced controversial results, which indicated that the prevailing emotions from interacting with the website were sadness and neutrality (Appendix 5). While majority of the participants were of the Nordic origin, it could be explained by the general emotional state, which is typical for the residents of Nordic countries. Moreover, the website content itself can be considered neutral and is not supposed to created certain emotional states, but rather serves the purpose of relaxed reading for entertainment purposes. The general

trend observed in the timeline of experiment is the excitement and happiness in the beginning of the experiment followed by the concentration and overall more stable emotional state.

5 DISCUSSION

The objective of this study was to understand, explore and analyze the user experience with the holistic angle in the context of online media industry in Finland. The following sections will illustrate the implications of this research and provide a discussion for the research questions.

The study provides new insight for future investigations of user experience in the context of media and online magazine business in particular. In contrast with the existing previous research, the following study proposes a different perspective on understanding the user and consumer behavior in the context of digital media industry. Studying online magazines through the lens of UX allows to empathize with the user on various levels.

The study also has further implications for researchers and business practitioners. One of the implications is the holistic approach in the form of comprehensive framework, which is formulated to explore the user experience of an online magazine website in the case context. Another is the way the results can be translated into actionable insights.

As stated in the beginning of the research, the main research question is the following:

How can the user experience exploration benefit online magazine development?

Sub questions accompanying the main research question as follows:

1. How can the total user experience of the online magazine website be explored?
2. How can the user experience exploration benefit ongoing iteration of online magazine website design?

5.1 How can the total user experience of the online magazine website be explored?

The study has attempted to grasp the total user experience by first reviewing a broad collection of available literature with various angles on UX and incorporating several research methodologies to collect the data. The open feedback allowed understand-

ing details behind certain results for simple post-session quantitative UX evaluation with further interviews on details and deeper insight. Objective measurement helped to see the real behavior of the users for matching it with the subjective data and vice versa.

The experiment was designed to capture the entire interaction with the system's perception based on the conceptulization of UX by Hassenzahl and Tractinsky (2006). The scope of entirety of the UX suggested by Hassenzahl and Tractinsky (2006) proved to be sufficient in capturing holistic User Experience and grasp hedonic aspect of users' interactions with the website. As Hassenzahl and Tractinsky (2006, p. 95) also discussed that UX is a consequence of characteristics of a system, user's internal state and the context of use, the study has shown that each experience is truly unique, but is conditioned by the attributes of the online magazine website, user's own perceptions and pre-set laboratory context of use. Although some authors suggest that the holistic approach to UX makes it difficult to examine its various dimensions, the author has taken a challenge to attempt a dimensional analysis of UX and suggest the combination of methods for carrying it out.

The study has proven that the applied way to explore the UX works to cover the broad scope of the concept. The profound exploration of perceived usability, affect (emotion and aesthetics) and user value formed the solid basis for the understanding of the big picture of the overall UX. For instance, in isolation the patterns found on heatmaps do not alert about significant problems or otherwise cannot be explained. Once the open feedback from the users adds, the patterns gain deeper insight and meaning. For instance, as the literature review suggested, an insight on perceived usability gave an understanding on instrumental and pragmatic aspects of the product and identified the relevant issues, which were also verified during multiple stages of research and gained deeper insight on details behind each issue: for example, unstructured layout, navigation problems and the lacking search function. The literature suggested that all the apparent attributes have a connection with user satisfaction, affecting intent to use products, and the users' insights gained from the study have followed similar pattern. The literature review and particularly the recent studies on the topic have also suggested that user value is one of the most important components of the UX. This study found that user value ranked relatively low in compari-

son with two other categories in question (perceived usability and affect, emotion and aesthetics), which is alarming.

5.2 How can the user experience exploration benefit ongoing iteration of online magazine website design?

The exploration of the holistic user experience proved to be beneficial for the publishing house to understand, how they can meet the users' goals better and unlock new revenue potential. From the practical point of view, it allowed drawing conclusions and advice for further UX design iterations.

The literature stated the main the reason, why holistic exploration of UX is more valuable than a usability test. It is in understanding the nature behind actions of the users, which a usability test cannot provide. This has seen a proof in the following research, for example with the cases of not being able to get valuable and concrete insight from the heatmaps stand alone.

According to the literature, intended user experience should be placed in a central role of the specific context and design process, therefore the study framework has been developed to include not only the online magazine user (user), online magazine website (system/product) and the outcome (experience), but also the side of the publishing house and the design process.

The study has also provided an insight in connection with the e-service design view (Alter, 2010) is similar to the UX model by Hassenzahl (2003). Although the study proves that the model of user-centric design is efficient, the publishing house should look into co-driven multifocus design, as the platform heavily relies on user generated content already.

The study has also helped to understand the divide between pragmatic and hedonic attributes of the website for better view on further design of the website with respect to UX: the division also gives an insight why UX itself cannot be designed, but you can design for UX (Hassenzahl, 2003). Thus, it can provide an insight on the apparent attributes as the users perceive them, in order to design for intended experience.

The literature has tied up performance marketing well with the user experience design domain. The insights received during this study provide basis for signification

conversion improvements, for instance in order to make relevant changes in the advertisement content.

According to the literature the holistic viewpoint is about three various time phases of UX: before, during the use and after the use of the website. Although this aspect has not been researched in this study significantly, it could be seen that the users are willingly including these aspects into their discussion and perception formulations: if they have used the website before and whether they used it after the experiment (this could be concluded through the user who participated in the first round and attended the second as well).

As the literature also suggested, the needs of the business and stakeholders should be understood as well, which were heavily taken into account and considered for the experiment design.

The literature suggested that guidelines from the evaluation of website experience provide for insight to make changes to design for addressing deficiencies and improving overall UX. In the case of this research, for instance designing for usability would mean addressing main issues found in the latest version of the website, such as search functionality and navigation logic.

One of the more frequent comments for the affect and user value research with the new version was about impersonality and trustworthiness of the website. Personalization and trust are at the foundation of successful online activities according to e.g. Ryan (2016) and Nielsen (1999) and the publishing house should consider, how highly targeted ads, personalized messaging, as well as programmatic ads, intelligent content platforms and omni-channel marketing can help develop personalization. One of the bases for trustworthiness according to Ryan (2016) was the clarity in main elements of the website, such as navigation, which had issues. Development of the ecosystem around the website is crucial for the social aspect and website isolation prevention.

6 CONCLUSION

The objective of the following research was to explore the UX of an online magazine website and outline the benefits of the exploration for design. The study examined User Experience exploration as an integral part of online magazine website development.

The digital media industry in Finland and worldwide continues to evolve, and so do the user behaviors and goals. As the technology develops, it allows creating more and more powerful experiences. This translates into the evolution of higher standards and users' demanding yet better and better quality of their experiences. Thus, the question of understanding the current experience with the goal of its improvement and creation of intended experience came up.

The exploration of UX provides technology driven companies an invaluable insight to user perceptions and behavior, as well as triggers for immediate modifications and longer term planning for new features and more radical changes. It provides basis to understand issues, feelings and value of the users through guided feedback and an opportunity to speak up freely about their experience.

6.1 Theoretical contribution

The studies on UX slowly grow in number, as the term is still peaking as a popular topic in online business or online activities of traditional businesses. The academic research on the topic is still somewhat limited, especially on the subject of overall UX with dimensional split.

Due to the fact that technology driven businesses today require efficient ways to understand the UX, academia is picking up the speed with developing the relevant theories, techniques and methods.

Further, this study made theoretical contributions to the existing literature on UX design by developing a UX model and building the relevant methodology for its implementation. The research showed that there are several types of information received through UX exploration: first it is the basic information guided by the designed sections according to UX components, but secondly there is an unstructured data.

To conclude, the following thesis supported the principles of user centric design by implementing them into the case company and as an outcome receiving clear and concise results, which can benefit the company further develop online magazine website.

6.2 Managerial implications

The case study of costume.fi demonstrated, how the UX of a specific online magazine website can be explored and how it can yield useful insights for further iterations and design. The study aimed at demonstrating that user centricity is important for website redesign and web design in general.

The results of this study have been used as an insight for further modifications and the process of iterative design, in order to improve the user experience.

User value

As introduced in the finalized framework of the study, UX comprises perceived usability, emotion and user value.

The research results have illustrated that all the dimensions of user experience can seek improvement, and user value in particular. The majority of the users have clearly indicated that the website is not unique and they did not see the reason, why they should be visiting it again, even if it looked nice and worked well.

The advisable change is to shift the focus on increasing the user value for better experience by making a magazine more engaging, captivating and unique. The last can be done through enhanced social aspect, engaging content, interactive elements, unique features, competitions, community development and content diversification. For instance, the competitions seen in the original version of the website were favored and noticed.

Revenue goals

In order to improve the advertisement revenue and conversion, the advertisements are advised to be part of the content and be blended in the website environment. Co-

creation of advertisements with partners is one more thing to consider. If the banner advertisments are created externally via partners, they should be provided with the relevant and strict design guidelines. The banner creation should be coordinated with the consideration of goals to be achieved with the ad placement, planned and agreed location of the banner. It is also important to balance profitability goals and trustworthiness aspect. While the online magazine website is still considered young and in the early stages of its product lifecycle, it is important to focus on traffic generation via unique content, editorial content and "wow" effect. That said and based on the evidence gained through literature review (e.g. Ryan 2016), revenue tools should be activated after the magazine becomes truly popular, not the other way around.

Continuous improvement

One of the suggestions is to not neglect UX exploration, as it allows to deep dive into users' behavior from various angles. Other lighter tests and automated experiments could allow the publishing house to have a continuous and resource efficient user research. Continuous UX measurement boost performance marketing, which combined with the exploratory study of this type, can translate quantitative data into actionable advice for designers.

6.3 Further research and learnings

The interactions with the online magazine can take place on other platforms and via many different devices (Ellonen, 2015) and it is important to note that the following study focused on desktop experience (Windows, Internet Explorer browser V.8) within the website. Further studies with the utilization of eye-tracking equipment can be developed to understand the differences based on device variations.

The study has not provided any deep insight, on whether there is any connection or peculiar observations found with the frequent readers of the magazine versus those, who were novice to the website nor connected background information of the users with their responses on a profound level. The future research should focus more on controlling this premise.

The following study has been a truly enlightening learning experience. It has provided a learning ground for understanding and grasping a biased concept, while focusing on its essentials. The study has also provided with the understanding that a lighter scope of experiment could be applied to reach the desired data volumes for research: a big body of data has remained unused (that is in particular related to the physiological and behavioral response data).

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APPENDICES

Appendix 1. Background questionnaire (translated from Finnish).

Name:

1) Gender
    a. Male
    b. Female
2) Age
    a. Under 21
    b. 21 - 25
    c. 26 - 30
    d. 31 – 35
3) Have you ever read the printed version of the Costume magazine?
    a. No
    b. I have browsed sometimes
    c. Yes
4) Have you used www.costume.fi page?
    a. Yes
    b. No
5) If you have answered positively to the above – then how often?
    a. Sometimes
    b. Once a week
    c. Daily
6) Do you visit other similar websites?
    a. Yes
    b. No
7) If you answered positively to the above, what do you usually do on the page?
    a. Reading blogs
    b. Reading the contents of the editorials
    c. Using social media content
8) How experienced of a digital media user do you consider yourself to be?
    1= Unexperienced
    2= Average
    3= Experienced
9) How active of a digital media user do you consider yourself to be?
    1 = Passive
    2 = Average
    3 = Active

Appendix 2. Interaction with the website: wording of tasks and interview flow.

Introduction

- Hi! Thank you for participating in the study!
- The aim of the research in to find out about the user experience of Costume online magazine.
- Here are some papers that you can read to get familiarized with and sign afterwards
  Data survey form + Consent form *Instructions form*
- Any questions?

General questions

- Before we start, I would like to ask you to feel the document with the basic data →Take the document: *Starting questionnaire*

Calibration

- First we will calibrate the device
- Please, retain your position throughout the session near the computer
- Every question will have its own guidelines before the start; read it through and click the mouse, when you are ready to approach it
- The tasks can be made one time

Feeling check-up

- If you have any question regarding the session, please, ask. The tasks are not difficult. Take them easy and do what you feel is right in your opinion

First task
”The tasks will related to the Costume website. Before we proceed to the actual tasks, please, spend 7 minutes to move around the website and check out the content of your interest.”
Second task
”Find 3 elements/items from the website that you like or feel especially good about. You will first be directed to the focusing page, after which you will be directed to the website. Click the mouse to proceed.”
Third task
”Find 3 elements/items from the website that you dislike or feel negative about. You will first be directed to the focusing page, after which you will be directed to the website. Click the mouse to proceed.”
Discussion
Final questionnaire

- Now the online session is over . Please, fill in this post session questionnaire to reflect on your experience. It should take couple of minutes. After that we can discuss it together a little bit.

End

- Thank you for participating in the study again!

Appendix 3. Questionnaire design.

Appendix 3.1. Frame of reference by Park et al. (2013).

Element	Sub-element	Definition
Usability	Simplicity	Way a product/service works is simple, plain, and uncomplicated (Subordinate concepts: Modelessness)
	Directness	Degree of user's perception of directly controlling the user interface of a product/service (Subordinate concepts: Accessibility, User control)
	Efficiency	Degree to which a product/service enables a task successfully without wasting time or energy (Subordinate concepts: Effectiveness, Effortlessness)
	Informativeness	Degree to which a product/service is instructive and gives all the necessary information to the user in a proper manner Subordinate concepts: Comprehensiveness, Explicitness, Visibility, Legibility/Readability)
	Flexibility	Extent to which a product/service can accommodate changes to tasks and environments beyond those first specified (Subordinate concepts: Adaptability, Seamlessness, Interoperability)
	Learnability	Time and effort required for the user to learn how to use a product/service (Subordinate concepts: Memorability, Familiarity, Predictability, Intuitiveness, Consistency)
	User support	Ability for the user to operate a product/service easily through its entire lifecycle (Subordinate concepts: Easy to install, Error prevention/Recovery, Forgiveness, Feedback, Helpfulness)
Affect	Color	Degree to which the color used in a product/service is likable or vivid (Relevant Vocabulary: Vividly colored, Off color, Colory, Colorful, Dim-colored, Warm/Cold-colored, Pale-colored, Dark/Light-colored, Reddish/Bluish)
	Delicacy	Degree to which a product/service is elaborate, or finely and skillfully made (Relevant Vocabulary: Delicate, Elaborate, Fine, Subtle, Precise/Imprecise)
	Texture	Degree to which a product's texture or touch appeals to the users (Relevant Vocabulary: Sandpapery, Smooth, Slippery, Greasy, Soft)
	Luxuriousness	Degree to which a product/service is luxurious or looks expensive and superior in quality (Relevant Vocabulary: Magnificent, Brilliant, Luxurious, Expensive, Superior/Inferior in quality, Shabby, Humble)
	Attractiveness	User's perception that a product/service is pleasing, arousing, interesting, and attractive (Relevant Vocabulary: Attractive, Cute, Pretty, Lovely, Splendid, Gorgeous, Charming, Adorable, Beautiful, Appealing, Captivating, Enchanting, Fascinating, Sensuous)

	Simplicity	Way a product/service looks is simple, plain, and uncomplicated (Relevant Vocabulary: Simple, Plain, Unsophisticated, Uncomplicated, Complex, Complicated, Concise, Condensed, Neat)
User value	Self-satisfaction	Degree to which a product/service gives a user satisfaction with oneself or one's achievements (Subordinate concepts: Identity, Challenge, Confidence)
	Pleasure	User's feeling of being pleased or gratified due to interacting with a product/service (Subordinate concepts: Fun, Relaxation)
	Customer need	Degree to which functions or appearances of a product/service satisfy the user's needs (Subordinate concepts: Eagerness, Expectation, Usefulness/Utility, Customizability)
	Sociability	Degree to which a product/service satisfies the user's desire to be sociable (Subordinate concepts: Social emotion, Social value, Friendship)
	Attachment	Ability for the user to attach subjective value to a product/service (Subordinate concepts: Novelty, Preciousness, Trustworthiness)
Overall user experience (UX)		Overall values of user's experience from interacting with a product/service

Appendix 3.2. The underlying logic of post-session questionnaire applied to the frame of reference by Park et al. (2013).

PERCEIVED USABILITY

1. Was the website simple and easy to use? (simplicity)
2. Was it easy to move around? (directness)
3. Could you quickly find what you wanted? (efficiency)
4. Was the content quality high? (in formativeness)
5. ~~(flexibility)~~
6. Was it easy to learn the logic of the website? (learnability)
7. ~~(user support)~~
8. Did you encounter any issues/problems you would like to mention when using the website?
   Open

AFFECT

9. Were the colors of the website appealing? (color)
10. Was the design quality of the website high? (delicacy)
11. ~~Texture~~
12. Do you feel that the website is luxury/superior?(luxuriousness)
13. Were the pages attractive and interesting? (attractiveness)
14. Was the layout clean? (simplicity)
15. What do you feel about the appearance of the website in general?
    Open

USER VALUE

16. (self-satisfaction)
17. (pleasure)
18. (customer need)
19. (sociability)
20. (attachment)

Appendix 3.3. Post-session questionnaire.

Final questionnaire

Thank you for participating in the session! Please, kindly fill in the questionnaire about your experience below. After completing the questionnaire, we will discuss some of your answers briefly.

***

1. The website was simple and easy to use.

1=disagree, 5=agree

1 2 3 4 5

2. It was easy to move around.
1=disagree, 5=agree

1 2 3 4 5

3. I could quickly find, what I wanted.
1=disagree, 5=agree

1 2 3 4 5

4. The quality of content was high.
1=disagree, 5=agree

1 2 3 4 5

5. The logic of the website was easy to learn.
1=disagree, 5=agree

1 2 3 4 5

6. Did you encounter any issues/problems you would like to mention when using the website?

Open (To be discussed later)

***

7. The colors of the pages were appealing.
1=disagree, 5=agree

1 2 3 4 5

8. The quality of the website design and visual elements was high.
1=disagree, 5=agree

1 2 3 4 5

9. I felt that the quality of the website was superior/luxury.
1=disagree, 5=agree

1 2 3 4 5

10. The pages were interesting and attractive.

1=disagree, 5=agree

1 2 3 4 5

11. The layout was clean.
1=disagree, 5=agree

1 2 3 4 5

12. What do you feel about the appearance of the website in general?
Open (To be discussed later)

***

13. The website has met my expectations
1=disagree, 5=agree

1 2 3 4 5

14. I felt pleased when interacting with the website
1=disagree, 5=agree

1 2 3 4 5

15. The website was much of the interest to me and it was captivating
1=disagree, 5=agree

1 2 3 4 5

16. I would recommend the website to someone else
1=disagree, 5=agree

1 2 3 4 5

17. The webpages were attractive to me and looked novel and trustworthy
1=disagree, 5=agree

1 2 3 4 5

18. Do you think that you would go back to use the website?
Open (To be discussed later)

19. Any other comments?
Open (To be discussed later)

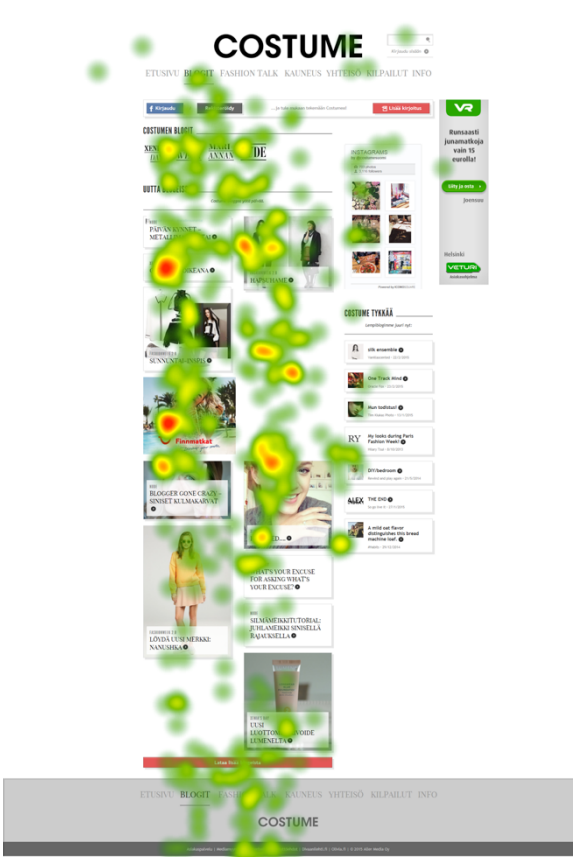
20. Please, choose (and mark) 5 adjectives that best describe the website in your opinion.

Accessible	Creative	Fast	Meaningful	Slow
Advanced	Customizable	Flexible	Motivating	Sophisticated
Annoying	Cutting edge	Fragile	Not Secure	Stable
Appealing	Dated	Fresh	Not Valuable	Sterile
Approachable	Desirable	Friendly	Novel	Stimulating
Attractive	Difficult	Frustrating	Old	Straight Forward
Boring	Disconnected	Fun	Optimistic	Stressful
Business-like	Disruptive	Gets in the way	Ordinary	Time-consuming
Busy	Distracting	Hard to Use	Organized	Time-Saving
Calm	Dull	Helpful	Overbearing	Too Technical
Clean	Easy to use	High quality	Overwhelming	Trustworthy
Clear	Effective	Impersonal	Patronizing	Unapproachable
Collaborative	Efficient	Impressive	Personal	Unattractive
Comfortable	Effortless	Incomprehensible	Poor quality	Uncontrollable
Compatible	Empowering	Inconsistent	Powerful	Unconventional
Compelling	Energetic	Ineffective	Predictable	Understandable
Complex	Engaging	Innovative	Professional	Undesirable
Comprehensive	Entertaining	Inspiring	Relevant	Unpredictable
Confident	Enthusiastic	Integrated	Reliable	Unrefined
Confusing	Essential	Intimidating	Responsive	Usable
Connected	Exceptional	Intuitive	Rigid	Useful
Consistent	Exciting	Inviting	Satisfying	Valuable
Controllable	Expected	Irrelevant	Secure	
Convenient	Familiar	Low Maintenance	Simplistic	

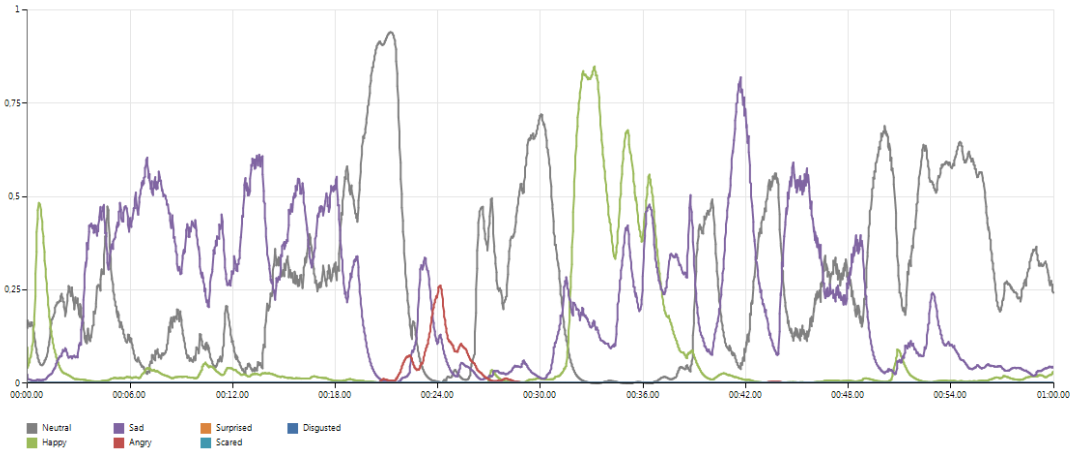
Appendix 4. Heatmaps.

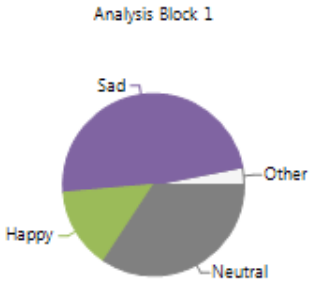
Newer website version.

Older website version.



Appendix 5. Emotional analysis samples (facial recognition).

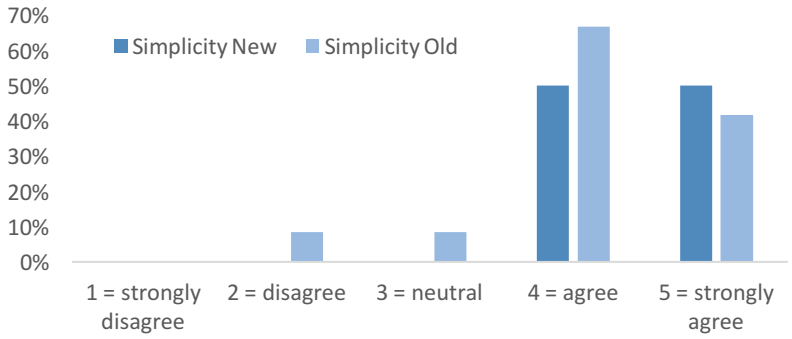




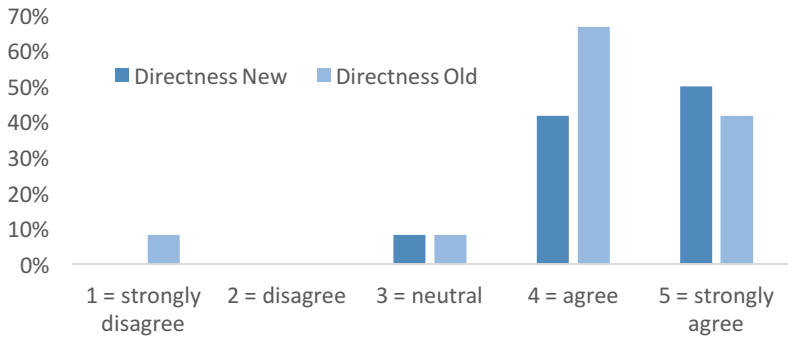
Appendix 6. Findings: post-session questionnaire on overall UX.

Perceived usability

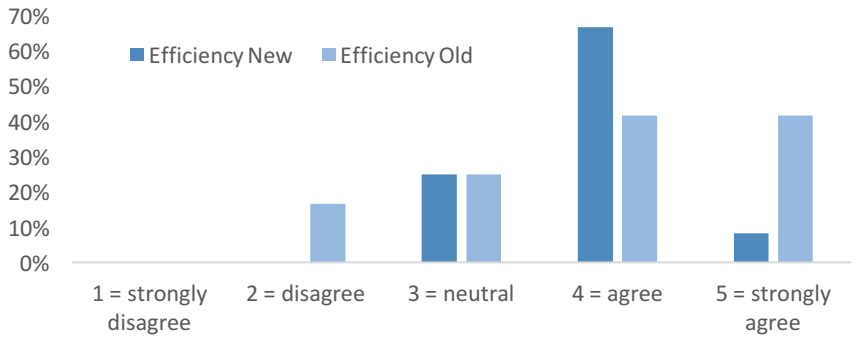
Simplicity



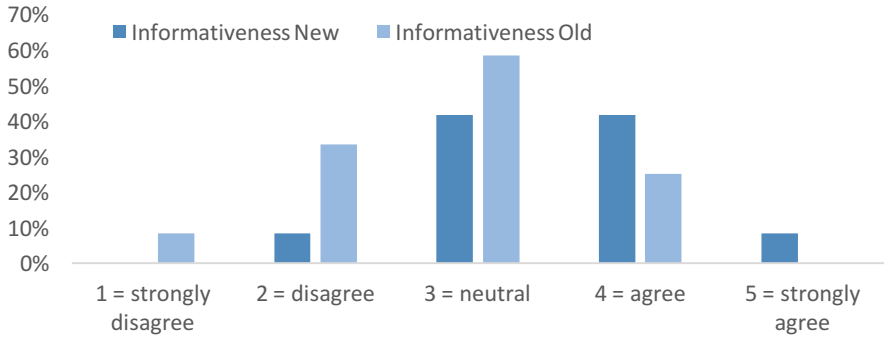
Directness



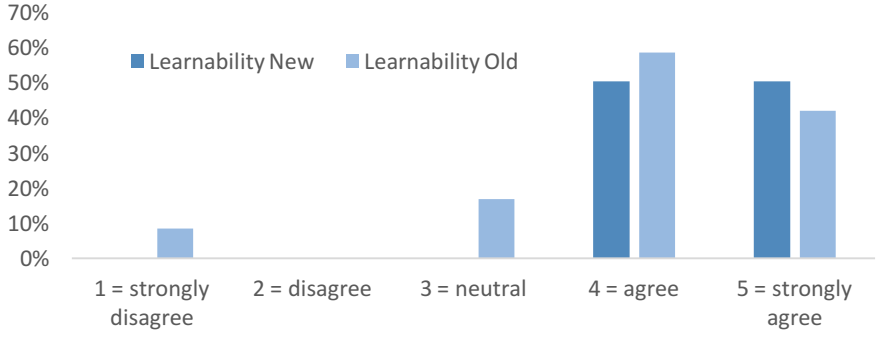
Efficiency



Informativeness

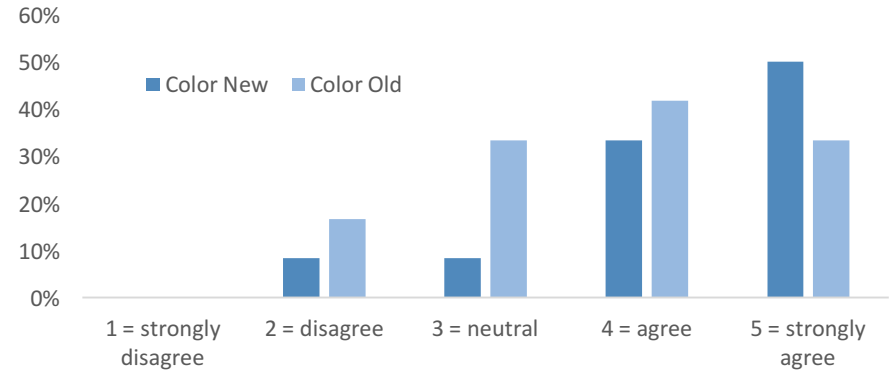


Learnability

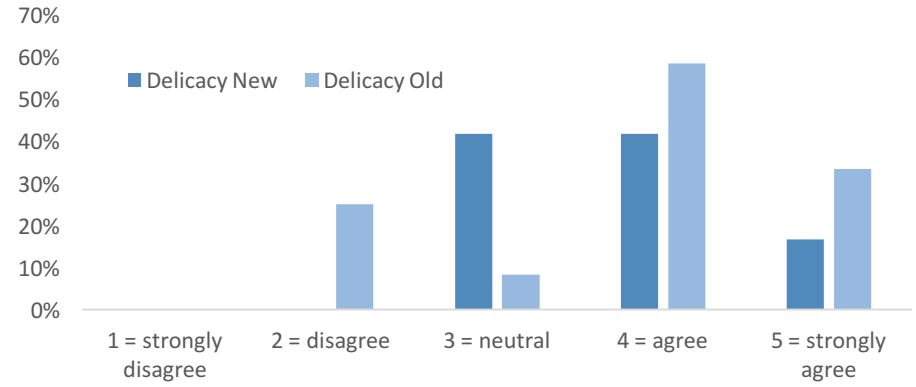


Affect

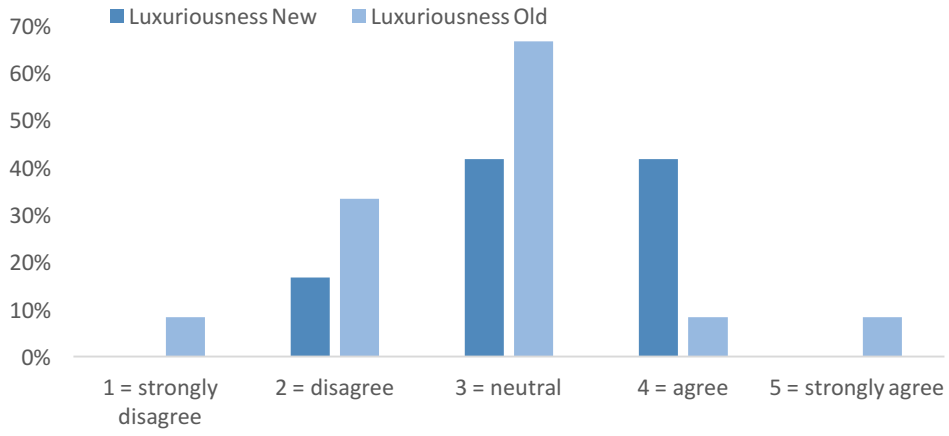
Color



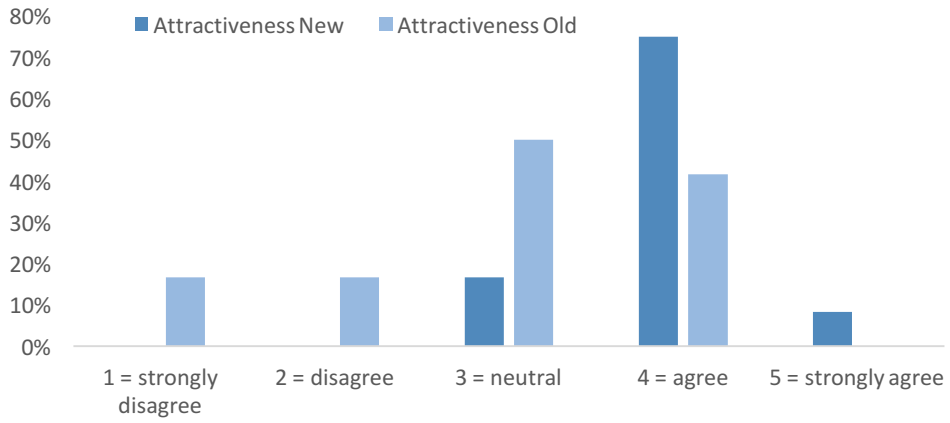
Delicacy



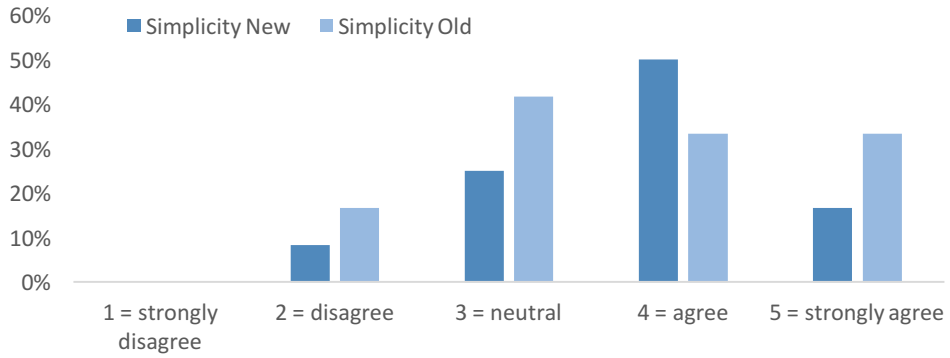
Luxuriousness



Attractiveness

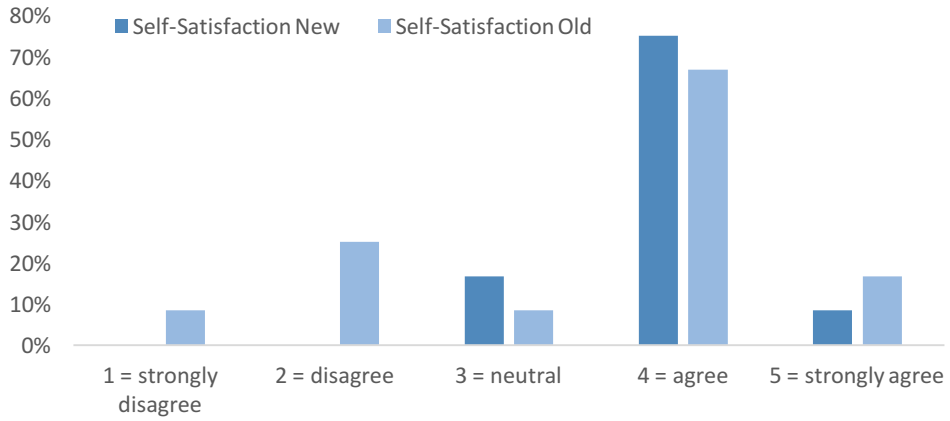


Simplicity (affect view)

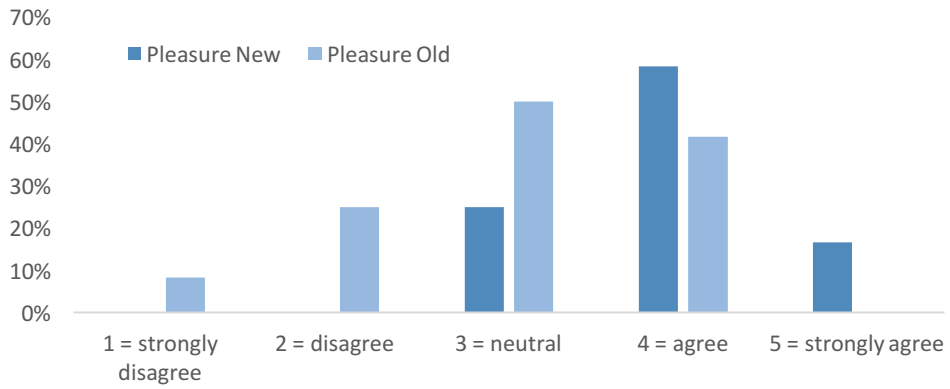


User value

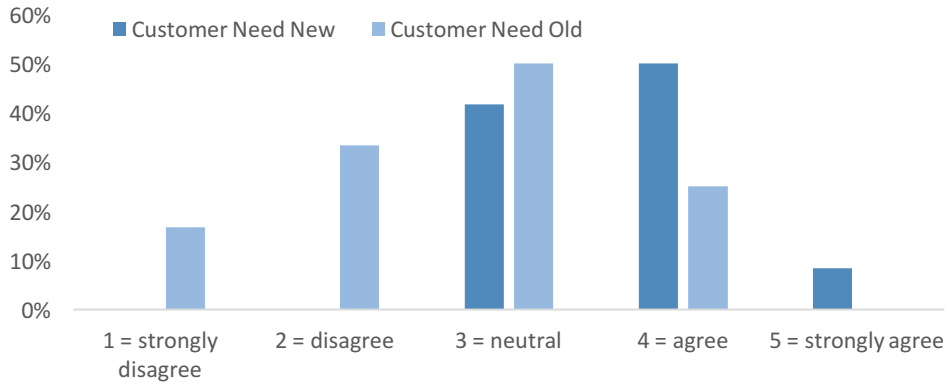
Self-satisfaction



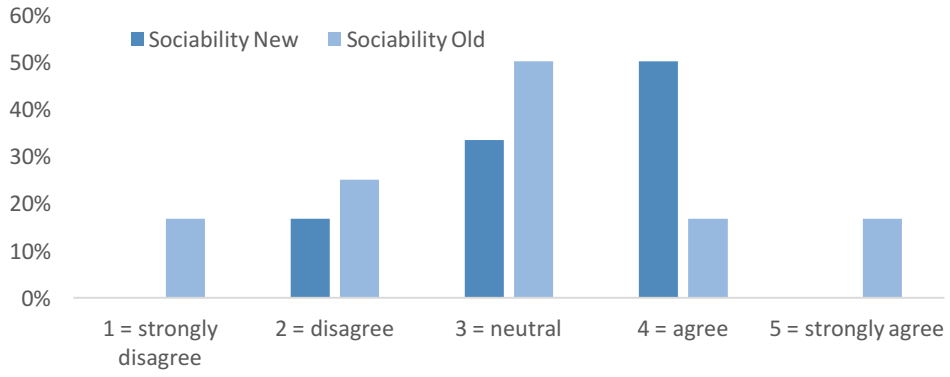
Pleasure



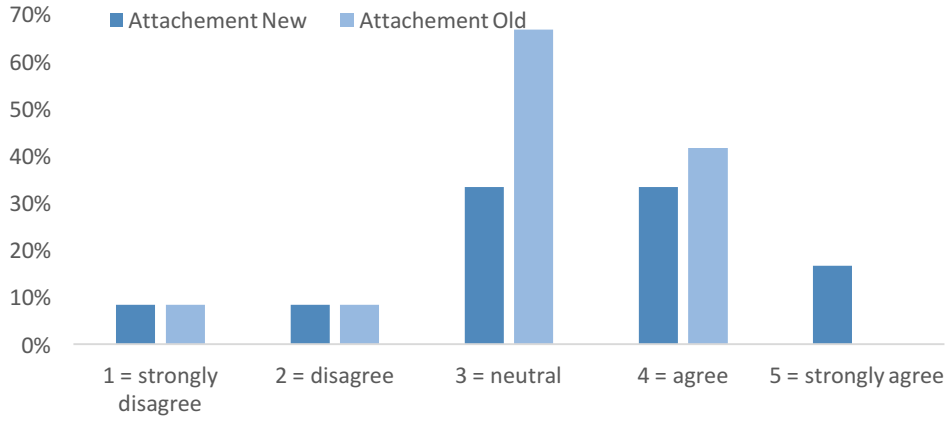
Customer need



Sociability



Attachment


70%
60%
50%
40%
30%
20%
10%
0%
Attachement New
Attachement Old
1 = strongly disagree
2 = disagree
3 = neutral
4 = agree
5 = strongly agree