

RIGOUR AND RELEVANCE IN USER EXPERIENCE RESEARCH:
INVESTIGATING THE PRACTICES OF UX TEAMS AND FIRMS IN
REMOTE RESEARCH CONTEXT

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INVESTIGATING THE PRACTICES OF UX TEAMS AND FIRMS IN
REMOTE RESEARCH CONTEXT**

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ABSTRACT

RIGOUR AND RELEVANCE IN USER EXPERIENCE RESEARCH: INVESTIGATING THE PRACTICES OF UX TEAMS AND FIRMS IN REMOTE RESEARCH CONTEXT

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User Experience (UX) research is an essential part of the design process that supports design activities by providing relevant user knowledge. Building on this knowledge, UX designers aim to find design solutions to ill-defined design problems by using creative thinking and exploration methods. To provide reliable and valid results in this process, UX research should be conducted in a scientific and structured way, addressing both rigour (meticulousness of the research plan and process) and relevance (usefulness of the outcomes). However, given the needs and limitations of the commercial settings, the practitioners need to focus on practical utility rather than scientific assumptions. This situation affects how rigour and relevance concepts are defined and implemented. Moreover, adopting remote ways of conducting UX research practices due to COVID-19 results in a reassessment of previous values. Therefore, understanding the commercial context and UX researchers' practices in remote settings is crucial in enhancing the transition from design research to practice.

This study aims to investigate rigour and relevance in UX research to suggest strategies for achieving useful and appropriate outcomes by considering commercial context. To achieve that, a comprehensive literature review was conducted on the

critical dimensions of research quality, and multiple-case study was carried out to illustrate firms' current UX research practices. As a result, recommendations on conducting 'good research', considering both practical utility and scientific assumptions, are presented. The outcome of this work, the Rigour and Relevance Model for UX Research, provides strategies and recommendations to improve the quality of UX research practices.

Keywords: UX research, UX research practice, rigour in UX research, relevance in UX research

ÖZ

KULLANICI DENEYİMİ ARAŞTIRMASINDA TİTİZLİK VE ALAKALILIK: KULLANICI DENEYİMİ EKİP VE FİRMA PRATİKLERİNİN UZAKTAN ARAŞTIRMA BAĞLAMINDA İNCELENMESİ

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Kullanıcı deneyimi araştırması, gerekli kullanıcı bilgisini sağlayarak tasarım faaliyetlerini desteklemektedir ve tasarım sürecinin önemli bir parçasıdır. Kullanıcı deneyimi tasarımcıları, bu bilgiyi temel alarak ve yaratıcı düşünme ve keşif yöntemlerini kullanarak tanımlanması zor olan tasarım sorunlarına çözümler bulmayı amaçlar. Bu süreçte güvenilir ve geçerli sonuçlar sağlamak için, kullanıcı deneyimi araştırmasının hem titizlik (araştırma planı ve sürecinin özenliliği) hem de alakalılık (sonuçların kullanılabilirliği) kriterleri göz önünde bulundurularak yürütülmesi gerekmektedir. Ancak, ticari ortamların ihtiyaçları ve sınırlamaları göz önünde bulundurulduğunda, kullanıcı deneyimi araştırmacıları, bilimsel varsayımlardan ziyade pratik faydaya odaklanmaya ihtiyaç duymaktadırlar. Bu durum kavramların pratikteki tanımlanma ve uygulama biçimlerini etkilemektedir. Dahası, COVID-19 nedeniyle kullanıcı deneyimi araştırmalarının uzaktan yürütülmesi, sahip olunan değerlerin yeniden ele alınmasına neden olmuştur. Bu nedenle, uzaktan çalışma bağlamında kullanıcı deneyimi alanına ilişkin ticari ortamı

ve kullanıcı deneyimi arařtırmacıların uygulama biçimlerini anlamak, bu tür arařtırmaların sonuçlarının uygulamaya geçiřini desteklemek için çok önemlidir.

Bu çalıřma, faydalı ve uygun kullanıcı deneyimi arařtırması sonuçları elde etmek için stratejiler önermek amacıyla, kullanıcı deneyimi arařtırma pratiklerinde titizlik ve alakalılık kavramlarını, sektör gerekliliklerini dikkate alarak anlamayı amaçlamaktadır. Bu amaçla, arařtırma kalitesinin titizlik ve alakalılık ile ilgili kritik boyutlarına iliřkin kapsamlı bir literatür taraması yapılmıř ve firmaların mevcut kullanıcı deneyimi arařtırma uygulamalarını ortaya koymayı amaçlayan çoklu vaka çalıřmaları yürütülmüřtür. Bunların sonucunda hem pratik faydayı hem de bilimsel varsayımları göz önünde bulundurarak 'iyi arařtırma' yürütmeye yönelik öneriler sunulmuřtur. Bu çalıřmanın sonucu olan UX Arařtırmaları için Titizlik ve Alakalılık Modeli, kullanıcı deneyimi arařtırmasında kaliteyi artırmak için stratejiler ve öneriler sunmaktadır.

Anahtar Kelimeler: Kullanıcı deneyimi arařtırması, kullanıcı deneyimi arařtırması uygulamaları, kullanıcı deneyimi arařtırmasında titizlik, kullanıcı deneyimi arařtırmasında alakalılık

To me or not to me.

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CHAPTER 1

INTRODUCTION

Design is the process of intentionally shaping and changing the environment by generating products. Cross (2008) an influential author on design methodologies and practices, describes these design activities as a complex process that can be done in a "designerly way". The designerly way is not just collecting and compiling essential information and solving the problem; it requires systematically working on the design problem to develop and reveal the layers of the project and reflection of designer intuition and approach as solutions. Design activity is a complex and dynamic process different from other scientific disciplines. Design problems are ill-defined and have complex, ambiguous and dynamic characteristics, which makes them different from well-defined scientific research problems (Schön, 1983; Simon, 1996). The goal of design practice is to generate new artefacts and find novel solutions to these wicked and unstructured design problems, which require creativity and exploration (Nelson & Stolterman, 2012). The uniqueness of each design process and the development of new products make finding new and novel solutions challenging. Therefore, designers must actively conduct various design research activities to explore and understand the problem. So, design activities can be considered a type of research activity that provides solutions by using data from several sources (Krippendorff, 2007). Thus, it is not easy to separate the design research from the design activity itself. Understanding the user as a part of the design research can be considered a vital source in the design process. Heskett (2005) explains that design activity responds to problems by shaping the environment and producing new products; therefore, designers should focus on users' needs and expectations. To meet users' needs and expectations, designers need to internalise

the nature of the interaction between products and users by gaining empathy with target users. This interaction should be investigated by conducting user research, which provides in-depth user information and inspires designers.

Over the last two decades, there has been an increasing interest in the experience that the product provides rather than the product itself. In the early 21st century, studies conducted by researchers such as Tractinsky, Katz, and Ikar (2000) Hassenzahl (2001) and Jordan (2000) show that usability is not the only factor that affects the quality of interaction, and it should be examined within a broader perspective. Designers have given more importance to understanding the user to provide a meaningful experience at the centre of the design process. Therefore, as a term, User Experience (UX) has been adopted to emphasise this holistic perspective towards users by including various dimensions that address both pragmatic aspects (i.e., task-related qualities and behavioural goals) and hedonic features (emotions, memories, and meanings) of user and product interaction (Desmet & Hekkert, 2007; Hassenzahl, 2010a). Moreover, regarding literature defines UX with three key elements: users, products/ systems, and use environment, though these elements encompass various dimensions such as social, cultural, economic, past experiences, emotions and usage time (Desmet & Hekkert, 2007; Forlizzi & Betterbee, 2004; Karapanos et al., 2012). Furthermore, Nielsen and Norman (2014) mention that user experience should address the entire context of human-product interaction by including the company, its services, its products and the social context and ideas of its users. Therefore, the user experience of products also includes the perceptions about brands, firms and services they offer in the commercial context. In this study, user experience has been defined by considering dimensions and elements of human-product interaction, including the commercial context of products. Since the nature of UX involves these various dimensions, researching UX is a complex task that makes insight generation and empathy development a tricky process. Moreover, this complex nature also requires a multidisciplinary approach. Accordingly, UX design and research have become a field enriched by many disciplines using or adapting their methodology, approaches and perspectives (Barnum, 2019). So the UX

research field systematically uses methods and terminology from various disciplines and develops them according to their aims.

This section presents motivations behind conducting this thesis. First, why there is a need for the understanding of the UX researchers' and designers' mindsets in practice is explained to guide UX researchers in their research process. Then the dimensions that come from the commercial context will be discussed to present the necessity of the appropriate and effective UX research process. It is followed by the nature of the UX community to show why it is essential to produce knowledge in the form of theories, concepts, and ideas to encourage UX research practitioners to reflect on their process.

1.1 Problem Background

One of the design research aims is to improve the practice by developing knowledge methods and tools. Therefore, some studies aim to present ways to achieve better and more suitable outcomes in the practices (Dalsgaard & Dindler, 2014; Goodman et al., 2011; C. M. Gray et al., 2014; Roedl & Stolterman, 2013). Stolterman (2021) defines three ways to support design activities with design research. First, it is possible by generating new artefacts, systems, and solutions that serve as examples of good design and inspire practitioners. Design researchers also can develop methods, tools, and techniques to be used during the design process to enhance certain aspects such as usability, user experience and sustainability. Finally, it is possible to "produce knowledge in the form of theories, concepts, and ideas" to inspire and promote the professionals in their practices (Stolterman, 2021, p. 65). Similarly, many methods and strategies have been presented to conduct UXR (i.e. Burmester et al., 2010; Desmet & Hekkert, 2007; E. L. C. Law & van Schaik, 2010; Stappers & Sanders, 2005). These studies guide researchers to conduct UXR by informing them about how user knowledge can be elicited and how insights can be generated for integrating the elicited knowledge into the design process.

It is essential to comprehend the nature of the commercial context to ensure that the design research has a meaningful impact on the practice (Garvey & Childs, 2016; Ponn, 2016). Similar to design practice, recent studies in UX have also emphasised the heightened the gap between the academy and industry practices to show concerns about design research transition to practise (Agogino et al., 2015; Chivukula et al., 2019; Gericke et al., 2016; C. M. Gray, 2014; C. M. Gray et al., 2015; Roschuni et al., 2015; Stolterman, 2008). First of all, implementing the UX research methods into industry settings may have challenges like limited time and resources. These are critical dimensions of the UX practice because, as Stolterman (2008) explains, design activity aims to meet the needs of a specific user group or a client within a limited time. Therefore, as C. M. Gray, Stolterman, and Siegel (2014) explain, design methods and processes must be designed and planned considering project-specific requirements. They explain that practitioners opportunistically select and reconsider multiple methods to fulfil specific requirements of the project. In parallel with that, the result of the study conducted by Lallemand, Gronier, and Koenig (2015) show that when UX practitioners apply a set of core activities, they transform methods to contribute to their practices.

Therefore, a design method can be arranged and applied in several forms, such as a combination of tools, instruction guides, or frameworks to meet various requirements of the industry. Methods may not provide flexibility to transfer to different settings since designers perceive them as too complex from their perspective (Wallace, 2011). Moreover, even if the methods are flexible, companies may not be aware of the available methods applied for the particular project (Gericke et al., 2016). So, it is essential to relate the UX research practices in the industry regarding the conditions and expectations to design research literature.

Additionally, the practitioners' backgrounds, perspectives, and mindsets need to be considered while aiming to improve practices. The studies conducted by Law et al. (2009) and Lallemand et al. (2015) present that even though there is consensus on the content of the UX field , UX researchers' and designers' opinions and perspectives on the UX terminology are affected from the commercial context. The

study of C. M. Gray (2016a, p. 4053) which evaluates the practitioners' mindsets on the design methodologies, shows that methods from the literature should resonate with the "personal design process of the individual practitioner, the practice context, and the demands of the specific design problem at hand". UX researchers' and designers' backgrounds also need to be considered for similar aims. For example, these methodologies may require specialised training and knowledge, and many practitioners tend to disregard acquiring such an essential background (Rogers, 2004). Moreover, professionals in practice may feel inadequate to learn, adapt and use new research methods they are not familiar with (İnal & Rızvanoğlu, 2016). Besides, C. M. Gray's (2016a) study shows that UX designers and researchers may have prejudice towards the methods with concerns about their applicability in the commercial context. Additionally, despite the intention of academic design research to improve practices, practitioners may not find these studies interesting or practical for various reasons. For example, they may prefer to learn and read from more practical grey literature sources like *medium.com* as they do not want to pay an effort to comprehend the literature on design research (Colusso et al., 2019). As another example, practitioners may focus on the "real and tangible gains in applicable methods" that help them to practise design research more efficiently (C. M. Gray et al., 2014, p. 728). Therefore, it is also essential to understand and present what would be interesting and relevant for UX design and research practitioners. Thus, understanding and revealing what is interesting for UX research practitioners would guide us to provide more appropriate knowledge for the commercial context; meanwhile, outcomes become more interesting and relevant for the practitioner, which enhances the transition of design research to practise.

These conditions come from the commercial context, and the mindset of the practitioners also influences the way of handling research practice. As briefly mentioned, design problems are ill-defined, and they have complex, ambiguous and dynamic characteristics, especially in the commercial context, making the design activity a complex and dynamic process. Designers aim to design novel products to answer these ill-defined problems, which requires creativity and exploration (Nelson

& Stolterman, 2012). Designers use specific participation, analysis, synthesis and creative thinking methods to evaluate alternatives and find relevant and aesthetically accountable solutions (Gaver, 2014; Koskinen & Krogh, 2015). Despite the influence of designers' tacit knowledge and the dynamic nature of design activity; tools, processes, and guidelines can be utilised to manage the complex elements of the design activity. Design research can be adopted to support these design activities by presenting essential knowledge for inspiring or guiding designers about their decisions. So, the quality of design research is crucial for the success of the design activities by providing meaningful and fruitful knowledge for designers. UX research, as a type of design research, aims to support design activities by providing essential and relevant user knowledge.

Although the design process may not be strictly structured, design research should be conducted in a scientific and structured way in order to provide more relevant and valid knowledge (Stolterman, 2008). Establishing a scientific approach in research for practice is crucial to avoid missing or misleading information while being quick and practical in the industry. Design study should be carried out in a scientific and organised manner to provide sufficient and correct knowledge, as well as to provide trustworthiness of the research by accommodating the rigour of the process and the relevance of the outcomes (Le Dain et al., 2013). So, the scientific approach helps designers and researchers to provide trustworthiness of the research by establishing the 'rigour' of the process and 'relevance' of the outcomes. Researchers should be able to instil faith in their approach by focusing on four factors: truth value, applicability, consistency, and neutrality (Guba, 1981). Meanwhile, relevance refers to the usefulness of the outcomes, such as guiding designers in design decisions by providing relevant user information. Both concepts need to be addressed in systematic and scientific design research to be able to support design activities (Hevner, 2007). Therefore, it is valuable to present a way to establish both concepts in design research for practice by considering the commercial context and practitioners' mindsets to have relevant and valuable results to support design activities.

Understanding how people interact with, perceive, use, and experience products and services are the goal of user experience research to support design activities with essential knowledge. Therefore, UX research should be regarded as a subset of design research, and design research's principles are also critical for effective UX research. So, it is also vital to present a way of conducting the good notion of UX research practices. First, the UX field is a multidisciplinary field that is nourished from various disciplines by using or adapting their methods and approaches. Thus, UX researchers must also be competent in applying these methods and approaches in UX design and research. However, as Getto and Beecher (2016) underline, there is no obvious path to learning those various skills and methods originating from different disciplines. Accordingly, UX research practitioners educate themselves via firms' education programs like Norman-Nielsen UX training or online sources like social platforms (i.e., medium.com/topic/design). Thus, the competence of UX researchers and designers in practice raises doubts about conducting proper design and research processes that influence UX's value in the future (Barnum, 2019). Moreover, practitioners may focus on practical utility rather than scientific truth as they aim to produce new and novel products (Gaver, 2014). Thus, there may be some sacrifice of rigour in the research for the sake of relevance. Barnum (2019) indicates that applying strategies to make UX research faster and more practical without considering the rigour of the research may result in malpractices. So, UX researchers should have the proper mindset and approach to conducting UX research studies to provide reliable results. Therefore, as mentioned below, it is essential to address both concepts to increase the impact of the research. Accordingly, this thesis aims to present the notion of conducting good UX research by establishing rigour and relevance to produce appropriate, essential, and relevant UX knowledge.

As explained before, the motivations behind this thesis started with the primary objective of improving UX research practices within the commercial context. However, the COVID-19 pandemic, which occurred during the development of the thesis, impacted the UX research process in commercial

practices. First, UX practice has been challenged by the complexity, uncertainty, and ambiguity brought by the emergence of the global pandemic, similar to all other practices. At the onset, social distance measures necessitated adopting remote ways of carrying out UX practice, even though UX research intrinsically involves direct contact with users for observation and consultation. On the other hand, the pandemic had significant effects on the economy and generated a risky environment for businesses; thus, being close to users and understanding how they adjusted to the pandemic circumstances was seen as a way to mitigate the economic risks and deal with the uncertainty (Craven et al., 2020; Diebner et al., 2020). Of course, this could only be done remotely in the earlier phases of the pandemic. Therefore, remote became an influential factor in conducting UX research in practices during the data collection of this thesis. Moreover, the study of this adaptation process and the changes in practices in UX research would reveal the priorities and concerns of UX researchers, as well as their behaviours and approaches in unexpected circumstances. This understanding therefore helps us to understand the nature of UX practices.

Additionally, although social distance measures are no longer the issue, practitioners believe that “remote UX research is here to stay” as it outperformed their expectations during the pandemic (Schumacher, 2022). Therefore, it is predicted that many companies and UX teams will continue to apply remote methods in their future research processes. In this manner, it is essential to reassess the previous values and practices of UX research practice by considering the remote approaches to prepare UX researchers for post-pandemic conditions and future advancements (Balestrucci et al., 2020). Thus, it is vital to guide the UX researcher for a better UX research process; remote should be considered in strategies, including its advantages and drawbacks. Therefore, I decided to focus on the remote settings emerged due to the pandemic as it has impacted the quality of UX research practices and will continue to be a factor in the future.

1.2 Aims of the Research/ Research Questions

The primary goal of this thesis is investigating the current UX research practices to suggest strategies for improving the quality of UX research by considering the industry's demands, expectations, and considerations. Accordingly, the outcome of this thesis will contribute to the theory by establishing the considerations of the user knowledge production process in the industry to inform literature about the quality of the UXR, including the conditions of adaptation to fully remote research. Demonstrating and forming theories on these considerations, enriched with industry examples, the thesis also aims to help practitioners prepare to conduct proper and useful UXR. Considering the primary goal, the aims of this study are; (1) to investigate the existing practices of UXR, (2) to understand how practitioners implement UX research into design development, (3) to examine the adaptation process of remote UXR during the COVID-19 pandemic.

Main research Question: How can the quality of UX research be improved regarding the industry demands, expectations, and considerations?

Sub research questions:

1. How are rigour and relevance identified in the literature, and in which ways they apply to UX research?
 - a) How can rigour be established in research? What are the key concepts for establishing rigour?
 - b) What is relevance for the design research? How do UX researchers ensure the research outcomes are useful for design activities?
2. What are the characteristics of current UX research practices?
 - a) How do practitioners plan, design, conduct, analyse and communicate UX research practices?
 - b) How have practitioners adapted their UX research process to a remote approach during COVID-19?

3. How can UX researchers produce user knowledge for design activities in feasible and useful ways?
 - a) How can UX researchers establish rigour in UX research practices to support the design process?
 - b) How can UX researchers provide relevancy in UX research practices to be useful for design activity?

1.3 Structure of the Thesis

This thesis is composed of seven chapters. Chapter 1 introduces the problem background and highlights the necessity of understanding the UX research practices and guiding them to conduct good UX research. The scope of this thesis is outlined by detailing the goals and objectives of the research, as well as the research questions that are addressed in this thesis.

Chapter 2 presents an overview of the design research inquiry, including the perspectives on design research to show the areas and types of design research. This chapter also presents the rigour and relevance concepts (including key terms and strategies) regarding how UX researchers can generate valuable and credible data for design activities. This chapter guides the model and strategies presented in the study's conclusions.

Chapter 3 is dedicated to the UX research history and methods to understand the essence of the methods used in practice. Thus, methodological issues in defining UX research methods respecting the remote approach are investigated in this chapter.

Chapter 4 is allocated for the detailed explanation and justification of the methodology of the case study conducted in the scope of this thesis. The data collection procedure, steps of multiple case study and analysis phases are discussed.

Chapter 5 reveals the findings of the case study. UX research processes of the six participating firms are explained, including their preferred methods. Additionally, the practices and activities of UX researchers are investigated

regarding relevance and rigour. So, this chapter helps to shape the model and strategies outlined in the study's conclusions, aimed at enhancing the quality of UX research considering commercial context and practitioners' perspectives.

Chapter 6 consolidates the information from previous chapters and uses it to guide the model and strategies presented in the study's conclusions. The chapter first examines three management issues that commonly arise in UX research practices: management of the research process, management of project partners, and management of the UX research team., the chapter explains how the model can be applied in commercial contexts by managing the three issues. Collectively, this chapter presents a model for ensuring the rigour and relevance of UX research practices, which is necessary for effective research outcomes.

The conclusion has been explained in the Chapter 7 by revisiting research questions and transforming the strategies and activities that can be implemented in UX research practices. It discusses the thesis's contribution, limitations, and further study suggestions. Figure 1-1 outline the structure of the study and research questions. This figure shows the related steps to answer research questions.

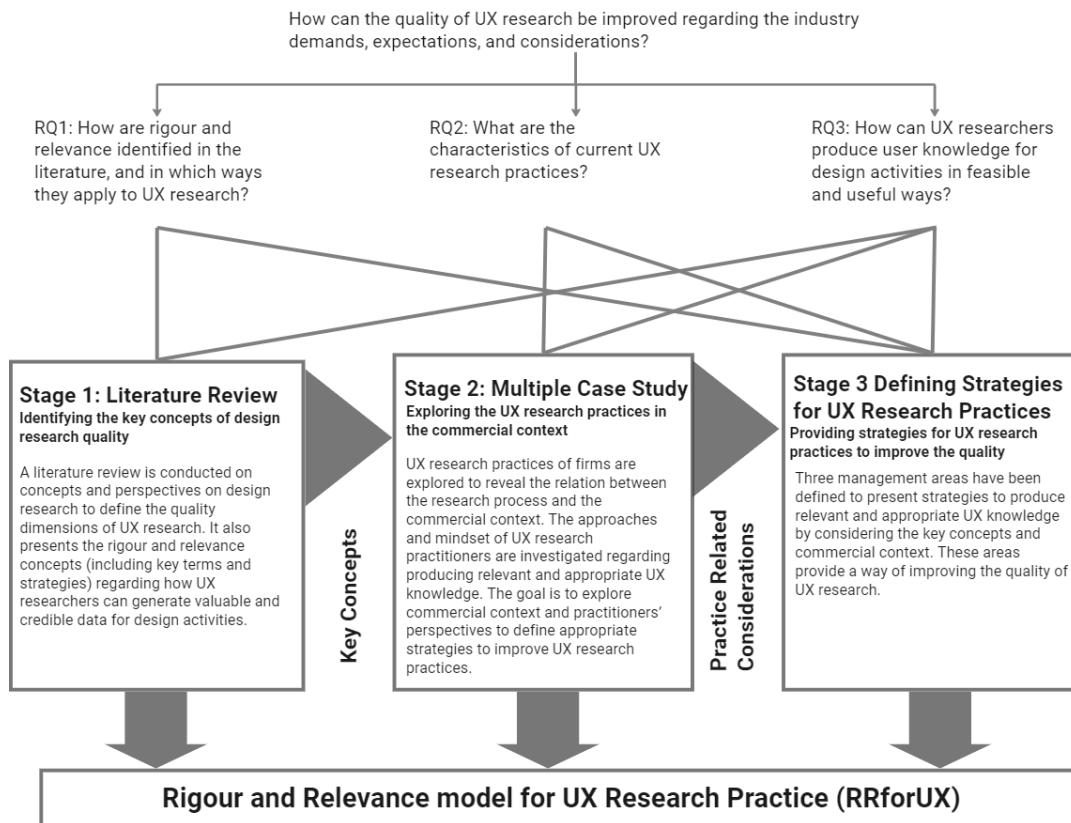


Figure 1-1 Questions and structure of the methodology

CHAPTER 2

DESIGN RESEARCH INQUIRY

Buchanan (2007) states that "*the history of design is a history of evolving problems.*" In the early years of modern design, concerns mainly revolved around the 'search for scientific design products', and in the 1960's they evolved to 'search for scientific design process' (Cross, 2007b). Cross adds that discussion around the relationship between design and science appears to rearise in the 2000s. Parallel to these developments, scholars and designers have discussed design research and its place in the design process. As design activity involves various disciplines with a scientific background such as sociology and engineering or arts and crafts skill and education heritage, it is not easy to define 'design research' (Muratovski, 2016). For example, some designers see design research as a self-exploration rather than a systematic way as the activity has roots in fine and applied arts (Muratovski, 2016). Some researchers explained the design process and research as a systematic procedure that provides solutions with a prescription (Downton, 2013). On the other hand, Cross (2007a) emphasises the effect of designers' tacit knowledge, so he indicates that design research or activity should be planned as a unique process due to the nature of wicked design problems. Alternatively, some researchers like John Chris and Christopher Alexander reject the scientific approach to design research as sequentially structured methodologies are inappropriate for understanding the nature of wicked problems (Frankel & Racine, 2010).

Even though there are different ideas and definitions about design research, it is essential to understand the designed artefacts, including how products are made sense of by the users, design activity itself or methodologies of design field. Therefore, this study uses the definition of Bruce Archer (1981, p. 30); "*Design*

research is systematic inquiry whose goal is knowledge of, or in, the embodiment of configuration, composition, structure, purpose, value, and meaning in man-made things"

This definition shows that designed artefacts, how they are experienced and made sense of by the users, are essential areas for design research. User experience research, which is the main subject of this study, is a systematic process to understand how people interact, perceive, use, and experience products and services (Goodman et al., 2012). The term of UX has been acknowledged by design researchers from 2000's because the term itself approaches to users holistically by revealing the structure and scope of the human product interaction (Hassenzahl, 2008). The term "user experience" refers to all elements of the relationship between the product and user like usability, perceived meanings, functionality of the product (Hassenzahl, 2010a; Norman, 2013). As well as exploring the experience to conduct user research presents significant information about user-product interaction, experience can be also embraced as the main strategy to define the design process. Therefore, I believe that, rather than being a completely specific and distant category, UX research should be considered as a subcategory of design research. Accordingly, approaches and principles about design research respecting its traditional research roots enables us to comprehend the UX research too. Thus, this chapter examines the perspectives, principles, and activities regarding the design research to ground the concept of good UX research as a type of design research. So, this ground presents us to conducting good UX research by providing the respected concepts of research and design research literature.

2.1 Perspectives on Design Research

As briefly mentioned, design research is not easy to define or explain its aspects regarding the design activity. Defining design research is crucial to answering questions about design activity's nature. Many scholars and designers explain the relationship between research and design activity from different

perspectives. However, similar to developments about design activity, design research perspectives should be examined from the epistemological aspects of the design research approach to show distinctions between them. Therefore, three epistemological approaches of design research as objectivism, constructionism, and subjectivism, will be explained in this section by following the Feast and Melles (2010) study, which accommodates Crotty (1998) on design research perspectives.

Objectivist epistemology explains that 'objective truth', which is independent from the cognitive process or consciousness, can be obtained if someone carefully searches appropriately. So, the meanings should be distinguished from people's subjective perceptions by scientifically establishing a search process. As an example of objectivist theory, Friedman (2003) also highlights the importance of the knowledge gained by systematic inquiry, similar to constructivist theory. The nature of the knowledge in objectivist theory and the effect of tacit knowledge are the points that differentiate it from constructivist theory. Friedman (2003) claims that theoretical construction is empirical facts that lead researchers to generate generalisable theories by organising their conclusions about phenomena. He views theory as a tool to scrutinise our actions and observations in order to identify desired outcomes and to achieve them through predictable changes. Friedman's perspective on design research leans towards an objectivist approach as he prioritises empirical facts and constructs theoretical models for prediction and explanation as he disregards tacit knowledge and reflective practices.

Subjectivist epistemology underlines that experiences and meanings result from people's mental processes without the object's contribution. This suggests that meaning is shaped by perception and perceived interpretations, and reality cannot exist separately from perception. As an example, Frayling (1993) critiques the conventional stereotypes of scientific research, such as the white-coated laboratory setting, and argues that design research encompasses irrationality and craftsman's expertise instead of propositional knowledge." Moreover, he suggests that there are many resemblances between design activity and scientific research. He also implies

that the 'cognitivist' tradition in design research and the learning process is influential in defining the placement and nature of the types of design research. Like Frayling (1993), subjectivists in design research highlight the importance of artisans or designers' tacit, non-verbal, personal and subjective knowledge. They reject objectivity and generalisability of practice based on subjective knowledge for art and design research.

Constructivism also considers the importance of personal experiences and tacit knowledge and rejects the search for objective truth. Truth is constructed with a procedure of interaction between people's minds and the world. So, different people may construct different meanings or result even in the same phenomenon. However, this approach does not deny the procedure of design research or activity, and it just claims that the results of them depend on the people who conduct it. As an example of constructivism, Cross (1999, p. 5) uses Bruce Archer's definition of research as "systematic inquiry the goal of which is knowledge", which indicates that knowledge is the focus and aim of the design research. As the design research knowledge is the main aim and the result, the scientific and non-scientific meanings are essential to construct. Ultimately, knowledge depends on occasion and people (Melles & Feast, 2010). Moreover, design knowledge can be obtained with a reflective practice described by Schön (1983) including designing, using and reflecting on the artefacts, as well as reflecting on the design process itself. Therefore, the reflection of designers, which can be referred as "designerly ways of knowing" play a role in the aims and results of the design research.

2.1.1 Types of Design Research

There are different approaches to categorise and explain the nature of design research. Cross (2007a) categorises research types according to focus of the investigations. Accordingly, he defines three categories according to people, product and process as; (a) design epistemology (people), (b) design praxiology (process), and (c) design phenomenology (product). Similarly, Fallman (2008) provides

another categorisation by defining three research extremes as; (a) design practice, (b) design exploration, and (c) design studies. So, he also includes the tacit knowledge gained through practice and explorative approaches in the categorisation. The last and one of the most widely accepted categorisation in the literature is Frayling's (1993) and Archer's (1981) frameworks of art and design research which identifies three main types of research projects: (a) research into (about) practice, (b) research through practice, and (c) research for the purpose of practice (Joyce, 2010). Frayling's (1993) and Archer's (1981) classification will be considered to explain the research types due to a number of reasons. First of all, it covers almost every type of research related to design. Therefore, user research practices in the industry can be explained and positioned by using his framework. Moreover, this framework shows similarity to the classification of research types found in scientific disciplines as; 'Basic', 'Clinical', 'Applied'. This type of classification is used by other design researchers like Buchanan (2001) and Downton (2013) to explain the research types. The following section is dedicated to explaining the categorisation of the research types, including this study's position.

2.1.1.1 Basic Research (Research about Design)

Empirical studies that aim to develop theories about the nature and principles of design and the design activities to regulate the discipline constitute basic research or research about design (Buchanan, 2001). As an influential scholar of the design discipline, Bruce Archer (1981) defines design research areas to show what can be researched about design. Examples of design research areas can be listed as follows: design history, "*the study of what is the case, and how things can be the way they are, in the design area*"; *design praxiology*, "the study of the nature of design activity, its organisation and, its apparatus"; *design philosophy*, "the study of the logic of discourse on matters of concern in the design area"; or *design epistemology*, "the study of the nature and validity of ways of knowing, believing and feeling in the Design area" (Archer, 1981, p. 33). Buchanan defines this area as

'design inquiry' and relates it with the 'discipline of designing' and 'creativity of designers'. Similarly, Cross (2007a) includes the design behaviour and design cognition alongside the nature of the design. Therefore, 'designerly ways of knowing' is also a subject related to research about the design field. Parallel to these, activities and skills specific to design process such as creativity, sketching communication techniques, models, and other visual tools can be investigated to understand the nature of the design (Cross, 2007b; Downton, 2013). As design activity is a part of this research area, the collaboration during design activity or formulating and solving the wicked design problems can also be considered under the title of research about design.

2.1.1.2 Applied Research (Research through Design)

Zimmerman and Forlizi (2014) define research through design as a type of research practice that aims to improve the world by designing artefacts that interact, complicate or change the current phenomenon. Accordingly, this type of research examines issues such as stakeholders' behaviours and understandings, the interaction between users and systems, and the implementation of current and coming technology to speculate the current time or upcoming future. Similarly, Buchanan (2001) sees applied research or research through design as a systematic attempt and explains its aim as a building hypothesis that indicates how a product takes place or will take place in phenomena, including reasons. Therefore, many researchers explain research through design as a designerly inquiry that aims for intended societal change by designing new (Binder & Redstrom, 2006; Koskinen et al., 2012; Swann, 2002). While some researchers, such as Binder and Redstrom (2006), views research design trough as a scientific inquiry, many others define it as a design inquiry as that deals with wicked problems (Stolterman, 2008; Swann, 2002). The action research approach used in humanities and social sciences can be adopted under research through design to bridge design practice and research (Zimmerman & Forlizzi, 2014). In both action research and research through design, researchers

work on the wicked problems with a sequence of iteratively planning, acting, observing the changes, and reflecting again. Thus, research through design approach can broaden the scope of the design area because they lead designers to challenge and change the current world. However, it should be done as a research program within "theoretical scaffolding" and explains the design inquiry that questions or reinforces the current situation. Similarly, participatory design processes, design and emotion movement, and experience-driven design activities can be grouped under the research through design (Frankel & Racine, 2010). Research through the design process provides various outcomes. According to some researchers, the natural output of research through design can be design methods that lead designers to implement theoretical ground to the design activity (Binder & Redstrom, 2006; Koskinen et al., 2012). Accordingly, the result can be the designed artefact that proposes the current situation or an opportunity space for designers to provide new solutions (Zimmerman et al., 2010). Moreover, conceptual frameworks and guiding philosophies or gaps from existing theories can also be gained from research through design processes (Zimmerman & Forlizzi, 2014).

2.1.1.3 Clinical Research (Research for Design)

Frayling (1993) uses a small 'r' while referring to the research for design, and he defines it as collecting reference material for the design process rather than systematic research. The final output of the research is the designed artefact where the designers' ideation process is embodied into and that communicates with users through visuals or icons. Therefore, as the name indicates, clinical research or research for design focuses on individual product cases that help designers solve ill-defined problems that require unique information regarding the case (Friedman, 2008). Similarly, Downton (2013) associates this area to "research to enable design" and explains every kind of data collection activity which will be helpful during the design activity. So, it can be associated with the general design process. Research for design supports designers in solving wicked design problems by providing

essential information. Accordingly, most of the research made by designers and practitioners to produce commercial products and services can be positioned under research for design. Thus, designers and researchers can adopt many research methods or types. Both qualitative and quantitative methods can be used to gather relevant information to the design problems. Similarly, human factor studies, including ergonomics and usability studies, can be accommodated to obtain human physical features, determine relevant metrics and limitations, or understand human behaviour (Frankel & Racine, 2010). Product evaluation studies or usability tests can also be positioned under the research for design. Accordingly, the focus of this study, most of the UX research activities in the industry can be positioned under this category as the main of them are providing research data for the commercial product, services, and experiences.

The relation between these categories is represented in Figure 2-1 adapted from Frankel and Racine (2010). This figure also displays the position of various research types and their relation to the position in the classification. This study aims to inform the theory by providing a comprehensive explanation for the UX research practice. Therefore, it intends to investigate the UX research activities as a type of clinical or research for design to improve the theoretical background. Even though this thesis study can be positioned under research about design, it aims to transfer knowledge from research for design activities. Accordingly, the position of the study is shown with a red line that is representative of this knowledge transfer.

2.2 Research Quality: Rigour and Relevance in Design Research

Design activity cannot be considered a linear and structured activity, unlike other scientific disciplines. The nature of the design problems is the first factor that complicates the flow of the design activity. Design problems are not "the same as the 'puzzles' that scientists, mathematicians and other scholars set themselves" (Cross, 2007a, p. 18). Relevant information about the design problem is mainly missing and needs to be unfolded and revealed during the process. The nature of the problem shows complex, ambiguous and dynamic characteristics as their dimensions and limitations depend on many factors, such as "geographic, topological, financial, economic, and political issues are all mixed up together" (Schön, 1983, p. 40). Accordingly, designers must not only understand the design problems but also find a design solution. Moreover, there can be more than one solution alternative to the design problem, as the designer needs to understand and define the success criteria of the design problem within the design activity (Rittel & Webber, 1973). So, design problems are considered ill-defined or wicked problems rather than well-defined scientific research problems (Bayazit, 2004; Cross, 2008; Schön, 1983; Wood, 2000).

Moreover, the object of design practice is to generate new artefacts and produce novel solutions while trying to find answers to design problems, which leads to different values and principles than science. While good science is guided by principles like replicability, objectivity, generality and causal explanations, design activities are characterised by generating neat and functional solutions that result in elegant and aesthetic products (Gaver, 2014). Therefore, designers explore to develop a product proposal within the necessity of creativity for various and diverse contexts. Designers use "specific methods of participation, analysis and synthesis, and creative thinking" to evaluate the possible alternatives to find a creative and relevant solution during this exploration process (Buchanan, 2007, p. 57). Producing and 'reflectively' analysing the alternatives and unfolding new ones help designers to gradually understand the phenomena (Schön, 1983). Moreover, designers must

consider such conditions as stakeholders' demands, users' expectations, and contextual dimensions while reflectively trying to find new, relevant, and aesthetically accountable products (Gaver, 2014). Because the uniqueness of each design process and development of new aesthetically accountable products makes it complicated to manage the design activity, many respectable design researchers consensually underline the 'tacit knowledge' of the designer in the success of the designed artefacts (Archer, 1981; Buchanan, 2001; Cross, 2007a; Frayling, 1993; Schön, 1983). Therefore, the logic of design activity differs from scientific inquiry as it depends on conditions such as designers' tacit knowledge and the nature of the design process.

Even though tacit knowledge of designers and the dynamic nature of design activity is influential; tools, methods and guidelines can be used to manage the complex dimensions of design activity (Eisenmann et al., 2021; Gericke et al., 2020; Marsh, 2018; Muratovski, 2016). Similarly, research can be implemented as a part of design activity to help designers to understand the context of the design problem or guide them in producing novel and functional solutions. However, the relationship between design research and the design process in commercial practice is not explicable like in other fields such as theoretical science and applied science. Because design problems are wicked, design research needs to be planned regarding the uniqueness of each design problem. Moreover, design research should be conducted emergently as the necessity of expected knowledge, and even the implementation of design research in practice alters. Therefore, the design research to explore and reveal relevant information needs to be redefined regarding the development of the design process. In other words, design research changes the design process by establishing relevant information and is affected by those changes. Moreover, design researchers also need to change, adapt or modify the design research methods to fit the nature of the design activity because many of them have roots in other disciplines like sociology, psychology or marketing (Fallman & Stolterman, 2010; C. M. Gray, 2016b; Stolterman, 2008). Designers or researchers

must conduct research by considering the dynamic and specific conditions of the design task and problem (Stolterman, 2008).

Even if the design activity cannot be strictly structured, design research should be conducted in a scientific and structured way to support with enough and correct knowledge (Fallman & Stolterman, 2010). Establishing a scientific approach in research for practice is crucial to avoid missing or misleading information while being quick and practical in the industry (Barnum, 2019). So, the scientific approach helps designers and researchers to provide trustworthiness of the research by accommodating the 'rigour' of the process and 'relevance' of the outcomes (Le Dain et al., 2013). Rigour is mainly related to the research process regarding how it is designed, implemented, analysed, and presented. Researchers should be able to provide trust in their process based on four aspects: truth value, applicability, consistency, and neutrality (Guba, 1981). On the other hand, relevance is more about the outcomes of the research and how you use it. Research should be interesting, applicable, current and accessible (Fallman & Stolterman, 2010). The research outcomes should address the relevant topics for practitioners to be 'interesting', and designers should efficiently use them to be 'applicable'. It needs to be 'current' and presented with an understandable and clear medium to be accessible. Therefore, five factors are essential in implementing the research to design activity: the method content, the method user, the intended goal, the information artefact, and the use context (Daalhuizen & Cash, 2021). The outcomes and expected results are crucial while planning and applying the research, which relates them to 'relevance'. Conclusively both establishing relevance and rigour are vital to support design activity with robust and proper knowledge.

UX research, which is the main subject of this thesis, is considered one of the most needed, used, and preferred design research types by design professionals and stakeholders of product development (Garvey & Childs, 2016; Horváth, 2007; Nova, 2015; Sung & Giard, 2014). It plays an essential role in the developed products' success (Graner, 2016; Sanders, 2008). First, it helps the designer understand the

dimensions of design problems because the user is one of the sources of the wickedness of design problems (Pontis, 2019). Many factors, such as social considerations (Forlizzi & Betterbee, 2004), evoked emotions (Desmet et al., 2001) and user experience over time (Karapanos et al., 2009) can be explored with UX research to provide insight about the usage context. It also helps to reach and include diverse research groups, which is vital to inspire designers to diversify their suggestions (Karapanos, 2013). Apart from inspiring designers, usability studies as a part of UX research evaluate the design suggestion to justify design decisions in product development (Goodman et al., 2011; Sauro & Lewis, 2012). Collectively, UX research inspires designers and stakeholders by providing insights, justifies their decisions and guides them in product development.

As the sub-category of design research, UX research has a similar relationship with the design activity regarding its principles and conditions. Even though UX research has its own rules, it is still necessary to explain the role and conditions of design research in the practice to ground the trustworthiness of the research. Accordingly, 'rigour' is explained in the next section from the perspective of scientific research to show the systematic research process. The following section is dedicated to 'relevance', which refers to the utilisation of the research, including outcomes and proper implementation. Chapter 3 is assigned to explain the literature about UX research and remote approach, including its history and types.

2.2.1 Rigour In Research

Both quantitative and qualitative methods provide valuable information for user research. While rigour in quantitative research has a tradition of scientific and systematic research for more than two hundred years, qualitative research has established its rigour criteria after the 1960s. Before the 1960s, anthropology and sociology, influential disciplines of qualitative inquiry, did not focus on systematic method approaches, such as validity and credibility (Morse, 2018). The researchers were considered a research instrument that obtains information with prolonged

observations and interviews to provide rich and dense results. These results should be balanced between objective evidence of systematic investigation that the audience must respect the researcher's subjective experience (Morse, 2018). Between 1970 and 1980, qualitative research methods started to be presented to disciplines such as education and nursing which previously quantitative methods dominated fields (i.e. LeCompte, 1978). At first qualitative research is mainly rejected by institutes or not included in the curriculum because of its differences from the quantitative methods because rigour of the qualitative research and questions about the validity of the results as they lack traditional quantitative rigour criteria like control group, analytical procedures, and randomisation in the sample group (Morse, 2018).

As a response, Guba (1981) and Guba and Lincoln (1985) provided a new rigour concept by developing a new perspective and new language to show the validity of qualitative research. They redefined the rigour terminology according to the qualitative inquiry and presented 'credibility', 'transferability', 'dependability', and 'confirmability' as the criteria of rigour in qualitative research by combining the terminology of both qualitative and quantitative methods. So, qualitative research broke free from its major criticism by introducing terminology and providing ground for rigour criteria. Morse (2018) defines the following step as the development of standards and checklists that attempts to standardise the qualitative research that guides the research in achieving rigour. Even though these checklists are insightful in guiding researchers, they are not clear on how to use them in the research process. Therefore, rigour in the research should be the result of the self-reflection of the researchers, especially since mixed and multiple methods have started to become the norm in social sciences (Morse, 2018).

2.2.1.1 Truth Value

Lincoln and Guba (1985) define this criterion as the ability to present the truth of findings and confidence in the process. Therefore, researchers should answer how they find particular findings regarding the specific inquiry or phenomenon, including

subjects, context and their relation to the results (Guba, 1981; Lincoln & Guba, 1985). Accordingly, the truth value of the research can be achieved with careful process and report of it to show the connection between results and reasons within the ultimate nature of the reality that context takes place (Lincoln & Guba, 1985). In other words, as Saldana said, this factor is "a right factor" that shows confidence toward research and findings (M. B. Miles et al., 2014, p. 272).

In quantitative research, internal validity has been generally used to show the truth value of the research. Internal validity presents the casual relations between findings and their causes which cannot be explained by other factors (Yin, 2018). Therefore, it is crucial to display the results, factors and their related variables changes together and discard the rival explanation within a logical approach. Appropriateness of the data set and gathering process should be carefully designed to validate results. In naturalistic or qualitative studies, it is impossible to know and show the ultimate nature of the context and variables. Lincoln and Guba (1985) replaced internal validity with the term 'credible' to explain truth value in qualitative research. Therefore, the results of the qualitative inquiry can be delivered with enhanced credible findings. Moreover, constructs of the results depending on multiple realities can increase confidence in the research by assessing the 'credibility'.

A number of strategies can be implemented to improve the truth value as follows;

- Prolonged Engagement supports researchers in learning the 'culture', realising the misinformation from participants or themselves and gaining the community's trust (Lincoln & Guba, 1985).
- Persistent observation is a complementary activity to prolonged engagement to determine the dimensions and characteristics of multiple influences regarding various actors and contextual factors of the studied phenomenon.

- The triangulation technique helps researchers examine the context from different perspectives by implementing different methods, sources, investigators, researchers, and theories (M. B. Miles et al., 2014).
- The appropriate and adequate data should be deliberately collected and presented concerning prior or emerging theories (Morse, 2018).
- Accordingly, agreement on results can be enhanced by increasing the rigour of the data.
- Results should connect the obtained data and explain systematically, clearly, and coherently.
- 'Peer debriefing' is another technique that ensures inquiry honesty by preventing researchers from having biases (Robson & McCartan, 2016).
- This process exposes the research design to an external perspective, helps test the initial findings, and gives a chance to develop the research setting.
- Contradicting cases with primary explanations from the research, also known as deviant or negative, should be explained to review the hypothesis. This process enhances the emerging theory by refining it, making it more reliable and valid (W. J. Creswell & Creswell, 2018).
- Rival explanations of the theories and results need to be given to increase the trust in the findings.
- Providing the results of research with archived data allows researchers to demonstrate the credibility of the data (Lincoln & Guba, 1985).
- Member checking enables the researcher to test their assumptions, interpretations, findings, and conclusion with the stakeholders of the researched context.

2.2.1.2 Applicability

Applicability refers to the ability to generalise findings and results of examined contexts in other settings (Lincoln & Guba, 1985). Thus, applicability also examines the findings in terms of their validity for a larger group or fitting in different

circumstances. It also helps researchers determine the levels of universality in the research or construct a theory with generalised context-specific findings (M. B. Miles et al., 2014). The terms 'external validity', 'generalizability', and 'transferability' have been used in the literature as an alternative to explain the applicability of the research.

External validity is mainly used to determine which research context, such as populations, variables, setting and measurement, can be generalised (Campbell & Stanley, 1963). It is mainly driven by defining replication can be found in other contexts, or if it is not possible, it requires explaining an accurate reflection of the data collection phase and experimental settings to present the study's limitations (W. D. Gray & Salzman, 1998). As naturalistic inquiry brings out case-specific variables, it may not be possible to use external validity in qualitative studies directly. Accordingly, transferability, as a term that fits better for qualitative research, relies on the explanation of similarities, including their degree between "receiving and sending contexts" (Lincoln & Guba, 1985, p. 297). Therefore, researchers who assess transferability by providing accurate, descriptive data to ground the defining similar assumptions and judgements. Cross-case analyses between empirical contexts or comparisons between empirical data and theories in literature are helpful methods in the transferability of the research (Le Dain et al., 2013).

As naturalists explain their results with dependency on time and context, they cannot specify the external validity of it (Lincoln & Guba, 1985). However, they are responsible for showing the possible range of information by providing thick descriptions and data that can be used to generalise the research. Accordingly, the following points can help to assess applicability in user research as;

- The purposeful sampling strategy can be assessed to abstract data from selected participants with defined characteristics. This data can be used as a representative of larger data. (Cash et al., 2022)
- Sampling characteristics should be explained in detail to enable readers to make comparisons with other samples (M. B. Miles et al., 2014).

- Limitations and thick descriptions should be presented to permit making inferences about transferability to other settings (Onwuegbuzie & Leech, 2007a).
- The diversity and size of the sampling should provide enough data to encourage researchers to make broader assumptions.
- Providing thick descriptions of the findings of the research is vital to explain the contexts, which is essential to making transferable judgements (Lincoln & Guba, 1985).
- Cross-case analysis among similar contexts or primary research reported in the literature can be conducted to show similar findings (Le Dain et al., 2013).
- The report of the research should present suggestions about where the findings can be tested, including further studies (M. B. Miles et al., 2014).

2.2.1.3 Consistency

Consistency is about the process of the study itself and refers to repeatability or consistency of design instruments (W. J. Creswell & Creswell, 2018). This criterion mainly interests whether the research findings can be achieved by other researchers when the same (similar) subjects and context have been re-examined (Lincoln & Guba, 1985). Therefore, the design research itself and its application define the research's consistency. Of course, the exact replication of the same inquiry rarely occurs. Reliability, the traditional term for consistency, has been used to minimise the error and biases by providing a procedure protocol for the research rather than providing a way of replicating the result in other studies (Yin, 2018). Therefore, careful documentation of the research phases enables external reviewers to ensure the research's quality.

Due to replicability relying on unchanging and tangible truth, Lincoln and Guba (1985) put this term under the more extensive set of factors to include observed changes. Accordingly, *dependability* redefined *reliability* for naturalistic inquiry,

interests with both research process respecting the internal audit process and the varying dimensions regarding how researchers define them (Bradley, 1993). In other words, dependability considers every dimension and factor related to reliability and adds some additional factors to show the changing nature of the naturalistic inquiry. Consistency cannot be considered a sign of validity; it should be defined as a precondition to achieving validity because it is a way to guide the researcher in the study process (Lincoln & Guba, 1985).

2.2.1.4 Neutrality

Definition of 'neutrality' in the research is that inquiry findings are independent of the researchers and conditions of contexts. Therefore, research results should come from subjects' conditions and contexts, free from researchers' bias, motivations, interests or perspectives (Lincoln & Guba, 1985). *Objectivity*, the standard term for neutrality from a post-positivist perspective, can be explained by the roles of research and experiment instruments. Experimenters interact with elements and participants in a distant, formalised way to abstract only the nature of the context (Robson & McCartan, 2016). As presenting such results in naturalistic research is impossible for researchers, emphasis should be taken from the researcher and transferred to the data itself (Lincoln & Guba, 1985). Accordingly, *confirmability* refers to the agreement of multiple observers on assumptions or judgements about the phenomenon. So, the characteristic of data becomes a signifier of confirmability rather than the researcher itself (Lincoln & Guba, 1985).

The concept of neutrality can be achieved with three perspectives. First, isomorphism (a one-to-one relation on the map between two sets) enables the researcher to present the "nature itself" that is evidence of the factual data (Lincoln & Guba, 1985). This perspective can be delivered with the intersubjective agreement of various researchers. The second way focuses on correct methods and their application itself. This perspective also matches with Yin's (2018) 'construct validity' and highlights the importance of selecting the proper operational measures and

methods for the studied context. While the distance between the observer and the observed is ideal, the dependency on the researcher's skills during the application would be minimised with the correct methodology. The last perspective is about the value-free inquiry. The biases or perspectives of the researchers may affect the nature of the obtained data. Moreover, it also influences the assumptions and interpretation, which may result in misunderstanding the contexts (W. J. Creswell & Creswell, 2018). Therefore, data should explain and speak for itself without being affected by the values and approaches of observers.

2.2.2 Relevance in Design Research

Changing the world and developing inquiry about it can be considered the main essence of designing activity (Dorst & Cross, 2001; IDEO, 2015; Krippendorff, 2007; Schön, 1983). Therefore, design activity includes revealing the appropriate information to make intentional and anticipated changes with artefacts (Stolterman, 2021). Additionally, the outcomes of the design activity should reflect the new approaches, something 'not-yet-existing' as the ultimate goal (Nelson & Stolterman, 2012, p. 35). This means that designers need a clear understanding of the existing situation to offer peculiar and practical solutions. Accordingly, supporting methods, tools and techniques that provide the related information are crucial in design activity to lead to new and valuable outcomes (Wood, 2000). Therefore, designers can be aware of what is desired and how this desire can be replied to when implementing the new design (Stolterman, 2021). Moreover, these desires and considerations are dynamic, constantly changing and even developing with design implementation, which makes it hard to complete the prediction of the end and after results. Therefore, UX research as a type of research for design can play a crucial role in the success of design activities (Dray, 2014).

Correspondingly, the success of design research depends on how much the design process is supported to understand the situation and develop valuable solutions (Niedderer, 2009). In other words, UX research is successful when the

outcomes make sense for the design process in line with the project's aim. Sanders (2005) and Gaver (2014) underline practical utility in showing the differences between academic and professional perspectives and explaining the success criteria with sensible research outcomes. Similarly, Stokes (1997) combines the eye for application (refers to the utility for practice) with the eye for generalisation (refers to the applicability as rigour criteria) to explain the roles of the research in commercial design activity. Therefore, research is as successful as the outcomes relevant to the design process because the research is shaped and aimed at the practical concerns of design activity (Fallman & Stolterman, 2010). Thus, the success of the research can be assessed with the term 'relevance' in the commercial design activity, which is not recognized enough by the academic literature (Zielhuis et al., 2022).

For these reasons, UX research success in the industry is associated with the success of the design process. As Norman (2013) underlines, good designers start the design process by exploring the real issue behind the problem rather than the one presented to them. Accordingly, designers need to understand the existing situation and develop contextual inquiry to ground the base for their research (Frich et al., 2021). They do so to be able to ask the right questions that guide them to explore in the right way to understand the essential information. For this reason, asking the right questions impacts the research quality and the outcomes' usefulness. Goldschmidt and Matthews (Goldschmidt & Matthews, 2022) proposed six criteria for research questions in design research for knowledge construction, research quality and high impact. Even though the focus is not research for design, they are still valuable and applicable to design research practices. While their defined contextual criteria as 'relevant', 'interesting', and 'novel' can be employed to consider the usefulness of the outcomes, the subordinate ones 'appropriate', 'feasible', and 'ethical' can be used to conduct research that fits the conditions of the industry. In addition to considering these criteria, researchers should consider the emerging conditions and nature of the design process and formulate research questions accordingly (Cross, 2007a). Schaathun (2022) explains the agreement of Schön and Simon, who are respectable

design researchers and philosophers, that research questions should support designers in the iterative design process by revealing essential information and guiding them to new questions about the design. Therefore, research questions should be formulated to cultivate the next phase of the design process and empower the designers to ask new questions in line with blossomed knowledge (Dalsgaard & Dindler, 2014). So, researchers start and continue their work by grounding their research with the right and relevant research questions.

Another crucial part of grounding the research is learning about the stakeholders' demands, needs and capacities (Travis & Hodgson, 2019). Design researchers learn from a larger team of experts on the product or service by exploring the needs of information, including how the stakeholders can be supported. Therefore, diverse concerns and expectations about the project are considered during the research, making it relevant and valuable to the design process (Travis & Hodgson, 2019). In other words, researchers develop awareness of the perspectives of stakeholders including concerns and expectations of the project to examine existing situations. These concerns and expectations can also be considered the success of the design process and can be used as a motivator of UX research. So, researchers in the projects develop a shared understanding of success between stakeholders which defines the criteria for both design project and research (Frich et al., 2021; Hartson & Pyla, 2012). Accordingly, design researchers can consider organisational aspects related to the design process to support valuable strategies and decisions (Goodman et al., 2011). The 'relevance' of the research regarding the other stakeholders ensures the quality of design research by presenting the essential information and guiding them in the process with shared knowledge and language.

Return of investment (ROI) is another critical concept to show the importance of UX activities in the commercial context. This concept helps firms and organisations manage the UX process by showing them how to measure the success of design investments and efforts with the right approach (Sauro, 2016). UX research can be adopted to measure the ROI to see the effectiveness of products and designs (Moran, 2020a). For example, surveys and questionnaires can be used to understand

the satisfaction and ease-of-use ratings; usability tests provide product success and error rates (Sauro & Lewis, 2012). UX research also supports the ROI in product development activities. Firms improve customer conversion rates, lower support experience and boost customer loyalty, engagement, and income by improving a product's usability, accessibility, and overall satisfaction (Sheppard et al., 2018). By understanding user wants and preferences, UX research can enhance ROI by resulting in better design decisions, higher customer happiness, and eventually increased revenue or cost savings (Moran, 2020b). UX research can assist organisations in understanding their users' behaviours, motives, and pain areas, which can then be used to guide product development and marketing strategies. Firms can produce more effective and efficient products and services that match user needs by investing in UX research, resulting in higher ROI in the long run.

Sampling is another factor for that related to rigour and relevance that affect the quality of research. Design research practitioners must consider the frame of the design process, including aims and directions, to define sampling strategies regarding impactful and supportive outcomes (Cash et al., 2022). As the sampling group needs to represent the target population, design research practitioners should focus on the usage context and define the sampling rather than trying to reach the whole population (Marsh, 2018; Travis & Hodgson, 2019). Thus, sampling should be defined by considering the background context and scope of the project and the research method that was picked. Cash, Isaksson, et al. (2022) defines the three following steps to ensure the representativeness of the sampling group. First UX researchers should define the generalisation approach regarding the context. Especially in UX research practices, it is essential to consider the unique dimensions and own consideration of experience. So UX researchers should define this situated knowledge in detail. Then, they must determine sampling schema (how the sample will be collected) as probability or non-probability according to the project's scope and selected methods (Onwuegbuzie & Leech, 2007b; Robson & McCartan, 2016). Every person in the target group has an equal chance to participate in probability sampling schema with mathematical formulas to generate a general understanding to

reach a larger group (Blizzard et al., 2015). Individuals can be invited with some developed criteria in a non-probability sampling strategy to gain in-depth knowledge about the context (Cash et al., 2022). Non-probability strategy can be exemplified with purposive, snowball, convenience or quote based strategies (N. K. Denzin & Lincoln, 2017). After deciding the generalisation approach and sample schema, sample size can be defined according to the scope, research method and generalisation approach. So, this process helps UX and Design researchers to ensure the representativeness of data which is vital for producing relevant knowledge for the design activities.

How the research outcomes are employed in the design process is another vital factor of relevance. Since the industry interests with a more practical utility, such as developing a product or business strategies, the expectation from UX research is shaped accordingly (Dachtera et al., 2014). For this purpose, UX research outcomes can be employed with three aims as; providing inspiration, maintaining guidance, and supporting justification (Töre Yargın & Erbuğ, 2017). UX research leads designers to inspiring and innovative ideas with insightful context knowledge, including interpretative assumptions and distinctive findings about users (Gaver, 2014). Accordingly, firms can realize and reveal the potential of usage experiences which may transform product ideas and business potentials. Moreover, insights from the research guide designers about the experience and user behaviours by preventing risky decisions and unsuccessful assumptions (Dray, 2014). Therefore, the designer can make the appropriate design exploration about the experience to satisfy user expectations, demands and needs. During the exploration, designers can justify their design decision by conducting UX research, especially with usability tests (Hartson & Pyla, 2012). Besides, this justification process helps designers to convince the other stakeholders about design decisions and product alternatives (Töre Yargın & Erbuğ, 2017). Thus, design research should be defined and implemented in line with the necessities of design activity. Design research should be presented and transferred by considering the necessities of the process and other stakeholders'

perspectives to effectively and efficiently support design activity (Hartson & Pyla, 2012).

2.3 Conclusions Regarding the Chapter

The concept of rigour in UX research refers to the level of trustworthiness and quality of the research process and findings. To achieve rigour in UX research, researchers should aim to meet the following criteria. Truth value means the accuracy and authenticity of the research findings and how they were obtained. Researchers should provide a clear explanation of the subjects, context, and their relation to the results. To improve truth value, researchers can implement strategies such as prolonged engagement, persistent observation, triangulation technique, appropriate and adequate data collection, peer debriefing, and explaining rival explanations. Applicability refers to the generalizability of the research findings and results to other settings and contexts. To achieve applicability, researchers should explain similarities between the “receiving and sending contexts” and clearly explain their research’s limitations (Lincoln & Guba, 1985, p.297). Consistency, also known as reliability, refers to the repeatability and consistency of the research design and instruments. It is essential to minimise errors and biases and ensure that other researchers in similar contexts can replicate the findings. Neutrality is maintaining objectivity and freedom from bias in the research process and findings. Researchers should use proper research design, data analysis, and reporting strategies and involve multiple data sources to maintain transparency in the research process. Overall, meeting these criteria helps to establish trust in the research process and ensure the quality and reliability of the findings.

Relevance in research refers to the importance and practical use of a study’s findings and conclusions to the current understanding of a particular topic. To ensure relevance, UX researchers should keep the following points. UX researchers must define what is relevant, interesting, and novel for the research audience and users to understand how their research can be applied in design activities. Formulating

research questions that are relevant and of interest to the research audience and will provide meaningful outcomes is essential. Choosing a representative sample group that reflects the target audience is vital to ensure that the research results will be applicable and relevant to users. UX researchers should consider various factors such as user information, design phases, and the application method when defining the UX research method to ensure that the results provide relevant and valuable UX knowledge that can be applied in design activities. They must present UX research results according to the needs of the design activity and research aims.

Both concepts are vital to show the quality of the research. While rigour helps UX researchers to ensure the quality of the UX research process, relevance enables them to produce useful and appropriate knowledge. Therefore, both of them need to be considered for conducting UX research.

CHAPTER 3

UX RESEARCH AND REMOTE UX RESEARCH

Design research inquiry has been explained in the previous section to present the fundamental principles of design research. Accordingly, research philosophies and their impact on design research have been presented, including rigour and relevance. Therefore, the previous section aimed to explain the various perspectives on design research, highlighting the various areas and types of research in this field. It also presented concepts of rigour and relevance, explaining key terms and strategies for UX researchers to produce valuable and credible data to inform their design activities. Therefore Chapter 2 serves as a foundation for the model and strategies discussed in the concluding chapter of the study. This section focuses explicitly on UX research to present the characteristics of UX research methods, including the remote research methods, as the firms within the context of this thesis study had to adapt their process to remote conditions with the effects of the recent COVID-19 pandemic. UX history and approaches are explained in the first section. The second section follows with the categorization of UX research methods to show features of UX research regarding the remote research perspective. The third section continues with the advantages and drawbacks of the remote approach. Chapter is finished with a summary to presents conclusions.

3.1 Perspectives on UX

Hassenzahl (2010b, p. 8) defines experience as; "*an episode, a chunk of time that one went through [...] sights and sounds, feelings and thoughts, motives and actions [...] closely knitted together, stored in memory, labelled, relived and communicated to others.*". Accordingly, the designers adopt a holistic approach while designing the experience by considering related dimensions such as emotions,

users' perceptions , and the use of context to provide meaningful interactions (Hassenzahl, 2011). The complexity of User Experience (UX) arises from its multifaceted nature, which includes various dimensions like usability, emotional appeal, and aesthetics. As a result, UX design and research is a challenging task that requires careful consideration of various factors to generate meaningful products. To address this challenge, several methods and strategies have been proposed in the field, such as Desmet and Hekkert (2007), Hassenzahl et al. (2010), Law and van Schaik (2010), Rosson and Carroll (2001) and Stappers and Sanders (2005). In addition to guidance of UX practices, here are studies aiming to formulate a common understanding of UX definitions and principles to explain the nature of the UX (Hassenzahl & Tractinsky, 2006; Lallemand et al., 2015; E. L. C. Law et al., 2007). Even though these studies provide basic ground for the fundamentals of UX design activities, it is impossible to establish a universally acclaimed approach as it has roots in many disciplines, schools, philosophical approaches and even practice orientations. It is essential to explain the UX and UX research history to understand these various perspectives and their impact on UX methodology. Accordingly, this section is dedicated to present UX history.

In order to comprehend the theories and methodologies applied in the field of User Experience (UX), it is essential to comprehend with three phases that have shaped the of Human-Computer Interaction (HCI) literature. These three phases are defined as waves (Bødker, 2006) or paradigms (Harrison et al., 2007). **The first wave** shows a pragmatic approach and interest in human factors and ergonomic principles to reduce user errors (Bødker, 2006). This wave defines the interaction process as a man-machine coupling (Harrison et al., 2007). The design and research process focuses on finding failures and problems of previous designs of man-machine interaction to provide solutions. Therefore, methods generally form strict, formal and systematic guidelines to reveal and solve the objective problems of interactions (Filimowicz & Tzanko, 2018). Accordingly, usability tests are this wave's most commonly used research method to define critical incidents based on human factors (Bødker, 2006). **The second wave** aims to optimise human-computer interaction by

considering the users' cognitive process. The main difference between this wave from the first one is evaluating the interaction as an information communication to define essential systems improvements (Harrison et al., 2007). Therefore, the design process and research rely upon defining improvements and testing them rather than solving the problems and failures, as was in the first wave. The second wave emphasises observing the natural behaviours to consider the situation-based interactions to determine these improvements (Harrison et al., 2007). However, the aim is to generate a generalizable hypothesis that explains these behaviours with valid and applicable statements. Even though the subjective side of human-computer interaction is acknowledged by including situated knowledge, it evaluates the interaction by revealing and formulating the psychological state for the user to establish a model that optimises the interaction (Harrison et al., 2007). Accordingly, the research is conducted with valid and structured experimental methods of inquiry which aim to provide objective universal statements (Duarte & Baranauskas, 2016). So, generating objective knowledge, which forms the universal statements are also important in the second wave to increase the efficiency of the interaction. Correspondingly, objective knowledge that stands alone about interaction plays a vital role for both paradigms in examining human-computer interactions.

Usability was defined as the prime element of the product development process as it is accepted as the ground of human-computer interaction (Karapanos, 2013). ISO 9241-11 standard about the usability is achieved by "effectiveness, efficiency and satisfaction" that relates to both objective and subjective aspects of interaction. Despite the earlier mention that the first and second waves of HCI place significant emphasis on both the subjective and objective aspects of usability, studies by authors such as Frøkjaer et al. (2000), Hornbæk and Law (2007), and Kissel (1995) have shown that user satisfaction cannot be considered a direct result of objective performance and measures (Karapanos, 2013). In addition, the study of Kurosu and Kashimura (1995) and the replication study by Tractinsky (1997) and Tractinsky et al. (2000) indicated that subjective judgements are related to aesthetic perceptions and cultural backgrounds. These findings presented that human-

computer interaction requires diverse and new approaches, methods, and perspectives.

Appropriately, many research methods and approaches, such as ethnography, action research, and practice-based research, have been transferred from other disciplines or developed within the field of human-computer interaction design. These methods help researchers and designers examine the interaction as phenomenally situated, considered the *third wave's* distinguishing characteristic (Harrison et al., 2007). Researchers started to examine the interaction by observing the user and the product in a natural setting. Therefore, researchers and designers consider situational aspects of interactions to understand the user context, including the semiotic meanings of the products and interactions (Bødker, 2006). Products, their perceived meanings and users' socio-cultural contexts become the elements and constructs of the design process in the third wave (Harrison et al., 2007). Since these various diverse elements, for example, emotions and semiotic meaning, constitute the product or user experience, it becomes the hallmark of this wave (Bødker, 2006). Besides, ubiquitous computing environments lead service designs while product interaction partially disappears or diffuses (Grudin, 2005). Consequently, the Human-Computer Interaction community embraces the notion of experience design with new concepts, methods, and perspectives to transform the situated knowledge into designs (Karapanos, 2013).

Many approaches and methods have been developed to explain these dimensions of user experience to reveal a different side of experiences from various perspectives, such as; emotions (Desmet & Hekkert, 2007), the pleasure raised from products and systems (Jordan, 2000), sensory modalities in product experience (Schifferstein, 2011), and meaningful experiences (Hassenzahl, 2010a). We can give many more examples explaining the relationship between the design and user experience from different perspectives and approaches. Karapanos (2013) have categorised these approaches under two titles: *reductionist approaches*, which originate from cognitive psychology and *holistic approaches*, which are nourished

from a pragmatist philosophy and phenomenology. While reductionist approaches put effort into defining psychological constructs and their relation to perceived qualities of products to identify a set of measures, holistic approaches pragmatically try to establish frameworks and structures for user experience to show the richness and complexity of experiences. Both approaches adopt multiple and mixed methods that originate both qualitative and quantitative methods that result in diverse research processes. As a result, it is possible to gain a more comprehensive understanding of human-computer interaction by acquiring a situated knowledge of the experience in the third wave.

The author of the article titled "When second wave HCI meets third wave challenges", Susanne Bødker (2015) revisited the original article and challenged other researchers to define the next and fourth wave of HCI. Accordingly, Law et al. (E. L. C. Law & Abascal, 2021) underline the importance of people's and other animals' well-being since digital technologies can be used to enhance their lives. With a similar aim, Homewood and Hedemyr (2021) discuss the meaning of the user and define it as more than human bodies. As an alternative perspective, Frauenberger (2019) proposes 'Entanglement HCI', which shifts design focus from experience to products due they are part of more extensive networks. Even though there is an ongoing discussion about the next wave, this does not mean the next wave will contradict with previous ones. On the contrary, Bødker (2006) explains that each wave completes the others because they refer to different parts of human-computer interactions. This also means that methodologies and their problems are also carried to the next wave.

3.2 Categorization of the User Experience Research Methods and Remote Approach

As mentioned in the previous chapter, UX research is defined and conducted with diverse demands, expectations, and motivations regarding the needs of design activity. Many UX research methods have been developed or transferred and adapted

from other disciplines to meet these needs. Even though many books, such as the ones authored by Martin and Hannington (2012) and Muratovski (2016), explain user research methods, researchers still need to understand the considerations of the design process to determine the research plan. Categorising the research methods helps researchers understand the characteristics of methods and pick the appropriate one respecting the considerations and needs of the design process. Accordingly, the User Experience Research Method Matrix (UXMx) developed by Töre Yargin et al. (2018) is used in this section to provide a comprehensive overview of UX research methods. The UXMx was created as a decision-making aid for both educational and commercial purposes, making it an ideal tool for guiding the strategies and conclusions of this thesis. Furthermore, the UXMx categorises UX research methods based on five distinct criteria, providing a thorough explanation of the various methods used in UX research and helping to give a comprehensive understanding of this field. Therefore, the structure of this section will follow the five criteria as:

- Categorization according to the phases of the design process (Generative/Evaluative).
- Categorization according to the way of application. (Direct/In-Direct, and Moderated/Unmoderated)
- Categorization according characteristic of the user information (Attitudinal/Behavioural/Imaginative).
- Categorization according to the time/ duration of the study (Cross-sectional/ Longitudinal).
- Categorization according to the research setting (Contrived/Naturalistic).

Therefore, categorization criteria explained below is used to outline this section to explain UX research methods. During this explanation, the remote approach will be considered as it is the part of the problem background of this thesis. During the data collection of this thesis, COVID-19 influenced UX research practices as well as world conditions. Accordingly, the remote approach has become a vital and indispensable way of collecting data from users for firms because *remote research*

is a setup in which researchers and participants do not have to be at the same location. In other words, researchers gather data from users without depending on their locations during the COVID-19. Thus, this study also uses this categorization to explain UX research methods' dimensions and ground a remote approach in the UX research process. Therefore, the categorization of the UX research methods, including the remote approach, will be presented in the following sections.

3.2.1 Categorization According to the Phases of the Design Process

UX research should be employed and planned according to the needs of designers. The needs of designers and essential information to support the design activities changes according to the phases of the design process that are defined as the first category of UXMx. While designers seek inspiration or guidance for design ideas developed in the early phases, they need to justify their decision in the later stages. Accordingly, research methods can be implemented to generative research to provide insights during the early phases. Research can be conducted to 'evaluatively' examine the design decisions at the following phases to find the best possible alternatives

Figure 3-1 presents the design process and related research activities to generate and finalize the product decisions. (Stappers & Sanders, 2005). Therefore, generative methods generally provide empathy with the user at the beginning of the design activity, and evaluative methods investigate the developed design solutions from the user's perspective.

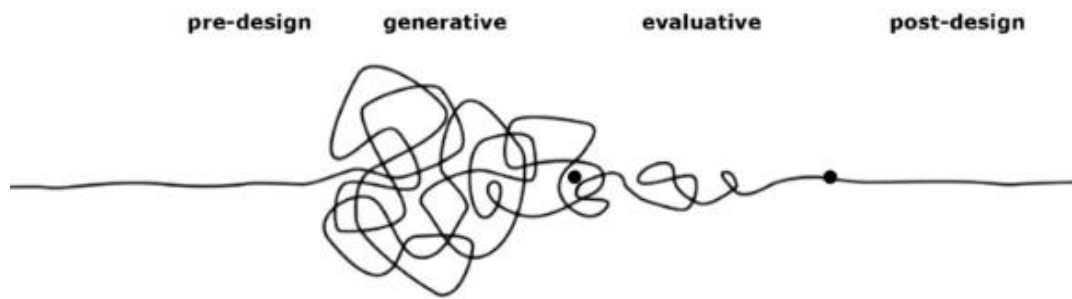


Figure 3-1 Phases along a timeline of the design process (Sanders & Stappers, 2014, p. 10)

The remote approach can also be implemented to generative or evaluative research. Various online research tools can prepare the environment for research by providing communication between the user and the researcher. Therefore, researchers can integrate digital tools and communication channels into their generative research methods thanks to infrastructure development and technological advancements (Rubin & Chisnell, 2008). Besides collecting generative information with digital tools, it is possible to reach the existing information *by using device logs or investigation online social platforms and mediums*. These existing data enable researchers to obtain natural behaviours, ideas and thoughts through digital mediums and social channels (Rubin & Chisnell, 2008). In addition to learning about the user, design decisions can be evaluated with *remote usability tests* to justify and ground solutions (Bolt & Tulathimutte, 2010). Even the existing and launched products can be monitored with *automated data collection methods* to observe user behaviours and define product problems (Bolt & Tulathimutte, 2010). In this way, the following design projects and research can be identified to conduct further product development.

3.2.2 Categorization According to the Way of Application

The way the UX research method is applied is the second criterion to define the categorization because it affects the relationship between the researchers and

participants. Accordingly, methods can be implemented directly or indirectly (Malholtra & Dash, 2016) or moderated or unmoderated (Albert et al., 2010; Barnum, 2021; Bolt & Tulathimutte, 2010). This section presents the way of implication criteria regarding the remote approach.

3.2.2.1 Direct or In-direct Research Methods

When grouping and choosing research methods, researchers must consider how researchers interact with participants. In-direct research approach, participants are aware of the researcher's existence and research, and the aims and procedures of the research (Malholtra & Dash, 2016). On the other hand, in an in-direct approach, users participate and contribute to the study without realising the research aims, sometimes even the fact that they are being researched (Malholtra & Dash, 2016). Even though the observer effect can be eliminated, and the natural usage behaviours of the users can be observed with in-direct research, ethical considerations should be carefully thought to not violate participants' rights.

Remote research also can be applied with direct/indirect approach. Thanks to online tools and web infrastructure development, researchers can directly communicate with users and conduct research such as interviews or usability tests (Bolt & Tulathimutte, 2010). Moreover, various research methods can be implemented indirectly by utilising technological tools. For example, the analysis of big online data such as *Google Analytics* reveals the behaviours and tendencies of users (Ballard, 2007). With a similar approach, *data logs of digital products* allow observations and insights about usage context and users' mental models (Rubin & Chisnell, 2008). Moreover, it is possible to investigate user feedback and comments in various online mediums can help to understand users' thoughts, expectations, and complaints (Kozinets, 2015). Therefore, researchers can create insights at different stages of design by indirectly examining the user with remote research tools.

3.2.2.2 Moderated (Synchronous) and Un-moderated (Asynchronous) Research Methods

The role and position of the researcher during the data collection with a remote approach is another factor to consider in UX research methods categorization. Accordingly, remote user experience research methods can be classified as moderated and unmoderated according to the type of managing the data collection process (Barnum, 2021). While researchers are present to manage the process and guide the participants in moderated research, users can participate regardless of the researcher's presence in unmoderated research. Therefore, participants are guided with additional tools and mediums during or before the process.

Researchers apply the data collection method by communicating directly with the participants through online tools in *moderated research* (Barnum, 2020; Goodman et al., 2012). So, the user and the researchers attend the process simultaneously, which leads to defining these approaches also as synchronous research in the literature (Barnum, 2021; Bolt & Tulathimutte, 2010; Rubin & Chisnell, 2008). Attending the process allows the researcher to observe the context of use while directing participants. In this way, researchers can observe and question various situations, such as users' behaviours, speech patterns and sentence emphasis, and product interactions in the context of use by moderating the process (Rubin & Chisnell, 2008). Moreover, moderating the process encourages the researcher to ask questions on different topics depending on the course of the interview (Bolt & Tulathimutte, 2010). So, researchers can moderate the process with a flexible approach to reveal participants' attitudes and ideas and underlying reasons by questioning the subject researchers were unaware of. Therefore, in addition to essential data for usability, such as keystrokes, click points, and usage analysis, physical and social factors important in the experience design process can be examined with moderated remote research methods (Rubin & Chisnell, 2008). Moderated remote research can be implemented to gather in-depth and rich

qualitative knowledge that can be insightful for the design activity (Goodman et al., 2012).

On the other hand, communication between the user and the researcher is carried out indirectly through various tools in the *unmoderated research* process, as it does not include any direct moderation (Bolt & Tulathimutte, 2010). The participant and researcher do not have to focus on the researched context simultaneously. Accordingly, unmoderated methods are also called asynchronous methods in the literature (Barnum, 2020; Bolt & Tulathimutte, 2010; Rubin & Chisnell, 2008). Researchers direct predetermined tasks or data collection phases to participants that will be analysed later in unmoderated research (Tullis & Albert, 2013). Therefore, it is possible to reach a larger target group because participants attend the activity without depending on the time restrictions of the researchers. However, since there is no management of the researcher during the application of the method, each step must be carefully planned during the preparation phase (Barnum, 2021). Possible scenarios should be considered to design each step to obtain essential information about researched context because it may not be possible to reach and question the same participants again.

Various examples of indirect research methods can be applied with the remote research approach. *Self-reported diaries, customer reports or open-ended surveys* are commonly used example methods that the researchers do not have to directly guide during the data collection activity (Rubin & Chisnell, 2008). Users convey their attitudes, thoughts and beliefs about the experience longitudinally and/or retrospectively through various tasks and tools which researchers predefine. Researchers can implement usability tests with a similar approach by observing and analysing the usage performance of participants under predefined (Tullis & Albert, 2013). Correspondingly, researchers can predefine the research process, which will be directed later to participants to obtain essential information.

Moreover, it is possible to gather necessary information from the existing user data thanks to digital tools and online mediums. For example, expressed

complaints in online mediums or feedback channels can be collected and analysed with the *netnography* research method to understand the necessary development of the products (Kozinets, 2015). Moreover, researchers can observe and understand user behaviours in online mediums by analysing the usage patterns and clicks collected with automated recording software (Rubin & Chisnell, 2008). Similarly, examining data such as *Google Analytics or web traffic analysis*, which monitors and analyses users' behaviours, allows the researcher to conduct research without moderation. In this way, quantitative data with a high number of participants can be collected with an unmoderated research approach with automated online user experience research tools (Marsh, 2018).

3.2.3 Categorization According Characteristic of the User Information

The characteristics of the required user information differ according to the nature of the design projects. UX research can provide attitudinal or behavioural knowledge (Rohrer, 2014). Attitudinal knowledge refers to the user's personal views and thoughts about the experience. Methods such as interviews and surveys aim to expose attitudinal knowledge by vocalising the users' attitudes and ideas. On the other hand, behavioural knowledge is about users' actions, including physical and cognitive constraints and competencies that affect these actions. Therefore, researchers can employ various *observation-based methods* to elicit behavioural knowledge. In addition to these, Sanders (2002) emphasised the importance of imaginative knowledge, which includes what users dream about designs yet do not exist. Methods like *participatory workshops* provide valuable imaginative knowledge to inspire designers by combining the research context and design process. Figure 3-2 present the various research methods and their outcomes according to characteristics of user information.

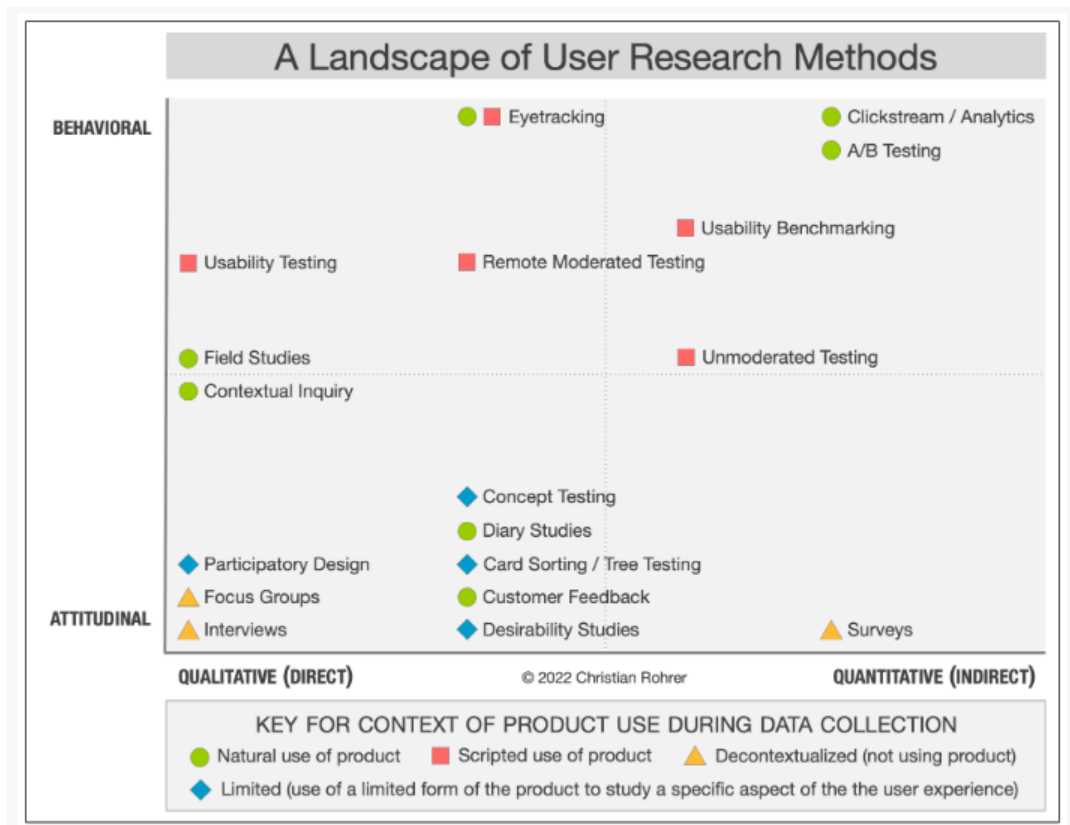


Figure 3-2 Categorization according characteristic of the user information (Rohrer, 2014, p. 2)

Remote user research methods can also aim to acquire behavioural, attitudinal, and imaginative information with a similar approach. While studies such as remote user interviews and focus group interviews provide attitudinal information about the experience, methods such as usability studies and web traffic analysis reveal behavioural information (Tullis & Albert, 2013). There are also examples of methods, such as participant workshops, that enable the acquisition of imaginative knowledge with online tools (Bolt & Tulathimutte, 2010). Therefore, behavioural, attitudinal, and imaginative knowledge or combinations of them can be obtained with the remote approach by implementing various methods.

3.2.4 Categorization According to the Time/ Duration of The Study

User experiences change over time as the relationship between the product and the user evolves (Karapanos, 2013). Accordingly, the time frame that UX research focuses on, namely when and for how long the research is conducted, is another fundamental determinant of categorising UX research methods. Research methods can be classified in the context of time as *cross-sectional* and *longitudinal* research (Flick, 2007; Ruspini, 2003). Cross-sectional studies obtain data from individuals at a single point and do not question the change of experience in time. Cross-sectional UX research provides descriptive information on user attitudes, thoughts or behaviours related to a random or particular time of the experience (Karapanos, 2013). On the other hand, longitudinal studies cover a period to include the changes over time. Accordingly, it is necessary to communicate more than once with participants or retrospectively investigate the context to learn about the transformation of the user experience in a specific period (Karapanos et al., 2009). These periods depend on the research aims and can be spread over hours, days, weeks, months and even years (von Wilamowitz-Moellendorff et al., 2006). Examining experience over time enables the researcher to understand users' behavioural, attitudinal, or perceptual changes, including cause-effect relationships. Thus, UX researchers comprehend the experience holistically. Figure 3-3 gives the study of Kujala et al. (2019) as an example of examining long term use by presenting the approaches of longitudinal, cross sectional and retrospective approaches within required measurement time.

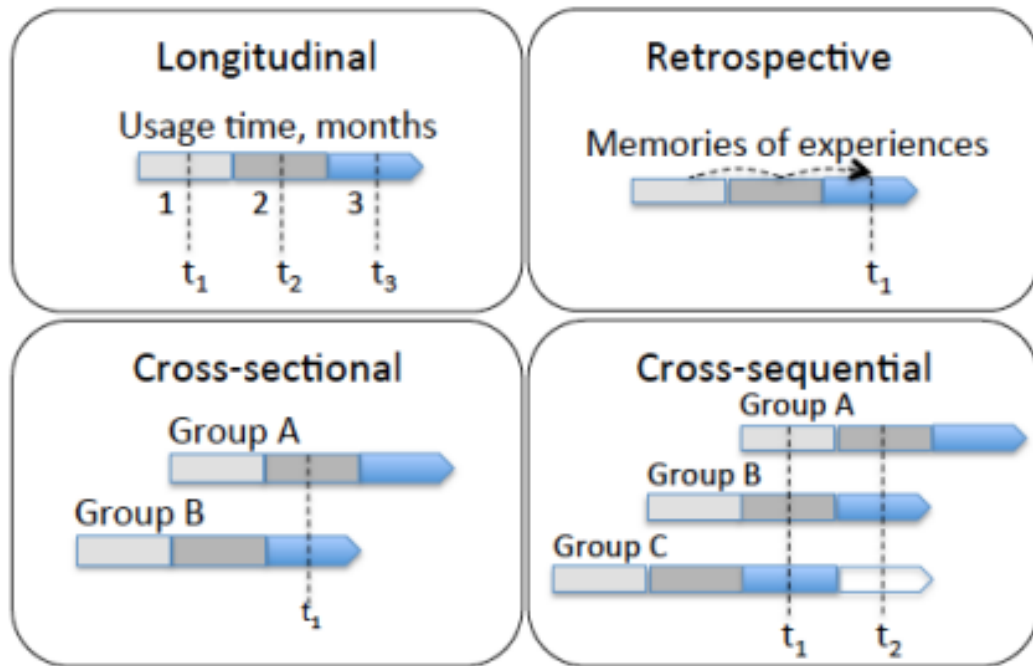


Figure 3-3 Main approaches to study long term use experience within required measurement points (t_1 - t_2) (Kujala et al., 2019, p. 107)

Cross-sectional studies can be conducted with remote research methods such as online interviews, diary software or remote observations (Flick, 2007). In addition, digital tools and technologies facilitate longitudinal studies as they enable communication between researchers and participants. Asking regularly for participant feedback to examine the experience (Tullis & Albert, 2013) or keeping digital diaries to document the use progress (Volpe, 2019) makes the data collection process for participants and researchers easier. Moreover, making digitised versions of retrospective user research methods such as 'i-Scale' (Karapanos et al., 2012) and 'EmoSnaps' (Niforatos & Karapanos, 2015) help researchers to sensitise their participants more effectively. Therefore, the remote approach enlarges the possible user research methods for gathering longitudinal data.

3.2.5 Categorization According to the Research Setting

The place where the data collection process occurred may differ according to the research's aim. Researchers may prefer the contrived research set up to have a *controlled* environment to understand the effect of variables on the experience. So, they can isolate the variables by controlling the external factor and examining their impacts on the experience. On the other, *naturalistic* studies are conducted in the natural setting of the experience to understand the experience in the real world. Even though it helps to understand the experience holistically, it is only possible to generalise the causal relationship between variables and experience with a detailed explanation of conditions (Robson & McCartan, 2016). In other words, researchers should be aware that the results of naturalistic studies refer to the conditions of researched phenomena and need to explain those conditions to establish the generalizability of findings.

Researchers have no control over the environment and conditions in remote research as the location of the participants is independent from the researcher (Ballard, 2007). So researchers cannot conduct with contrived setups as they have no control over variables of the place where research occurs. Even though researchers prepare and send unique setups, researchers would still have limited control over the environment as the conditions differ for participants (Ratcliffe et al., 2021; Spittle et al., 2021). So, the research environment passes from the researcher to the participant in the remote research, and researchers depend on the data collection devices' and tools' capacities. This dependency also limits the researchers' observation ability and makes it hard to reach contextual data such as body movement, physical relationships, and user mimics (Bolt & Tulathimutte, 2010). Even though this seems challenging, remote research methods also enable researchers to observe the actual context of use and reveal clues and insight from the naturalistic environment (Barnum, 2020). Therefore, remote research can be implemented to obtain accurate knowledge about the usage context.

This section provides an overview of the UX research methods, including the remote approach, using the UXMx developed by Töre Yargın et al. (2018). The UX research methods are explained based on five categorisation criteria: the phase of the design process (Generative/Evaluative), the mode of application (Direct/Indirect, and Moderated/Unmoderated), the type of user information (Attitudinal/Behavioural/ Imaginative), the time duration of the study (Cross-sectional/Longitudinal), and the research setting (Contrived/Naturalistic). This categorisation provides a comprehensive understanding of UX research methods, including the remote approach. The following section will discuss the advantages and challenges of the remote approach in UX research and its impact on the UX research process.

3.3 Modelling Approaches in UX Research

The research methods explained in the previous section help UX researchers to understand the multidimensional, complex and dynamic nature of experience. This knowledge is essential for design activities as it reveals the use context of wicked design problems. Therefore, this knowledge should be used to develop design strategies to create a meaningful and positive user experience (Fulton Suri, 2003). However, it is not easy for researchers to generate simplified versions of these complex phenomena that can easily be used in design activities. Modelling the experience can be an effective method for researching and communicating user information and inspiring practical ideas for design activities (Töre Yargın et al., 2019). So, these models can explain certain aspects of the experience by presenting particular parts of the phenomena. According to Töre Yargın et al. (2019) different modelling methods can be explained as follows.

- *Representing the user activities* with models by visualising the elements, networks, environments, and their relationship is one way of modelling experience. In this way, the complex nature of the experience can be presented to designers to show the structure of the

experience. Several modelling methods can be used in this manner. These models, which range from communication patterns to actual working spaces and objects that are elements of the experience, include the flow, cultural, sequence, physical, and artefact models to reveal different viewpoints. (Holtzblatt et al., 2004).

- *Representing users* as a model can be used to give designers a comprehensive understanding of the target audience. For example, personas are representative profiles that describe typical user behaviour patterns to make the design more relatable, test scenarios, and enhance design communication (L. Nielsen, 2019). Similarly, task-based user segments can identify relevant and meaningful user groups based on the tasks they try to accomplish with mental models (Young, 2008). So, the collected information is presented with a visualisation of representative users by humanising the data with examples, scenarios and user behaviour practices.
- *Representing the mental context of user regarding the concepts and their relations* to the phenomena can be used as another way of modelling experience. It is possible to generate different models in this manner by using specialized interview techniques. Hierarchical value maps can be used to show relationships between product attributes, consequences, and values (S. Miles & Rove, 2004), while the ‘Repertory Grid Technique (RGT)’ can be implemented to extract an individual's personal constructs or thoughts about a particular subject (Fransella & Bannister, 2004).
- Models are also employed to *represent the experience over time* to show developments in product interaction and changes in user perceptions (Karapanos et al., 2009). The information collected from longitudinal or retrospective studies can be visualised to present the impact of time on experience. For example, customer journey maps are visual representations that show the various requirements of a

specific customer, the sequence of interactions necessary to fulfil those requirements, and the corresponding emotional states experienced by the customer throughout the journey (Marsh, 2018; Richardson, 2010). Similarly, the UX curve method can be adopted to reveal users' perceptions and illustrate the experience over time (Kujala et al., 2011).

- Finally researchers *present suggestions or improvements* on the product directly within as a results of the UX research (Töre Yargın et al., 2019).

Collectively these models as representation of UX knowledge help UX researchers to communicate the research results and integrate them into design activities. So, these models increase the effectiveness of research outcomes.

3.4 Challenges and Advantages of Remote UX

As explained in the previous section, remote research can answer various UX research needs and problems. Moreover, recent technological developments like the remote XR studies (Mathis et al., 2021; Ratcliffe et al., 2021) and post-pandemic conditions of the UX community (Dua et al., 2022) increased the interest towards remote research approaches. Accordingly, researchers can prefer the remote approach because of various advantages, which are listed below:

- Remote research methods require relatively fewer resources as researchers do not have to go physically or prepare special labs (Krauss, 2003; Sahar et al., 2014). So, travel expenses to the research lab and the preparation costs are reduced in the remote research as it is independent of the location.
- For similar reasons, the data collection process can be done relatively faster as sessions can be easily arranged. This situation makes remote research suitable for time and budget-limited projects (Gannon, 1998; Venturi, 2008).

- Location independency also facilitates international projects without additional investments, and researchers can reach diverse target groups (Jain et al., 2011; Walsh et al., 2010; Yiu, 2013).
- The flexibility of time and space allows researchers to communicate with more extensive and diverse target groups. Therefore, they can reach some groups that are typically hard to include (Süner-Pla-Cerdà et al., 2021).
- Remote user experience methods and tools can be used in cases where the researcher cannot be in the environment or where his presence may affect the study (Meschtscherjakov et al., 2012; Tasoudis & Perry, 2018). Since researchers do not have to be present in the researched environment, the observation effect of the researcher is reduced, and the experience can be examined without affecting the user.

Even if remote research has advantages, it comes with drawbacks too. As the process is dependent on remote tools and devices, the remote approach cannot meet the crucial requirements and obtain essential experience information. So, researchers should decide on whether or not adopting a remote approach by considering the advantages and challenges regarding the research aims. These drawbacks can be listed as follows:

- The control over the research setup is limited to the capacities of the tools. Therefore, researchers can partially observe the experience context, which makes it harder to obtain contextual data, especially in physical products (Bolt & Tulathimutte, 2010).
- Moderating the data collection process will be more challenging as the researchers are not physically present during the sessions. Therefore, researchers should have special preparations and training to deal with unexpected situations (Nunnally & Farkas, 2016).
- Even though web infrastructure and technology are improving, remote research processes still rely upon their quality. Therefore, researchers

should consider participants' technological aspects and prepare alternative plans (Nunnally & Farkas, 2016).

- Technology literacy is another influential determinant of the quality of remote research. Accordingly, age, gender, disabilities and technology literacy may impact the target group diversity and eliminate special groups (Barnum, 2021; Spittle et al., 2021).
- It is harder to intervene the moderated remote research and impossible in un-moderated research sessions. Therefore, guidance about the tools and the process should be prepared and transferred to participants beforehand (Albert et al., 2010).

In conclusion, remote research can be a useful method for conducting user experience research due to its various advantages such as lower resource requirements, faster data collection, increased accessibility, and reduced dependency on location. However, it also comes with challenges such as limited control over the research setup, difficulties in moderating the data collection process, and potential limitations in target group diversity. Researchers continue to conduct UX research during to COVID-19 by using the advantages of the remote approach mentioned below, while they had to consider the drawbacks of it. The following section will provide a conclusion regarding this chapter.

3.5 Conclusions Regarding the Chapter

This chapter started with exploring the history and methods of UX research to gain a deeper understanding of the approaches used in practice to present the approaches in the field. The chapter delves into the methodological aspects of UX research methods in the next section by categorizing them to examine the dimensions that can be used in selecting the method. Additionally, remote approach implantation in UX research methods has been explained regarding the categorisation and associated challenges. By exploring these topics in detail, the chapter aims to provide

a comprehensive understanding of UX research and its methods, including the remote approach.

Data collection and modelling with these methods needs to be understood in the commercial context since UX research practices have considerations and needs that depend on project-based dimensions. Therefore, understanding the current UX research practices in a commercial context should be developed to present how to improve them. In the next chapter, the methodology for investigating the current practices of UX research will be presented to show considerations, needs, expectations and related strategies.

CHAPTER 4

METHODOLOGY

The purpose of this thesis is to improve the UX research practices in commercial settings. Thus, conditions of the UX research practices and mindsets of UX practitioners should be considered to offer strategies for conducting good UX research. Therefore, there is a need for investigation on the practices of UX teams and firms to understand their approach to UX research and the factors that influence their decision-making process.

Case study research is an appropriate methodology for this study because it allows for in-depth exploration and understanding of complex real-world phenomena (Yin, 2018). Case study research is also suitable for exploring the practices of UX teams and firms because it allows for the examination of multiple perspectives, including the perspectives of practitioners, and firms (Eisenhardt, 1989). The study will employ a multiple-case study design, which allows for the examination of the practices of multiple UX teams and firms to develop a rich and comprehensive understanding of the phenomenon under investigation (Yin, 2018).

The findings of this study will contribute to the advancement of the field of UX research by providing insight into UX research practices in commercial settings. The study will also contribute to the development of best practices for UX research in industry, providing guidance for UX teams and firms on how to conduct rigorous and relevant UX research. This chapter will provide a detailed description of the methodology used in this case study research, including the research design, data collection methods, and data analysis procedures.

Multiple case design strategy has been adopted as the strategy to research the UX research practices. Yin (2018, p. 79) defines four criteria for judging the quality of the requirements as; 1) “Construct Validity” (representing the correct literature

background and determining suitable data gathering tools); 2) “Internal Validity” (establishing the relationships between the elements of case study, constructing patterns that lead to explain the structure of the case); 3) “External Validity” (showing how multiple cases have been selected and how cases can be used as different representatives); 4) “Reliability” (explaining the study procedure including its steps and data collection tools). Along this chapter how this study meets these four criteria are explained part by part. “Construct validity” is explained at Section 4.1. Regarding why and how case study is selected and designed. “Internal Validity” is more about analysis of the collected data and their relation to the case, and it is mentioned in Section 4.1.3. Case selection strategy and process are explained under the Section 4.1.2.1 to show “External Validity” criteria for this case. The data collection procedure is demonstrated in detail and step by step including triangulation strategy to meet with “Reliability” criteria.

4.1 Case Study Design for Understanding the Factors that Effects UX Research Process in Practice

Real word research focuses on problems and issues of people as well as why and how the problem occurs for them. In other words, real-world research investigates issues related to the people by analysing the dimensions behind issues. Thus, these kinds of studies help researchers gain more understanding about professionals’ and practitioners’ ways of working and the context they are in, such as the firm strategies and industry-related dimensions (Robson & McCartan, 2016). Respecting the aim of this study, examining the UX designers and researchers’ practices in the real-world context is critical to provide a guide for UX practitioners and various strategies can be embraced to investigate real-world cases.

Yin (2018) explains the case as “a contemporary phenomenon within its real-life context, especially when the boundaries between a phenomenon and context are not clear and the researcher has little control over the phenomenon and context.” So, the case study has been adopted as the strategy to investigate the UX research

practices in the industry for various reasons. First of all, case study research scientifically and systematically examines and analyses real-life phenomena by exploring not evident boundaries between the context and its elements (Ridder, 2017). Therefore, it helps us to gain a comprehensive understanding of the UX practices. Secondly, case studies are conducted to explore systems such as policy, institution, firm, or orders in their real word content by investigating them from multiple perspectives (Eriksson & Kovalainen, 2010; Simons, 2009). Case studies enable the researcher to analyse the relation behind a specific context (i.e., an organisation, phenomena, or practices) regarding the dimensions of real-world context as examined with multiple perspectives. Therefore, various aspects that affect UX research can reveal themselves regarding conditions of industry and structures of the firms and the practitioners' perceptions about them. As another reason, while case study explores the context, they unfold the real-life events or phenomena by documenting and explaining multiple perspectives to describe essential factors and interactions between important actors of the setting (Eriksson & Kovalainen, 2010; Simons, 2009). While the interactions display the patterns of practices, they also encompass the various participants' ideas and perceptions towards UX research methods. Therefore, multiple participants' views and thoughts are taken into consideration, including impacts of the nature of UX research process on practitioners. The fourth reason is that case study research grabs the essence of complex context, including related transitions over time (Yin, 2018). So, case studies help us reveal the UX process that contains the interactions between methods and practitioners. Thus, the UX process of firms as a case study addresses the research problems of this study by demonstrating the interaction between practitioners and UX research methods respecting industry conditions. In this research, time has been investigated retrospectively by grounding participants' experiences. According to the reasons that explained, case study research has been defined as the primary strategy in the first stage.

A case study is a social world examination strategy that includes the justification of data collection tools and techniques and the definition of the

researched phenomenon (Schwandt & Gates, 2017). However, a case study is not a simple and easy process to be defined, because it has many definitions and approaches which are embraced across various disciplines and fields of study such as law, organisational research, sociology, political science, medical, history, and management. Ridder (2017) distinguished these approaches under four categories and explained them with leading representatives of approaches, namely, “no theory first” (Eisenhardt, 1989, 1991; Eisenhardt & Graebner, 2007), “gaps and holes” (Yin, 2018), the social construction of reality (Stake, 2005) “anomalies” (Burawoy, 2009). In Eisenhardt’s (1989, 1991) and Eisenhardt and Graebner’s (2007) work, the case studies' main interest is exploring the new or exciting phenomenon in which the theory is absent about the phenomenon. Eisenhardt & Graebner (2007) explain that research problems about the phenomenon and possible variables should be defined by referring to literature; however, researchers should not limit themselves with specific relationships between elements and theories. Researchers can use the richness of the case by revealing the case-specific relations to build new theory (Ridder, 2017). In this approach, case studies should demonstrate the detailed descriptions that explain the phenomenon to improve understanding of the phenomenon to generate new theory. Ridder (2017) says that this approach is the best candidate to build a new theory when the new phenomenon occurs by aggregating the new constructs and information about the phenomenon.

Contrary to the previous approach, as the representative of “gaps and holes” Yin (Yin, 2018) explains that case study research aims to enhance existing literature by targeting specific gaps and holes. So, research questions are developed from existing theories to reply to how and why questions (Ridder, 2017). According to Yin’s (2018) approach, grounding the research problems on the literature is the starting point for the research, and throughout the research process, theories from literature also guide the researchers. The literature's guidance can be used to develop the existing theory by filling research gaps or testing the current theory by studying it in the real context (Yin, 2018). Because of its features, “gaps and holes” are suitable for exploring the phenomenon if it is partially understood, and researchers

want to extend the theory about the phenomenon (Ridder, 2017). So far, the first two case study design approaches focus on defining the patterns and constructs to understand the phenomenon's structure.

On the other hand, as the next approach, “social construction of reality” concentrates on meaning-making activities that shape actions or inactions in the phenomenon (Stake, 2005). According to this approach, the reality is accepted as a product which contains results of social and historical interactions between people, because the truth for a human is dependent on social constructs such as human activity, language and shared meaning (Schwandt & Gates, 2017). Therefore, the researcher should focus on “specific actions, in specific places, at specific times” (Ridder, 2017). These specific actions generate the foremost curiosity in the phenomenon, which should be replied to as the study results. To respond to this curiosity, researchers explain the cases with thick descriptions, categorical aggregations, and interpretations to give understanding about the cases (Stake, 2005). Ridder (2017) underlines that in Stake’s (Stake, 2005) approach, curiosity towards the case is the primary facilitator as the starting point of the research rather than research questions like the previous two approaches. In Burawoy’s (2009) “anomaly” case study approach - as the fourth approach-, the case study starts with the question; why anomalies cannot be explained with theories (Ridder, 2017). Although research questions are based on literature in this approach, the primary aim of the study is to test hypotheses by examining cases that cannot be explained with existing theories. Researchers formulate the research questions to discover what is surprising and exciting as a case and in the case (Burawoy, 2009). Burawoy (2009) explains that the case study does not reject the theory; it tests and improves theory by demonstrating anomalies as an exemplar at incomplete parts of the theory. Thus, this approach's main aim is to reconstruct the existing theory by defining anomalies as failures of existing literature (Ridder, 2017).

The previous paragraph focuses on four main approaches of case study design theory. It explains them briefly in terms of their purposes, foundations, and their contributions to the literature and how to define cases. In this thesis, to address

research questions, the “gaps and holes” approach has been adopted by following Yin’s (2018) case study design guide for three reasons. First of all, there are studies about UX practitioners’ mind-sets and their perspectives on UX (Kramer et al., 2016; Lallemand et al., 2015; E. L.-C. Law et al., 2009; Roschuni et al., 2015). It is also known that UX practitioners adapt an existing method or combine tools and methods or develop new tools and strategies according to the aim of the UX process (Chivukula et al., 2019; C. M. Gray, 2016b; Schönheyder & Nordby, 2018; Stolterman, 2008). So, the purpose of this case study is to focus on the UX research process that has partially known; however, it still needs to be explored to gain the more in-depth knowledge that matches the purposes of the “gaps and holes” approach. Moreover, as a second reason, my research questions are based on literature as Yin’s (2018) approach. Literature has already shown that UX practitioners have their own perspectives on the research quality by focusing on practical utility rather than scientific assumptions (Hevner, 2007; Nelson & Stolterman, 2012; Wood, 2000). This approach may result with negative impact on the quality of research. Thus, practitioners’ perspectives and consideration about UX research should be revealed to investigate and present strategies to improve practices. Answering the research questions leads us to the third reason why Yin’s (2018) approach has been chosen by developing an existing theory about the UX research process. This study aims to present the ways of good UX research in a commercial setting by considering the industry's demands, expectations, and considerations.

To conclude, this study's contribution extends the UX research literature by providing strategies to improve good UX research practice regarding rigour and relevance concepts. UX research methods within how they apply it. Therefore, the purpose of this study matches with the Yin’s case design approach as enhancing the existing literature. Accordingly, Yin’s (2018) case method has been determined as the most suitable approach to explore UX research practice.

Multiple case study strategy is implemented in this study for several reasons. First of all, the condition of UX research practices in Turkey should be considered. Adopting the UX process has become an important topic for many firms in Turkey

to enhance their services (Inal et al., 2019; İnal & Rızvanoğlu, 2016; Rajanen et al., 2017). İnal and Rızvanoğlu (2016) underline that UX practitioners work in various kinds of firms. These various firms have a different type of product and habitat, which means different types of UX research processes. Naturally, they may have different expectations from UX research, and their way of applying research has been customised according to their conditions. The aim of the thesis is to suggest strategies for improving the quality of UX research by considering the industry's demands, expectations, and considerations, multiple UX research cases from industry have been investigated regarding their work type (i.e., in-house, or consultancy). Moreover, the results of multiple cases can generate more results in finding replications between various cases, making the results more robust (Gerring, 2006; Herriott & Firestone, 1983; Yin, 2018). While single case study design mostly deals with uncommon, critical, or enlightening cases, multiple-case study designs focus on multiple evidence from various cases to generate arguments that lead to producing a general theory about the phenomena (Yin, 2018). Therefore, multiple cases as various firms were investigated to gather data from different examples and find replications. In multiple case design, each case should be worked individually to investigate the case-specific dimensions. Each case report collectively guides researchers to explain the phenomenon by determining replications between cases (Yin, 2018). So multiple case study process contains individual cases, as illustrated in Figure 4-1.

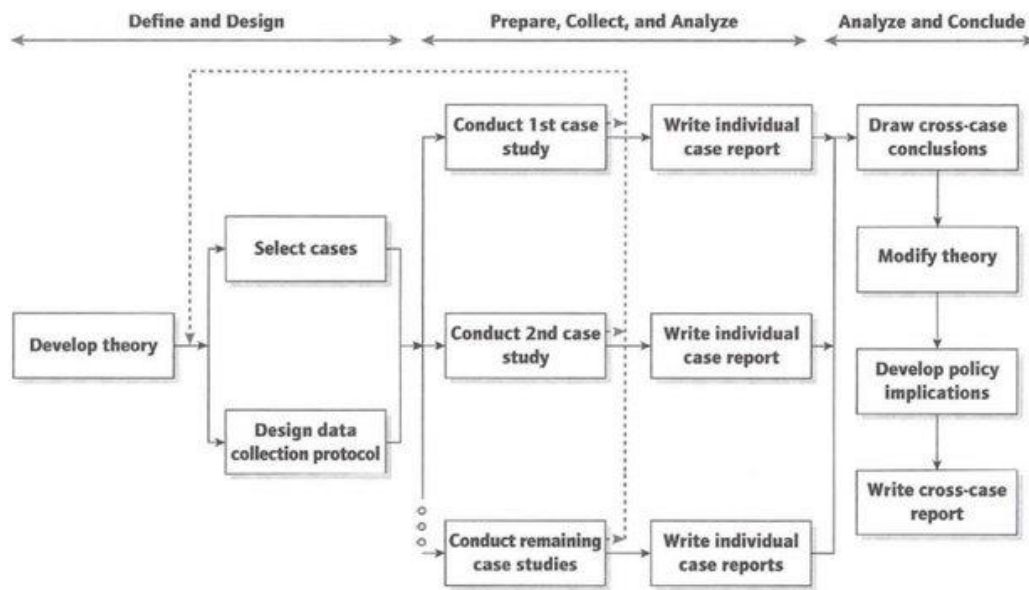


Figure 4-1 Multiple-Case Study Procedure retrieved from Yin (2018, p.95)

Sampling strategy cannot be adopted to define case number. As the main aim of sampling is to represent the whole population, it cannot be applied in multiple case studies. Even though multiple cases are studied, the number of cases would not represent the entire population (Eriksson & Kovalainen, 2010; Gerring, 2006; Mills et al., 2012; Stake, 2005; Yin, 2018). Yin (2018) suggests that “replication logic” should be adopted rather than sampling logic to generalize the study results to overcome this problem. He explains replication logic as “directly analogous to that used in multiple experiments” (Yin, 2018, p. 98). In replication logic, the first experiment's significant and critical findings are examined if they are replicated or changed in second, third, or even more experiments (Barlow & Hersen, 1984; Todman & Dugard, 2009). Some of the replications can be observed as the exact conditions in the following experiments, or some of them show differences according to their own variables (Barlow & Hersen, 1984; Todman & Dugard, 2009). Moreover, the researcher may also find new replication in the second or third experiment, duplicating in the following experiments. All this kind of replications enriches and strengthens the evidence found in the first experiment (Yin, 2018).

Thus, experiments can be conducted as much as the replications become meaningful according to the study's aim.

Similarly, replication logic can be used as the criteria for selecting cases. In replication logic, cases studied could be conducted to find (1) similar results (literal replication) or (2) comparing results to predict new outcomes within reasons (theoretical replications) (Yin, 2018). Yin (2018) explains that 2 or 3 similar cases are enough to find literal replication; on the other hand, 6-10 cases should be investigated to generate theoretical replication by comparing at least two different patterns. To conclude, 2 or 3 similar cases should be selected to find literal replications, and the researcher should conduct 6-10 cases for theoretical replications. Regarding replication logic, it is essential to find similar firms for literal replications and divergent firms for theoretical replications. The UX research process from firms should be purposefully selected as cases by considering replication logic.

4.2 Data Collection Phase

The data collection phase was conducted as a part of the project 120K215 'Developing a Guide for Supporting Remote User Experience Research' funded within the scope of "TÜBİTAK 1001 - SOBAG COVID-19 and Society: Social, Human and Economic Effects of the Outbreak, Problems, and Solutions" call. Assist. Prof. Dr. Gülşen Töre Yargın was the coordinator for the project. In the project Assist. Prof. Dr. Sedef Süner Pla Cerda worked as a researcher who also contributed a lot to the process. There were two-scholarship students in the project, including me- Semih Danış. The other student was Hilal Şahin, who studies her master's in METU Industrial Design Department during the data collection. The data collection process and research tools, including the research questions, have been approved by the Human Research Ethics Committee of METU with protocol number 149-ODTU-2020. The researchers that have been mentioned was actively worked during the stages of data collection.

4.2.1 Case Selection

Three consecutive steps were defined which can be seen at Figure 4.2. A pool of Turkey based firms involving UX research in their processes has been generated by defining the firms that practises UX research as we know from our graduates or friends in the field. This pool enlarged with examining job posts in LinkedIn and Kariyer.net and 2017-2018 Turkey User Experience (UX) Report of UX services firm (UXServices, 2017) to ensure the representativeness of sampling group. The firms are categorised under two titles: 1) Firms that provide UX consultancy and 2) Firms employing in-house UX teams. The resulting pool involves a total of 11 consultancy firms and 20 in-house UX teams. Although it is not a systematically generated table, it still presents an overview of Turkey's UX context. Participating firms should be selected with a purposeful approach to be a part of multiple cases in the study. To choose cases, Gerring (2006) suggests several methods to define the features of cases as a form of Purposeful Sampling. From these approaches, the "Typical case selection technique" is chosen to reach representatives of each UX research team type (Gerring, 2006). With this technique, each kind's representatives are accepted as variables to several cases to gain insights about specific dimensions related to the UX research project. This study intended to investigate at least 3 cases from each category to find literal replications considering both replication logic and typical selection technique. In total, it was aimed to study 6 cases to generate theoretical replications by comparing UX research team categories, including their conditions and work environment. Regarding the study's aim, all of the firms selected should have the ability to conduct remote UX research. "Eligibility" was considered as a second criterion for selecting the cases (Eriksson & Kovalainen, 2010). It is known that companies change their work styles and cancel their works due to the effects of COVID-19. In addition, some companies may consider the information that is requested as their trade secrecy.

From this pool, invitations were to firms by including the study call, which can be seen in Appendices A and B. Most of the time, the firms' generic information emails and generic emails of their UX teams were not enough to answer. So, communication was established with managers either by snowball sampling or through the LinkedIn platform. During this recruitment process, six consultancy firms and thirteen in-house UX teams were reached. Five of the six consultancy firms have agreed to be part of the study. However, the participation rate for in-house UX teams was low. Eight of them rejected study call for several reasons, such as confidentiality, time restrictions or without any reasons. It was not possible to arrange an appropriate time for two in-house UX teams. Only three of them were accepted at the beginning of the study.



Figure 4-2 Case Selection Process

In this study, individual case reports were prepared for each participant firm and sent them for confirmation. Even though the names of the firm and the employees have been disguised and effort paid in anonymising the case report content, we were aware that the information they deliver involved sensitive content and anonymity cannot be fully attained. Based on this, one of the three in-house firms decided to leave the study after receiving its case report and one of the remaining in-house firms agreed to share its case report only partially. As a result, just one thoroughly in-house UX team and five consultancy firms were examined in the study.

4.2.2 Data Collection- Case Studies with the Firms

After the confirmation, each firm as a case has been studied individually. This section is dedicated to the data collection procedure for each case. It is essential to explain and document the procedure to minimize errors and biases in cases to meet the "Reliability" criterion for assessing a case study's quality. This criterion enables the researcher to repeatedly conduct the same procedure and lead other researchers to find the same results and conclusions if they want to study again (Yin, 2018). Of course, studies and findings cannot be replicable, considering the dimension of real-world context, and researchers should transparently explain their case study by generating a protocol (Yin, 2018). This protocol should work as a scenario to conduct fieldwork to give detailed information about the study for both insider researchers as workers of the case study or outside researcher who reads the study (Yin, 2018). In this essence, the researcher should define the procedure as a protocol document to establish general rules to be followed and keep the researcher on track between multiple cases. This protocol contains four main titles; "Section A: an overview of the case study; Section B: data collection procedures; Section C: protocol questions; Section D: a tentative outline for the case study report" (Yin, 2018, p. 132). The designed protocol for this study can be seen in Appendix C. This protocol has been used during data collection phase to keep me on track.

Interviews have been defined as the primary method to collect data from practitioners for several reasons. First of all, interviews explore participants' deep understanding by questioning their knowledge about daily activity, events, or experiences (Robson & McCartan, 2016). Secondly, researchers build empathy toward participants by communicating with them through dialogues in interview sessions (Gubrium & Holstein, 2012). Third, the researchers can uncover the hidden from the ordinary perspective by questioning the participants' common explanations, perceptions, and views (N. K. Denzin & Lincoln, 2017). Fourth, deep interrogation allows the researcher to understand and express the different perspectives and dimensions of the same problem or activity (Gubrium & Holstein, 2012). In line with

these ideas, interviews are defined as the first step of the case study because of three reasons: 1) Examine UX research process from the various perspectives of practitioners, 2) Understand the firm strategy and view on the UX process 3) Practitioners' mindsets, including their knowledge about the UX research process.

It is essential to establish the trustworthiness of the study's results and credibility to meet "construct validity" for the case study (Robson & McCartan, 2016; Schwandt & Gates, 2017; Yin, 2018). Triangulation strategy can be adopted to enhance the research's trustworthiness by examining multiple sources and perspectives to collect data (Robson & McCartan, 2016; Stake, 2005; Yin, 2018). There are commonly four types of triangulation methods in literature: 1) "data source triangulation" collecting the various data by including more than one source separately like space, a period, and people (e.g., conducting multiple interviews or observations); 2) "observer triangulation" utilising more than one observer; 3) "methodological triangulation" using a combination of methods to explore research problem; 4) "theory triangulation" adopting multiple theories and views (Robson & McCartan, 2016). 'Data triangulation' can be endorsed to increase data's trustworthiness with several methods by comparing and verifying the results (Robson & McCartan, 2016; Simons, 2009).

In the case study, examining different perspectives are essential to investigate the nature of the case. Therefore, various actors should be interviewed to understand their opinions about the case and their relation to each other. In other words, various actors provide different perspectives about user experience which also means data source triangulation for this study. Respecting that, semi-structured interviews conducted with at least two actors regarding how UX research methods are practiced. To achieve multiple dimensions of the case, two main actors are defined as; 1) the manager of the UX research project, 2) practitioners that worked in the case.

Member Checking Procedure

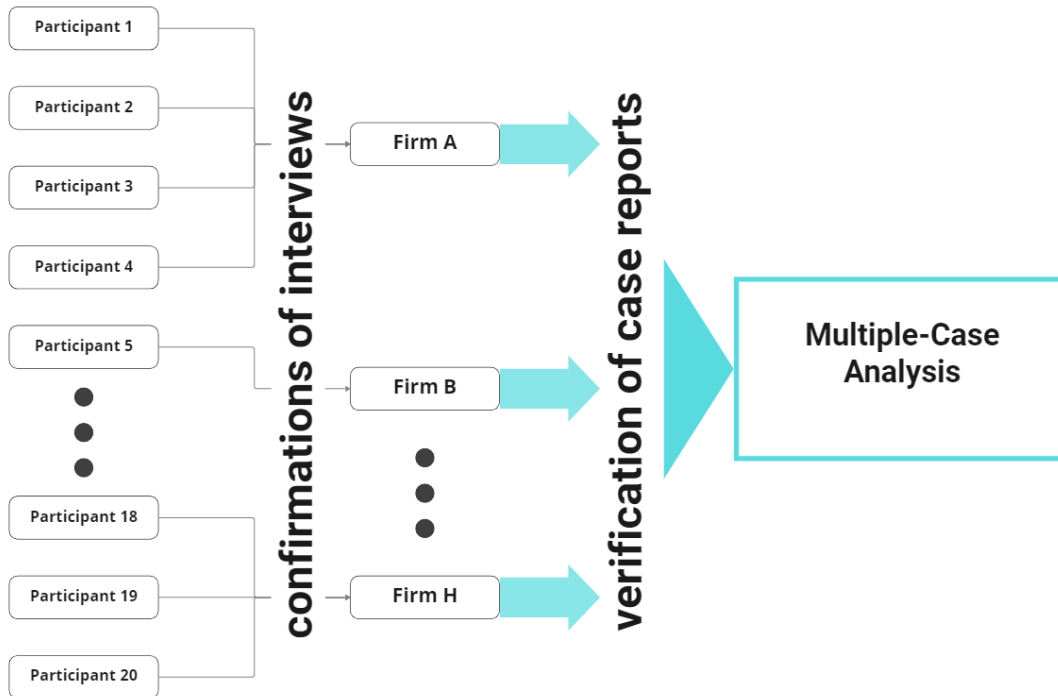


Figure 4-3 Member Checking Procedure

All interview sessions and meeting are conducted in Turkish to make participants relaxed to share their opinions. In these interview sessions, the pattern and process of UX research activity revealed the decisions and reasons behind them respecting various actors' expectations. Therefore three kinds of meetings held to gather data about the case as 1) First gathering with the participants from the firm to introduce the research protocol and to briefly get to know the firm, 2) UX manager or executive interview to explore the firm perspective and understand the management part of the UX process 3) UX employee interview to examine practices of remote UX research and understand the mind-sets of UX designers and researchers.

We have used “member checking” process to validate information in the process. “Member Checking” process in one of the most essential procedure to validate data by re-sending the raw data and researcher interpretations to participants

(J. W. Creswell & Miller, 2000). Similarly, we have confirmed the content of the interview by asking participants to overview the transcriptions. Moreover, any part that is potentially disturbing for them can be removed in this way. This confirmation also works as safety for practitioners and their jobs. After this confirmation, we generated a case report for each firm. These reports also have been sent to the manager of the firm to confirm findings and results. So, the data and the inferences were validated by the manager too. To sum up, member checking procedure done with confirmations of interviews and verification of case reports validates findings as shown in Figure 4-3. After the verification of case reports, Firm F decided to withdraw from the study because they found the case report too detailed and revealing their process. With similar aims Firm C partially agreed to share their information. So, the results of Firms C and F cannot be presented as a case in the study. The aim of these meetings and the stages of the data collection process can be seen in Figure 4-5. It demonstrates the reasons for each stage and suggested activities to respond to those aims. All the steps of data collection including interviews and case reports are done in Turkish have common understanding with firms. The following sections provide a detailed view of each activity, including each step's aims, essential tools, methods used, and research strategy to explore the research problems.



Figure 4-4 Data Collection Process Steps

4.2.2.1 First Meeting with Firms

After receiving the approval by mail or telephone, the first meeting was planned and held. For the parties to get to know each other, the first meetings were held with the companies. As the priority of this meeting, the researchers working on the project were introduced to the company. In this meeting, our expectations from the company were explained along with the details of the research. Besides, information was obtained about the structure of the company and its teams in this process. So, interview questions, that are given in Appendices D and E, are modified for various reasons such as the structure of the firm, roles of the researchers, or the firms' approach to the UX research. Moreover, questions from firms are answered during these meetings if they have any. The researcher, one of the advisors of the thesis and the junior researcher in the TÜBITAK project team attended these meetings as the representatives of the research team. Generally, managers were attended alone, though in some cases, UX researchers and designers who already know the study was also present in these meetings.

In addition to getting acquainted, the plan of the data collection process was determined during these meetings. During the meeting, the practitioner roles regarding UX Research in the company were learned, and potentially suitable participants were determined. Employers working in user experience teams and actively participating in user research were eligible to participate in this research. Also, the manager meeting date was planned, and the time intervals that the employees could be suitable for were learned.

Participants; Even though firms agreed to be part of the study, it was necessary to receive consent from researchers as well. Therefore, the consent forms were sent individually and asked about their appropriate times to conduct the interview. Time for the interviews was also planned according to participants' appropriateness to not intervene in their daily or work life. Totally 20 practitioners participated in this research can be seen their characteristics in Table 4-1.

Table 4-1 Participant characteristics

Firm	Code	Job Role	Years of Experience
Firm A	P-1	UX Research Director	3-10 years
Firm A	P-2	UX Researcher	3-10 years
Firm A	P-3	UX Researcher	0-3 years
Firm A	P-4	UX Researcher	3-10 years
Firm B	P-5	UX Consultant/Founder	+10 years
Firm B	P-6	UX Researcher	3-10 years
Firm B	P-7	UX Designer	0-3 years
Firm C	P-8	Customer Experience Team Manager	3-10 years
Firm C	P-9	Customer Experience Researcher	0-3 years
Firm D	P-10	UX Consultant/Founder	3-10 years
Firm D	P-11	UX Researcher	3-10 years
Firm E	P-12	UX Consultant/Founder	+10 years
Firm E	P-13	UX Researcher	0-3 years
Firm E	P-14	UX Researcher	0-3 years
Firm F	Firm F withdrawn from the study		
Firm G	P-15	Director/Partner	+10 years
Firm G	P-16	UX Designer	0-3 years
Firm G	P-17	UX Designer	3-10 years
Firm H	P-18	UX Strategist	+10 years
Firm H	P-19	UX Researcher	3-10 years
Firm H	P-20	UX Designer	+10 years

4.2.2.2 Interview Sessions

After the introduction meeting, the study continued with interviews. Interview questions, which can be seen in Appendices D and E, had to be revisited after the introductory meeting to make them appropriate according to the specialities of the firm. For example, the pilot study was conducted with Firm A. Some parts of the interview ask the firm how they compare their process before and after COVID-19 to explore the effects of pandemic on the research process. However, Firm A mainly conducts remote UX research studies because they are an international software firm. So, it does not make sense to ask them about face-to-face methods because they do not apply these kinds of practices. So, questions should always be specialised for each case, considering the aim of the study.

Interview sessions conducted through online tools considering COVID-19 conditions and social distancing rules. Zoom was the primary tool to perform the interviews because it does not require any participants' preparations to communicate via links. Moreover, Zoom also provided the feature of recording to the cloud, which helps us manage collected data. However, if participants wanted to use other applications, alternative tools such as Skype or Google meets were used. I moderated these interviews while a junior researcher observed and noted the session. These notes are also considered during the analysis phase. At the beginning of each interview, the participants' consent was verbally received along with the previously received consents by emails. This also helped us to remind the participants about the aim and content of the study. Each session lasted approximately 60-90 minutes.

Interview with the Manager of the UX Process

The interview sessions conducted by examining two parts; 1) firm perspective of UX research process 2) managers' thoughts on UX research process. In the first part, the existing UX research process were addressed within an overview of the firm and its relation to UX. In this part, UX's position in the firm and its strategies to carry out the UX research process were questioned. This part of the

interview also included the UX research process flow and how the firm applies the UX research methods. Therefore, the elements of the UX process as the main actors that shape the UX were highlighted.

The second part was to explore the UX research process including the adaptation to remote UX research process by comparing them with face-to-face methods. In this part, the reasons behind decisions about the UX research process were reviewed with the manager. Their perspectives were also questioned to gain more knowledge about the practitioners' mind-sets about the UX research process. Additionally, their practices and motivations and reasons behind them investigated in these interviews to understand the research process regarding the rigour and relevance. Concepts of rigour and relevance were not directly asked to participants as it may not provide actual data because some participants may not be willing to confess about rigour related issues. However, asking about the needs and expectations of phases regarding the quality of process were effective to obtain data about rigour and relevance by presenting the nature of the research process. Besides, COVID-19 duration and its effect on the UX research practice were asked to reconstructively explore the managers' and firms' experiences. The UX research process was discussed with the manager to understand how UX research can be guided. They were questioned how their process could be enhanced to reply to their expectations about the UX research process. As managers of the UX process, they have more experience than the other colleagues, so it is valuable to understand their UX process perspective. Besides, as managers, they are the lead actors behind UX research process decisions, so it was vital to examine their ideas.

Interview with Employers

Employee interviews conducted in two parts: 1) Practitioners' perception about UX research within their UX experiences, 2) Practicing ways of UX research methods including the effect of COVID-19. In the first session, a general overview of practitioners on the UX research process have been questioned briefly to understand their attitude and thought toward UX research. Besides, the role of

employees in the team has been asked to display the relationship between different actors of the UX research process. It also helps us structure the firm and UX team, which should be considered while guiding them. The second part focussed on the UX research process of the firm and UX researchers' roles and placement among them. The expectations from UX research and the aims of practitioners while doing it enlightened with questions in this part. This part also addresses the user research process itself to inspect the practices of the industry. Thus, practitioners explained their strategies, including how they plan and use UX research methods. The particular aim of this part is to understand how they approach UX research methods and apply them in a real-world context to expose the requirements of methods for industry.

Like manager interviews, interviews with practitioners should also be adapted according to the firm. Each firm may have different structures and UX roles. Therefore, some of the questions may not be related to each case. Accordingly, case study protocols and data collection methods should be adapted concerning the conditions of the case (Yin, 2018). This adaptation enables the researcher to reach more in-depth information by choosing the right questions.

In addition, I do not prefer to ask questions directly related to rigour and relevance concepts and their meaning for them too. As these concepts are directly related to the quality of the research, asking about these may cause misunderstanding, like I am judging their job performance and the quality of their work. Moreover, if I asked directly about these concepts, the answers may not show the actual practices and approaches. So alternatively, my approach was asking about the research practices and motivations behind them, including concerns, aims, considerations and expectations. So, I want them to know that I was not trying to judge them; instead, I was interested in practices. I believe this approach was functional in obtaining accurate data because even if I did not ask them about these concepts, UX practitioners gave much insight regarding the topic.

4.3 Data Analysis

Data analysis started with transcription of the interviews, which have been video and audio recorded via Zoom. A professional transcription service handles the transcription process as a part of the TÜBİTAK project. All the transcribed data stored as word and excel files. Also, transcribed data send back to the participants to receive their confirmation.

Content analysis is a methodology to systematically examine qualitative data by coding them to reveal valid and meaningful patterns behind them (Saldana & Omasta, 2017). In this analysis, the qualitative data meanings are coded by a researcher inductively or deductively. In this study, the content analysis process were carried out with coding in two cycles (M. B. Miles et al., 2014). In the first cycling coding, the researcher should read the data to define data chunks which are assigned codes. The purpose here is to collect the sentences collected and mentioned during different interviews under data stacks that may be relevant in line with their meanings. These resulting data sets have been collected under themes to be grouped in the second cycle (Saldaña, 2013). Therefore, themes have been generated from codes to a higher level of dimensions regarding the context. The second cycle in this project is to gather the obtained data and reveal user experience researchers' views, approaches, and habits patterns within the UX research process in the firms.

As a part of the TÜBİTAK project, this analysis process was conducted by three researchers. At the beginning of the analysis phase, three researchers independently coded three different interview data. After that, themes and patterns were discussed together within raw data and their meanings. A general codebook has been constituted to guide the later coding process by providing coherency and reliability in the assigned codes. After generating the codebook, each interview was analysed and coded by at least two researchers that I was always one of them. However, this coding phase was iterative, so new codes and themes have been found later. These new themes and codes also have been added to this codebook. As the TÜBİTAK project and its report is required to be written in Turkish, all the

evaluation and analysis part is conducted in Turkish too. Then, I have translated the findings and quotations during the writing phase of the thesis. Translation of quotations can be found in the Appendix F to present Turkish versions.

4.3.1 Case Reports

A multiple-case study should consist of single case studies that should be presented separately to explain each case's features (Yin, 2018). The differences and meaningful replications can be found between cases by presenting each case. Therefore, in this study, a case report was generated for each firm. Collectively, eight cases reported for each firm ranging in length from 25 to 40 pages. As one firm withdrew from study and another one agreed to partially be part of the study after the member checking procedure, only six case reports have been used in the multiple case analysis. These reports reveal to us the effects of various conditions on the UX research process. Each case report should consist of several topics, such as case descriptions, relationship descriptions, and empirical interpretation and analysis (Rashid et al., 2019). Similarly, case report explains the firm structure, UX approach and process. The content covered in the case report is outlined as follows:

The Firm and User Experience Research Team Structure; In this section, the company's general products and fields of activity were introduced. Besides, the location of the UX team in the company is also explained in this section.

The Firm's User Experience Design and Research Process; The firm's methodological approach regarding user experience is described under this part. Methods and tools documented, including their way of application. Also, the process is explained under this title by the following stages of UX research.

- *Pre-research phase;* How the user research starts in in-house UX teams and consultancy firms
- *Planning and Management;* Decisions and their reasons for research design

- Recruitment and participant management; How firms manage participants and reach them.
- Data Collection; Applying data collection methods regarding moderated and un-moderated approach.
- Analysis; Analysis of the collected data to gain insights about the experience and the strategies for analysing the data
- Communication; Visualization and explanation of the analysed data to generate insights for clients or other departments regarding the effectiveness of the research

Factors that prepare the researchers to UX research field: Sources that practitioners prefer and influential in their careers are mentioned here. Besides, the education program of firms is explained in this part, if there is any.

These reports enable us to compare the firms' and their UX research process including their employees thought on the subject.

4.3.2 Collective Evaluation of the Data

Obtained data from interviews have been used to make interpretations with two separate analysis approaches to find different focal points of the research questions. First these data are used in creating case reports and conducting multiple case analyses to present the firms' practices about UX research including employees' thoughts, and problems regarding the firm and the process. Additionally, raw data have been investigated in a separate excel sheet to comprehend UX practitioners' mind-set by revealing their experience, expectations and need about UX research. These two analyses collectively present the current practices of UX firms and mindsets of the practitioners as illustrated in Figure 4-5. Therefore, this knowledge guides me to provide research outcomes that are applicable in practice context as it considers both firm and practitioners perspectives.

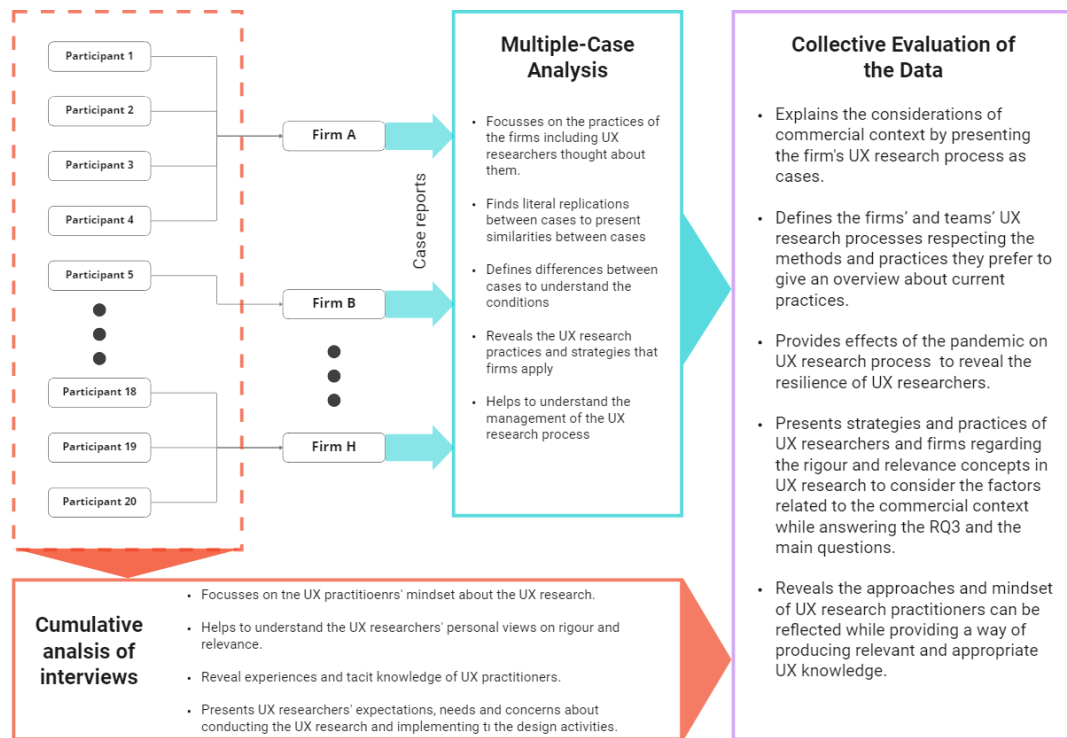


Figure 4-5 Collective Evaluation of Data

Multiple-case analysis have been conducted in the study to focus on practices of firms, including those of UX researchers, and how they think about them.

Therefore, this analysis presented the following issues.

- In a multiple-case analysis, replications between cases have been revealed to identify similarities and differences between them. This helps to establish common patterns and trends that are relevant to the UX research process. Comparison of the cases help me to understand the conditions that lead to those variations.
- Multiple-case analysis reveals and lists the UX research practices and strategies that firms apply in order to improve the user experience under

various conditions. By studying multiple cases, researchers can identify best practices and common approaches that have been perceived successful by UX practitioners. This information can be used to inform research outcomes and to guide the presenting strategies for improving the user experience research.

- Another benefit of multiple-case analysis is that it can help me to understand the management of the UX research process. By studying the practices of different firms and how they manage their research, I gain insight into the different approaches that can be used to effectively manage UX research projects. This can include understanding the role of different project partners in the research process, as well as identifying the key challenges and opportunities that arise when managing UX research projects.
- Overall, multiple-case analysis is a valuable research method for gaining a deeper understanding of UX research practices and strategies, and for identifying considerations of UX firms and teams regarding the conducting UX research in a commercial context.

A cumulative analysis of interviews is applied in the analysis to investigate the mindset of UX practitioners regarding UX research. Accordingly, this analysis provided knowledge in following issues:

- The cumulative analysis of interviews is a research method that focuses on the mindset of UX practitioners regarding UX research. This approach aims to understand the mindsets of UX researchers and to guide the research outcomes by reflecting those perspectives. Therefore, UX practitioners' personal views on rigour and relevance in terms of the quality of the research process and implementation of research results have been presented with this analysis.
- Revealing the experiences and tacit knowledge of UX practitioners about the UX research process and its quality was another key objective of

cumulative analysis of interviews. This approach allows us to identify differences between novice and experienced researchers and to understand the effect of tacit knowledge on UX research. Moreover, the background of UX practitioners regarding the education and disciplines are also revealed in this analysis.

- Finally, the cumulative analysis of interviews presented UX researchers' expectations, needs and concerns about conducting UX research and implementing it into design activities. This information is valuable for understanding the perspectives of UX practitioners and can help to improve the quality of UX research and its implementation. Moreover, it guides in providing relevant and interesting research outcomes by reflecting the UX research practitioners' interests, needs and expectations.

Collective evaluation of the data analysis is performed to gain insights into the considerations of the commercial context and practitioners' mindsets. The evaluation explains the UX research process of firms by presenting case studies, which help to define the research methods and practices preferred by firms and teams. This gives an overview of the current practices in the field of UX research. Also, the impact of the pandemic on the UX research process is analysed and discussed to understand the resilience of UX teams and practitioners' reactions towards them. The analysis reveals the approaches and mindset of UX research practitioners and how they can be reflected in producing relevant and appropriate UX knowledge. This reflection is crucial to consider while providing suggestions and strategies as a result of this thesis. So collective analysis enables us to make interpretations about the UX research practices regarding their case-specific conditions while it presents to UX research practitioners' perspectives to reflect their considerations and needs on the thesis's outcomes.

4.4 Conclusion Regarding the Methodology

This chapter is dedicated to introducing how the methodology is developed by considering the aim and research questions of the study. The methodology of the study is comprised of three key stages: 1) A comprehensive literature search aimed at identifying the requirements of a good case study to define the research design of the thesis, 2) a case study procedure to collect essential data from UX firms and teams 3) an analysis of the collected data with two approaches to present the current practices and practitioners mindsets. The outcomes of the study are presented in the next chapter, with Section 5.1 documenting the descriptive findings about cases and Section 5.2 explaining findings about the quality of the UX research process that are relevant to rigour and relevance.

CHAPTER 5

RESULTS: UX RESEARCH PRACTICE PROCESS AND DIMENSIONS IN INDUSTRY

As a result of the collective evaluation of the data from individual interviews and cross-case analysis, the research findings are presented under two main headings. The first section provides a summary of cases to present their process. Section 5.1 presents the results of the case study, delving into the UX research processes of the six participating firms and the methods they prefer. This section also includes experiences, advantages and challenges related to remote working conditions brought about by the pandemic conditions. Section 5.2 examines the practices and activities of UX teams and firms in conducting good UX research, including the UX research practitioners' thoughts, needs and expectations. Therefore, this examination offers insights that inform the development of a model and strategies aimed at improving the quality of UX research while considering both the commercial context and the practitioners' perspectives.

5.1 Current Practices in UX Research Process

As mentioned below, this section aims to give a general overview of the current UX practices of participant firms. Accordingly, it is divided into three headings. The first part presents the firms as the cases of the study, and schematic visualisations of their processes. Firms C and F could not be included and presented here as cases due to their decisions after the member checking procedure. The second part presents the methods and strategies mentioned by UX research practitioners according to design phases. The final heading of this section explains the adaptation process of UX research to COVID-19 conditions and presents UX researchers' strategies, considerations and expectations from the remote approach.

5.1.1 Overview of the cases

5.1.1.1 Firm A

Firm A offers online services and products for both domestic and international markets. The firm develops software-based tools, services and products and carries out marketing activities related to its services. This company is composed of teams dedicated to product development, data management, marketing, business strategy, and growth. In addition to these teams, there is also an in-house central UX research team that works with all units. The general organisational flow of the firm can be seen in Figure 5-1.

UX researchers at Firm A hold two distinct roles within the company: they may be part of the central UX research team or assigned to various product development teams. Six UX researchers in the firm are part of the central research team, while the other six are embedded within the product development teams. The central team focuses on providing user research services to all teams to ensure consistency across products, while the researchers assigned to the product development teams are involved in the entire process from start to finish of a particular project. The product development teams are regularly assigned new projects and upon completion, they transfer the project and its data to the relevant team responsible for maintaining and updating the product.

UX research is conducted within the firm to understand user needs and problems, users' motivations, and goals and preferences about products. Typically, the researcher's tasks include sampling, reaching the sample, conducting interviews, doing observations, identifying problems, generating insights, and communicating the results to the relevant team. Slightly different from other researchers, the researcher in the growth hacking team works on gaining user insights to attract more customers and strengthen relationships with existing ones.

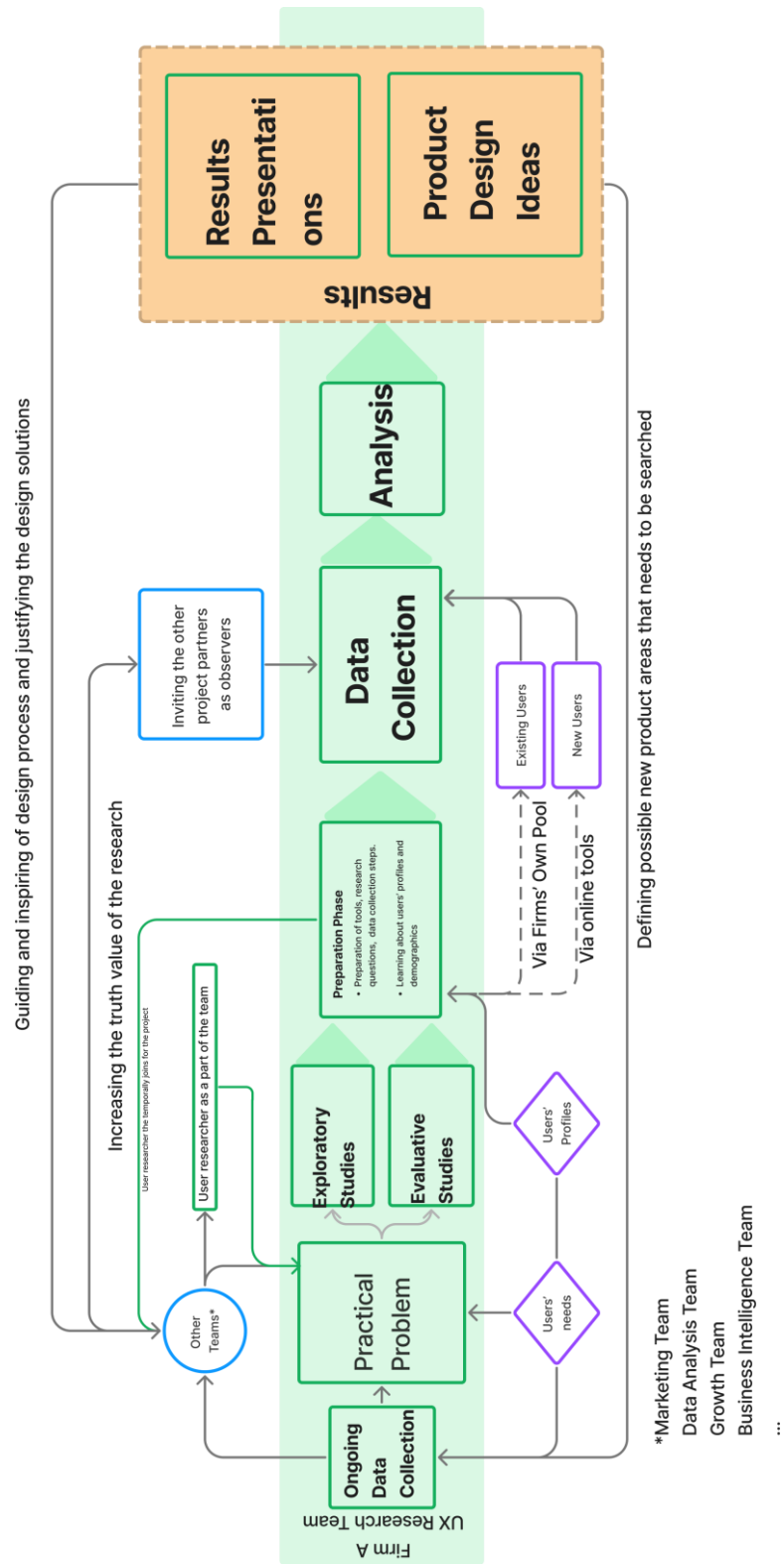


Figure 5-1 The UX research process of Firm A

5.1.1.2 Firm B

Firm B provides consultancy services in the field of UX design and UX research. The firm offers project-based services to client companies, tailored to meet their specific demands and needs. Services of Firm B includes consultancy about UX research or product development (including physical products), evaluation of products and UX training programs. They also have collaboration with universities and international UX research programme. The general process of Firm B can be examined in Figure 5-2.

A team of five, including the team's manager, works within Firm B to conduct UX research and UX design projects. The team members come from diverse backgrounds, such as industrial design, graphic design, and psychology. These people work as UX designers and UX researchers in projects in accordance with their skills and competence to provide UX design services to client companies upon request. Their UX design services combine UX research and industrial design activities together. By doing so, they can provide three dimensional or digital product design support and physical ergonomics evaluation services to client companies in the projects.

In the process of UX design and research, various methods are used to collect both quantitative and qualitative data based on the client's need and the project's requirements. Client companies can request UX research to support their product improvement processes or receive consultancy services on the entire UX design process. Firm B typically presents a research report to explain the outcomes of UX research and may also develop design proposals based on client companies' expectations. These design suggestions are presented to the companies along with the report.

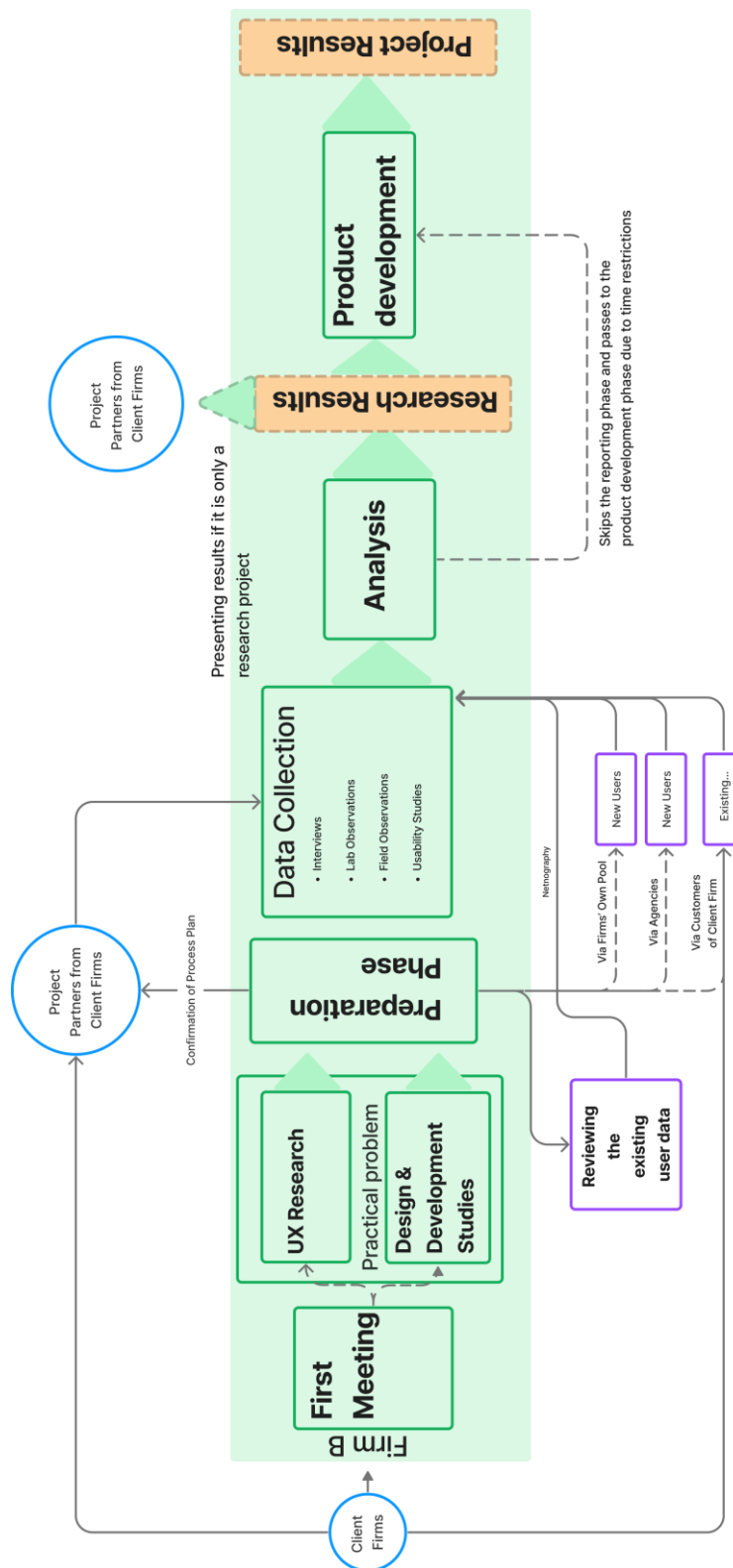


Figure 5-2 The UX research process of Firm B

5.1.1.3 Firm D

Firm D provides consultancy services in the field of UX research, especially in remote research processes. The firm offers its services using a proprietary user research tool developed by themselves, which can be used by other UX teams or UX researchers for their own research purposes.

The services offered by Firm D are marketed as 'marketing research' and 'people-oriented strategic research' since client firms have a tendency to allocate more resources and funds in the marketing area. In this context, Firm D aims to identify strategic goals and key performance indicators (KPIs) that align with the client company's objectives by understanding the target audience's expectations and needs. In addition to such strategic business partnerships, the company also offers UX research services based on customer requests and needs.

Firm D's user research approach has exploratory and qualitative characteristics. While creating the research setup, methods that provide a holistic perspective on user experience are preferred in line with the project's requirements and the client company's resources. While implementing the research, the methods are applied with an agile and iterative approach to deepen the context of research insights, considering the data obtained and outcomes revealed. This approach may require adding a new method or changing the method altogether in order to obtain deeper information, taking into account the information needs that arise at intermediate stages. In the research process, client companies usually require in-depth information to generate insights about the user, so the company often adopts qualitative research methods.

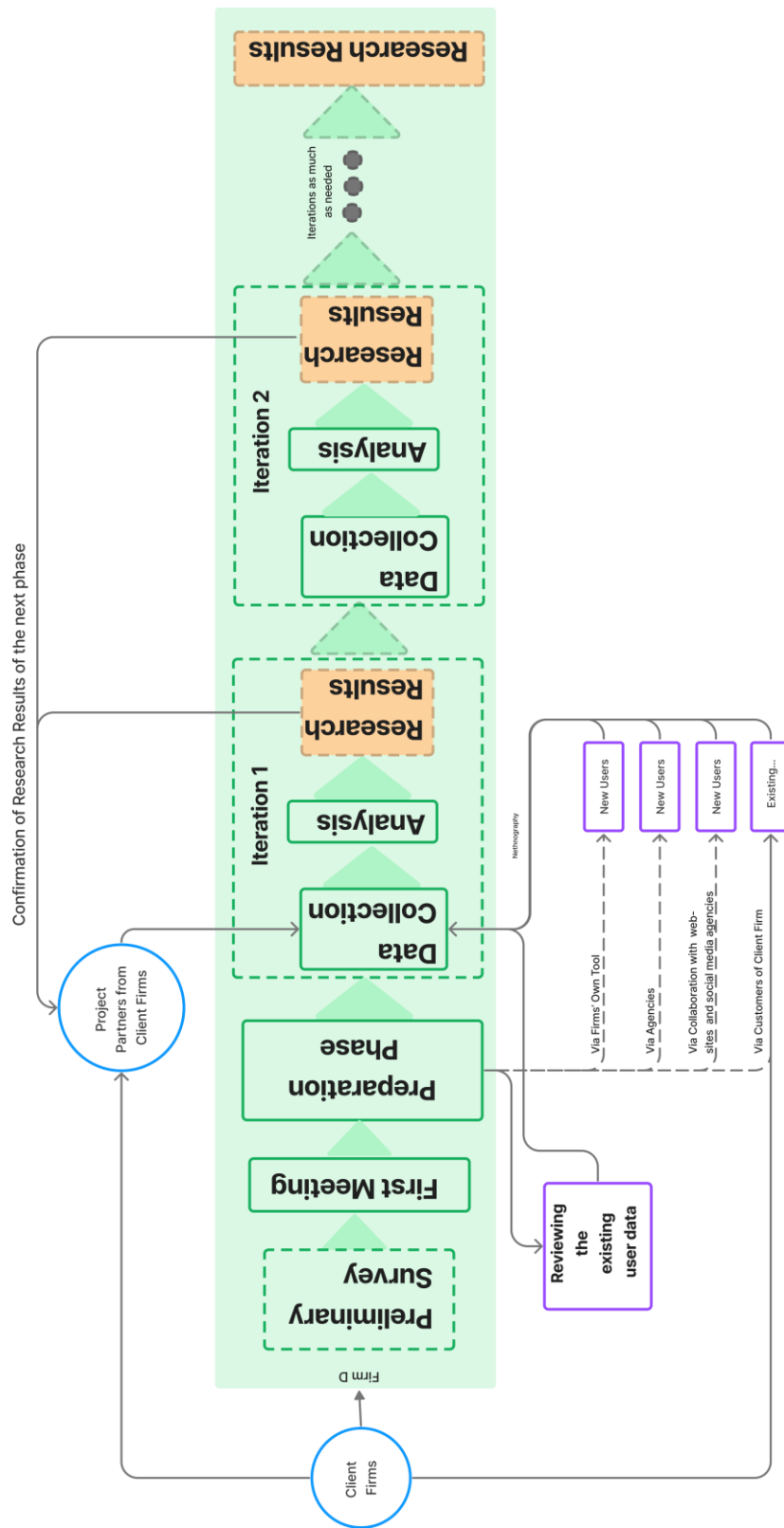


Figure 5-3 The UX research process of Firm D

5.1.1.4 Firm E

Firm E provides product development and consultancy services based on UX research and UX design. The company offers consultancy services in four main areas. Firstly, client companies can request the evaluation of their existing or prospective products or services and identification of product development strategies. Secondly, client companies can request UX services to gain better understanding of their customer base. This service aims to examine the experiences of the target populations to understand issues such as their expectations of the product or experience and their motivations behind the use. Thirdly, Firm E provides new product development consultancy for a system or experience as another service type. This consultancy starts with user research for the targeted experience and ends with the development of design proposals. Finally, 'innovation-oriented' process services are provided to client companies that ultimately want to develop new and novel products. This process involves understanding potential products, services and experiences in line with the client company's objectives through user research and developing design prototypes accordingly. In addition to their services, Firm E provides training programs for other firms and people who want to develop themselves in the UX field.

The firm currently has five development teams consisting of employees with the job titles such as UX Researcher, UX Designer and UI Designer. In addition to these development teams, there is a research team that only consists of UX researchers. Researchers in the company conduct UX research by participating in design or research teams according to the needs of the project. Researchers in the design teams work with the team throughout the whole project process. Researchers in the research team can only participate in research-based processes or support the research processes of other teams. In this context, researcher responsibilities include tasks such as implementing, analysing, and reporting on user research. A typical UX research process of this firm can be seen in Figure 5-4.

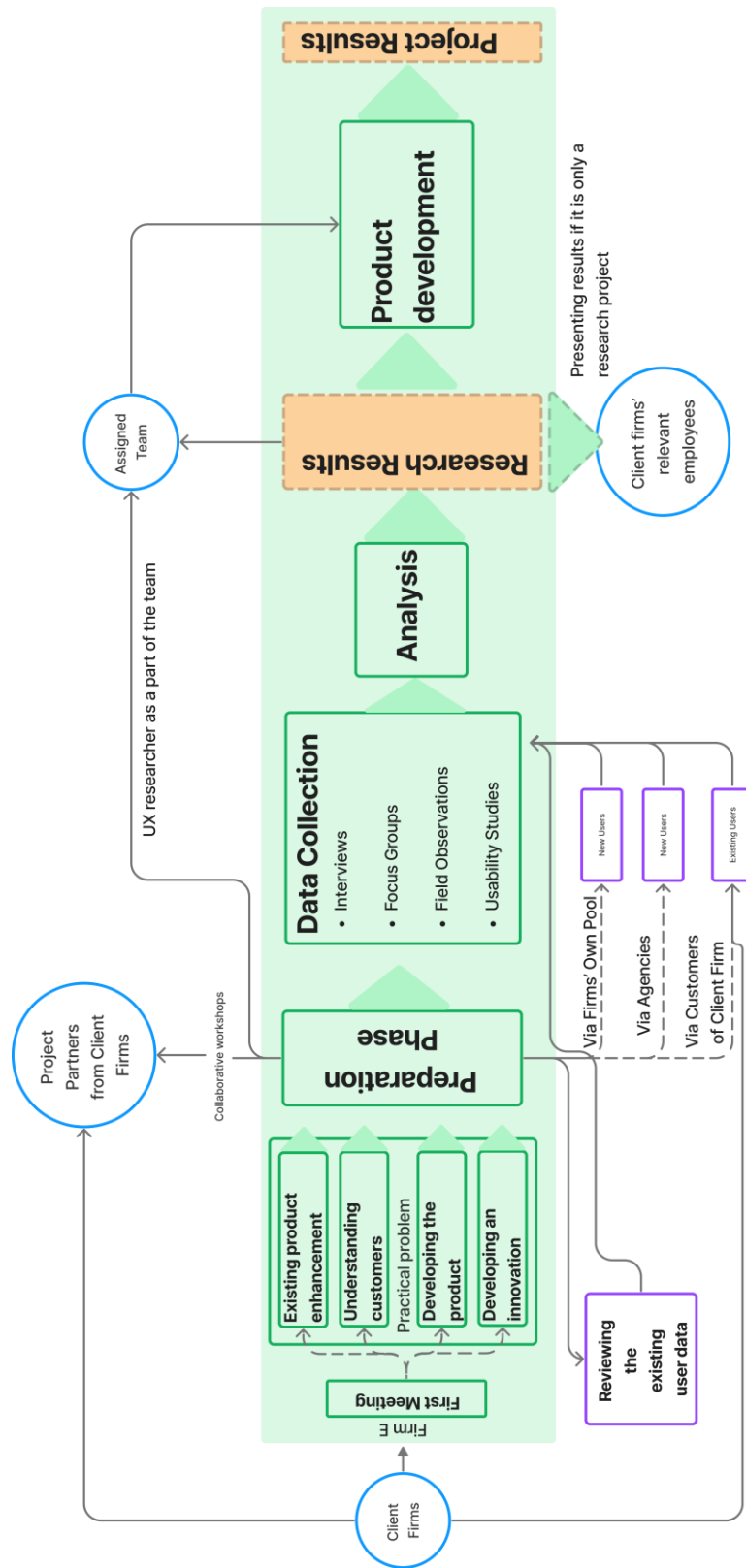


Figure 5-4 The UX research process of Firm E

5.1.1.5 Firm G

Firm G provides consultancy services to client companies in the areas of UX design and UX research as a branch of international firm. The company offers services in various fields such as architecture/interior architecture, service design, brand design, and digital/UX design. The firm's digital/UX design team, which frequently conducts UX research in projects, participated in this study. The team is responsible for developing the digital products and experiences for the client companies. Firm G services focus on product and experience design and use UX research to support these design activities. Therefore, it is essential that UX research is formulated to inform design decisions and improve designs and that its outputs should provide design insights that will inspire both the client company and the team. Figure 5-5 presents Firm G's design development process including placement of the UX research in the design process.

The team participating in this study includes twelve employees, seven of whom are UX designers. There is no separate job title for UX researcher in the firm. It was understood that the role of the UX designer should include the role of the UX researcher to carry out the design process holistically. It is believed that UX research is needed at every stage of the product development process. Hence, it is more efficient for the user experience designer to carry out the entire process in line with the practice and field requirements. Accordingly, people with a design background work as UX designers also assume the role of researchers by developing their knowledge and skills in research. Therefore, the UX designer is responsible for creating a research definition, planning and conducting research, developing product concepts based on research results, and informing and guiding the interface designer, who will bring the design concept to life.

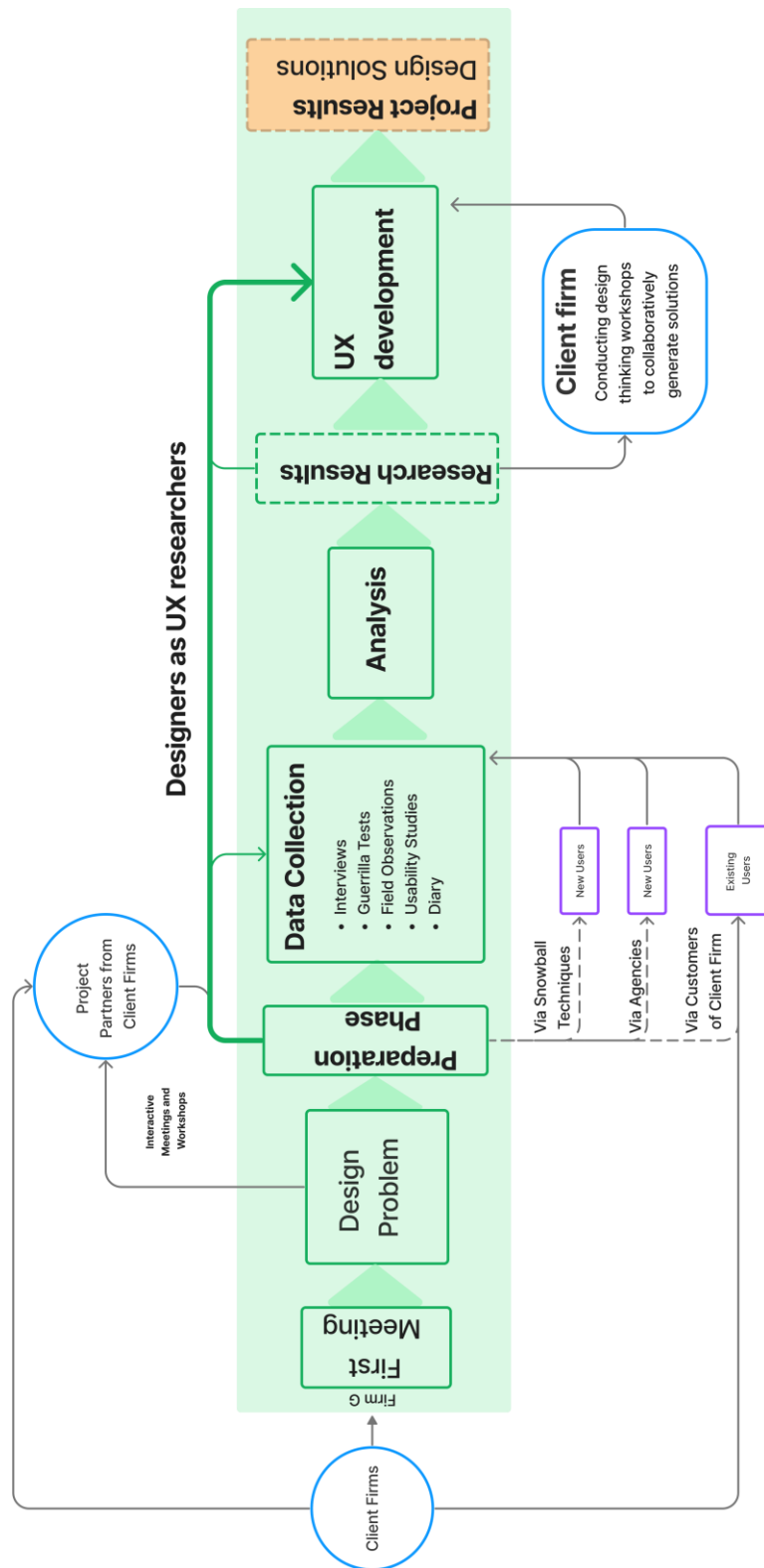


Figure 5-5 The UX research process of Firm G

5.1.1.6 Firm H

Firm H is a consultancy firm that provides UX design and training services to meet different client needs. The services offered by the firm are centred around 'design' and 'product' and aims to handle UX projects by consulting UX research. During the proposal process, the time to be allocated for a specific project is calculated according to the needs and goals of the client company. This allows the formulation of project phases and identification of methods that follow and support each other in line with the project requirements during the contracted consultancy period. Figure 5-6 shows the UX research activities of Firm H considering the design development process.

Firm H has three primary teams: production planning, ideation & creation, and research & insights teams. The research & insights team is responsible for conducting UX research within the firm. There are three types of roles under this team: UX Intelligence Engineer, UX Strategist, and UX Researcher. The UX Intelligence Engineer is expected to make sense of the quantitative data related to the experience. The UX strategist's role is to direct and position the project process according to the project requirements. The UX researcher is responsible for guiding the UX design, project objectives and information architecture by conducting UX research. The UX researcher is expected to design UX processes, guide the team with regular presentations and ensure that the user insights are implemented. UX researchers work as part of the design development teams that are formed in each project. The other members of the formed design team use the research outcomes in various ways. For example, the UX writer determines the information architecture and flow of the designated experience and ensures that the experience is suitable for the user. UX Designers are responsible for determining how the experience will be presented according to the research results and the information architecture. In this way, UX researchers collaborate on various UX aspects to transfer user knowledge.

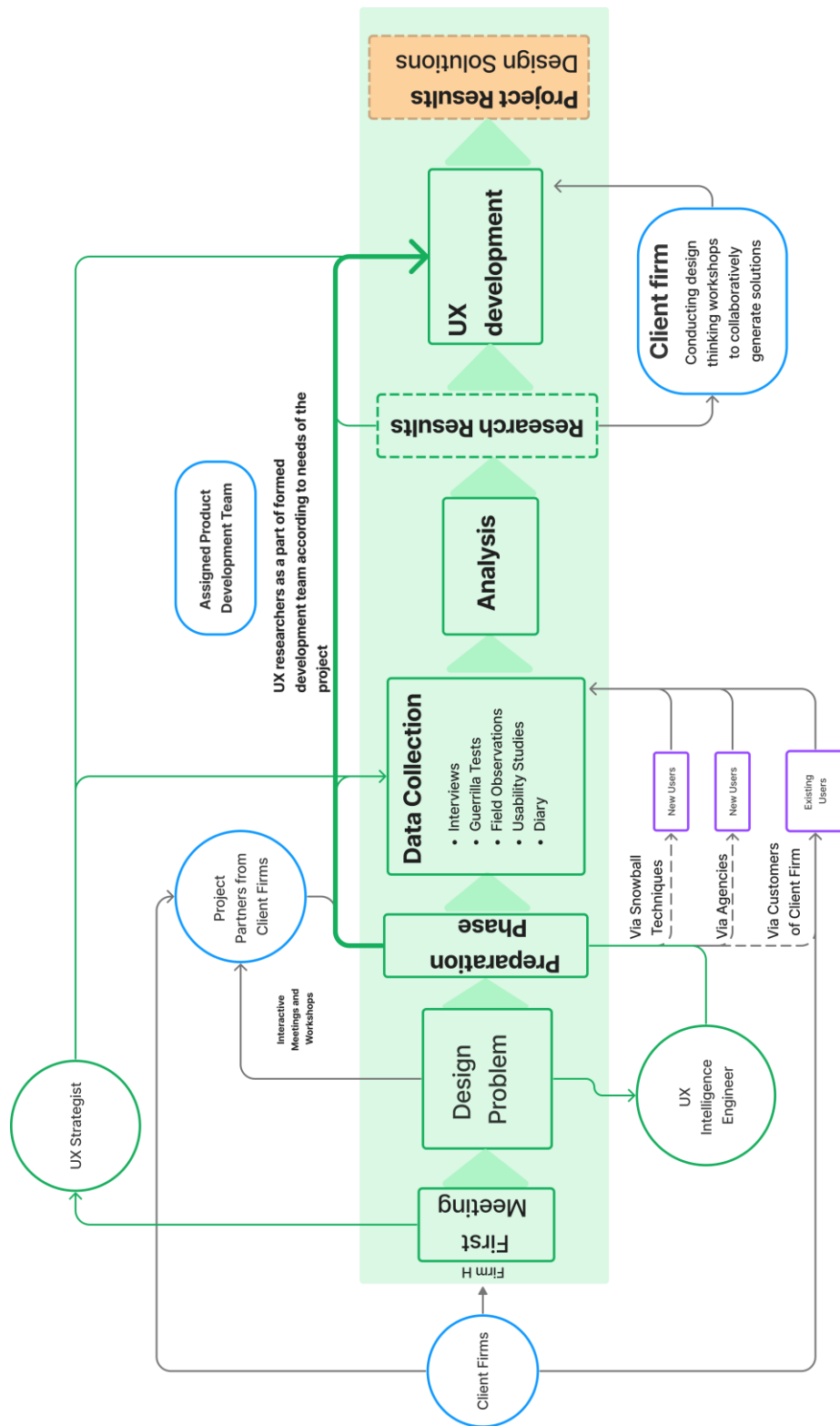


Figure 5-6 The UX research process of Firm G

5.1.1.7 Summary of the Cases

Each case has been explained in the previous parts to present their unique features regarding the structure of the firm, flow of the UX research process and placement of research regarding the design activities. So, the features of each case reveal different considerations of commercial context and their effect on UX research practices. It is essential to present these cases and their distinctive features to establish the study’s external validity. Therefore, this summary shows how cases are representatives of various commercial contexts. So replications and differences found in these cases lead to results that align with the needs and expectations of the commercial environment. Table 5-1 presents an overview summary of the cases by explaining their distinctive characteristics.

Table 5-1 Overview of the cases

Firm	Distinctive characteristics
Firm A	<ul style="list-style-type: none"> • The firm develops software-based tools, services and products and carries out marketing activities for both international and local markets. • The firm has internal UX Design and Research Teams. • UX researchers can be employed as a member of the product development teams or the central UX research team.
Firm B	<ul style="list-style-type: none"> • Firm B provides consultancy services in the field of UX design and UX research regarding UX research or product development (including physical products), evaluation of products and UX training programs. • They also have collaborations with universities and international UX research programmes. • People work as UX designers and UX researchers in projects in accordance with their skills and competence.
Firm C	Firm C partially agrees to share, so it could not be included as a case.
Firm D	<ul style="list-style-type: none"> • Firm D provides consultancy services in the field of UX research, especially in remote research processes by using a proprietary user research tool developed by themselves.

	<ul style="list-style-type: none"> • Their services include identifying strategic goals and key performance indicators (KPIs) that align with the client company's objectives by using UX research methods. • While implementing the research, the methods are applied with an agile and iterative approach to deepen the context of research insights.
Firm E	<ul style="list-style-type: none"> • The company offers consultancy services in four main areas as; evaluation of their existing or prospective products, UX services to understand the customer base, new product development consultancy, 'innovation-oriented' product development. • Firm E provides training programs for other firms and people who want to develop themselves in the UX field. • Researchers in the company conduct UX research by participating in design or research teams according to the needs of the project.
Firm F	Firm F withdrawn from the study.
Firm G	<ul style="list-style-type: none"> • Firm G provides consultancy services to client companies in the areas of UX design and UX research as a branch of international firm. • The company offers services in various fields such as architecture/interior architecture, service design, brand design, and digital/UX design. The firm's digital/UX design team, which frequently conducts UX research in projects, participated in this study. • The role of the UX designer includes the role of the UX researcher. The rationale behind this is explained as to carry out the design process holistically.
Firm H	<ul style="list-style-type: none"> • Firm H is a consultancy firm that provides UX design and training services to meet different client needs. The services offered by the firm are centred around 'design' and 'product' and aims to handle UX projects by consulting UX research. • The research and insights team is responsible for conducting UX research within the firm that includes three types of roles: UX Intelligence Engineer, UX Strategist, and UX Researcher. • The UX researcher is responsible for guiding the UX design, project objectives and information architecture by conducting UX research.

5.1.2 The flow of the UX Research Process

The UX research processes implemented by the companies are analysed under five main stages according to the phases of design activities: 'pre-assessment and research preparation', 'sample definition and participant recruitment', 'data collection phase', 'data analysis', and 'communication of research results'. This section is dedicated to explaining these phases regarding the strategies, methods and tools considered by UX researchers.

5.1.2.1 Preparation Phase of the UX research

In the pre-assessment and research preparation phase, user experience researchers perform activities to define the context of the project and design the research. Accordingly, UX design and research team activities during the preparation phase are discussed under three headings: determining the project's scope, defining the research method and setup, and preparing for the data collection phase.

Defining the project context and scope: In order to effectively conduct User Experience (UX) research, researchers must have a clear understanding of the project's goals and expectations. This includes working closely with stakeholders to define the scope and objectives of the research, as well as identifying the specific needs of designers in terms of user knowledge. Additionally, it is important for UX researchers to have a thorough understanding of the context in which the research is being conducted in order to design an appropriate research plan. Various strategies and methods can be employed to achieve this, such as those listed in Table 5-2.

Stakeholder meetings are the most commonly used method to understand project expectations and objectives. In these meetings, 'the project owner's perspective, essential need and requirements about user knowledge and the vital details and limitations about the business' are learned by UX researchers. Thus, they can understand how the project outputs will be used, or user knowledge will be utilised. In consultancy firms, such interviews are conducted with client companies

to examine product and brand targets regarding the client company's perspective. Some consultancy firms in this research prepare unique question sets and direct them to client companies or project stakeholders to understand and examine the project's content in more depth. These question sets provide the necessary information on a particular subject of the project; meanwhile, it helps stakeholders give more enriched and vital information as they reflect on issues they were "previously unaware" (P10). So, these question sets enable researchers to explore the project's success criteria by encouraging stakeholders to reevaluate the issues. With similar aims, three firms in the research organise workshops with other stakeholders and client companies to define the project's scope, objectives, and audience, by implementing design thinking methods in these workshops. Accordingly, the issues like project objectives and dimensions are determined through such activities, revealing project expectations, firms' objectives, and concerns such as time and budget limits. Collectively, UX researchers understand the needs and expectations of the project audience as stakeholders and define research aims and objectives to meet this audience's success criteria.

Table 5-2 Defining the context and scope of the UXR

Defining the context and scope of the UXR		Firms					
		Firm A	Firm B	Firm D	Firm E	Firm G	Firm H
<i>Comprehending Project Aims</i>	Stakeholders Meetings	✓	✓	✓	✓	✓	✓
	Client Firm Meetings		✓	✓	✓	✓	✓
	Specialized Question Sets			✓		✓	✓
	Workshops				✓	✓	✓
<i>Exploring the product and services</i>	Competitor Analysis	✓	✓	✓	✓		✓
	Netnography		✓	✓	✓		
	Expert Evaluation	✓	✓				✓
	Customer Feedback and Complains	✓	✓	✓	✓		

Moreover, it is also essential to understand and recognise the experience or product to be researched to define the scope and context of the design project and

UXR. Benchmarking or competitor analysis is one of the most commonly used methods to define the targeted position of the product or experience, comparing the characteristics and features of alternatives in the market. UX researchers also consider the perspectives and attitudes of users towards current solutions by including the comments and discussions found online. Accordingly, existing design solutions and alternatives are investigated, including users' thoughts about them. In a similar manner, netnography is often used to make a preliminary examination of the product and experience context from the users' perspective. So UX researchers use netnography to systematically analyse target group information, including their cultural background in online environments, and formulate research design. Therefore, UX researchers start to recognise and familiarise themselves with the project's target group before interacting with them. Moreover, UX researchers also put effort into exploring the product itself, especially in evaluation and enhancement projects. Therefore, they often conduct expert analysis to understand the context by experiencing and analysing the products, especially in terms of usability. In this way, UX researchers can define potential pain points of interaction between product and user in terms of usability and design the research accordingly. UX researchers also start to build empathy towards the target groups by experiencing the product first-hand. Finally, by analysing user feedback and customer complaints, the pain points of the experience can also be identified. This way, necessary corrections can be made before the research, or the content of the research questions can be created according to this analysis.

Research design and determining the research method: I have explained how UX researchers gather information about the UX design and research to define the context in the previous section. This information prepares a ground for the research design and methodology that will be implemented. All companies state that the most important criterion when creating a research design and selecting methods is that the outcomes of the UX research have the ability to support design activities. In this direction, an exploratory approach can be used to generate insights by revealing "clusters of ideas from users" to support design activities (P15). These insights can

inspire designers by presenting possible design solutions or guiding them in their decisions. So, designers can generate ideas in the early phases of design activity by considering the user knowledge. On the other hand, evaluation studies seek to determine the reliability of goods or design concepts in terms of usability. According to P20, experience designers may study how people react to their presented hypotheses and build solutions in this way. Designers may make essential adjustments and enhancements crucial for usability by considering UXR knowledge. Accordingly, UX researchers must take the project's goal into account while determining how the UXR should help design processes.

Furthermore, it is stated that various constraints should be considered when choosing a research method. First, the project duration was found to be one of the most critical factors affecting the choice of methodology (P5). The project time also affects the depth of information obtained with UXR, which is crucial for the methodology. Thus, researchers often state that collecting information in a practical and fast way is vital to meet project deadlines (P 5, 15, 18). Thus, they often compromise the depth of user knowledge to finish before deadlines. The project budget, and therefore the cost of the research, also plays an essential role in the choice of methodology and research design. As P5 stated, if the cost of the research methods can be covered within the scope of the project, those research methods can be applied. If not, UX researchers must find a way to mitigate lacking a proper UXR process, as P18 underlines that they produce user knowledge with relatively cheap and alternative ways. For example, it is said that longitudinal studies are not preferred by clients and stakeholders because the infrastructure preparation and the incentive gift to be provided to the participant would be costly (P5). So, they use alternative ways to obtain such information, even if the results cannot provide rich and in-depth knowledge. The features of the selected sample group also influence the technique to be used, in addition to time and money. Having target groups with special needs, such as drops consisting of individuals with little free time (P12) or visually disabled people (P6), is influential in the method selected and the way of

implementation. Collectively, these considerations are defined as vital elements of UXR design methodology as they define the limitations of the project.

Preparing for the Data Collection Phase: Preparations of the data collection phase in practice can be explained under the three headings. The first is methodological planning, which is about preparing research materials such as questions, tasks, prototypes and research tools like digital mediums or test labs. These materials should be prepared and tested beforehand to ensure the effectiveness of the data collection phase. Similarly, preparations such as 'organising the space to be used', 'checking the tools used in the methodology', 'designing materials to facilitate data collection' and 'creating drafts for note-taking' are made before the data collection phase. In addition, UX researcher should ensure their preparedness for the data collection phase. So, they should reevaluate the data collection phase and be ready for lousy situation scenarios. Also, they need to comprehend the research and project context to direct the participants properly and effectively. The final aspect of preparation is getting participants ready for sessions. It is important to inform participants and sensitise them beforehand to encourage them to give more in-depth and rich data. Accordingly, informing them about the research place and procedure and receiving their consent with documents are crucial in this phase. Also, preparing appropriate incentives for participants and providing transportation costs and times are vital as they increase the participation rate of the target group. Accordingly, researchers make careful and detailed preparations for these three issues to facilitate the practical data collection phase.

5.1.2.2 Sampling and Recruitment

Firms define the sample group according to the project's objectives through the activities they carry out to identify the project's scope and objectives. In this direction, they usually adopt 'purposeful sampling' to ensure that the sample is suitable for the defined objectives. During the sample definition, many criteria such as 'representativeness of the target audience', 'demographic characteristics',

'inclusion of sub-groups, 'participation of qualified people who can create different insights', 'needs of specific groups', 'socio-economic conditions' are considered to define a sample group that can provide insights for design activity. According to this method, they recruit the sample group from different channels per the defined profile. Therefore, while diversification is ensured in the participant group in this way, people who can provide qualified insights are also included. The people in the defined sample group are reached through five different sampling methods. Table 5-3 lists the firms and the recruitment channels they employed.

Table 5-3 Recruitment Channels

Recruitment Channels	Firms					
	Firm A	Firm B	Firm D	Firm E	Firm G	Firm H
Firms' Own Sampling Pool	✓	✓	✓	✓	✓	✓
Research Agency		✓	✓	✓	✓	✓
International Firms and Digital Remote Research Tools	✓	✓	✓			
Social Media and Targeted Advertising			✓			✓
Digital Firm and Brands Collaboration			✓			

First, *sampling from a pool of the firm's own participants* is the most popular recruitment strategy employed by firms and UX teams. In this method, firms create a pool of participants from those who have previously participated or agreed to participate in the UX research. Participants that fit the criteria for the sample are selected from this pool by using screening questions relevant to the study's objectives. Filtering from sampling makes it possible to recruit participants swiftly and effectively from those who have previously agreed to take part in the research. Similarly, companies' existing customers can also be included in the research as participants according to the research scope.

Collaborations with research agencies that provide user recruitment services were found to be another frequently used way to reach participants. Firms ask these

agencies to find participants by defining the characteristics of the sample group. Due to the weak control of the researchers in the profile and selection of the participants sent by the agencies, not reaching the participants with the desired characteristics may pose a risk for the research (P16). It is also considered that this method will bring a cost to the research process. This method is seen as practical as the obligations in the recruitment process are outsourced to an external service. However, the appropriateness and diversity of the participants recruited through this method depend on the agency's competence.

It was observed that the method of recruiting participants through *International Firms and Digital Remote Research Tools* was actively used by three companies that participated in the research. In this method, firms and UX teams can include participants in the research through the organisations they cooperate with and the digital user research tools they use. Especially with the participant pool included in these tools, which also provide a medium for conducting remote UX, a sample group can be obtained practically. This approach makes it possible to contact participants from anywhere in the world and conduct research on a global scale. It can be observed in this recruitment method that some participants 'do not answer the screening questions honestly' (P1) and that 'they see participation as a job' (P2) and 'are tired of participating in many other research sessions beforehand'(P1). For this reason, it is stated that in this method, participants should be asked additional survey questions to understand their situation and intentions before accepting their participation in the research (P1)

As the fourth way of recruitment, two firms stated that they reach users through targeted advertisements on social media. This approach allows sample groups to be targeted by focusing on users' particular social characteristics and behavioural patterns. Participants may be contacted in a targeted way by utilising the behaviours and inclinations of people previously gathered from social media and forums. The cost of this method needs to be considered due to issues such as using the social media database and reaching out through advertising.

Firm D mentioned collaborating with *digital businesses and brands* and using their user databases to seek participants as the last strategy. Digital brands and firms refer to service-based products and websites like shopping web sites, or online commerce platforms. For example, in collaboration with a shopping website, it is possible to reach people who have already been tagged with specific behavioural and consumption habits on the internet (P 10). Therefore, they can reach specific and defined sample groups according to the project's content. In this way, people whose consumption behaviours and orientations are recorded and grouped on the internet are included as special groups in the study.

5.1.2.3 Data Collection Phase

The methods the firms stated that they frequently apply are listed in Table 5-4. This table lists the methods most frequently used by the researchers. Therefore, it should be considered as the methods that firms use for their needs in research processes rather than their methodological capacities. In other words, this table reflects the most preferred UX research methods by firms to meet the needs of the project rather than their competence in UX research methods.

It was observed that companies gained user knowledge mostly by applying user interview techniques. User interview techniques are preferred due to their features such as 'generating many and rich insights' (P1), 'being able to examine the experience in detail' (P10), 'guiding the participant in a way that can generate insights' (P15) and 'better understanding of the scenario when done in the context of use' (P19). Especially in exploratory research processes, user interview methods are preferred in understanding the user's relationship with the experience and creating the necessary insights for experience design. In addition, the firms find it essential to guide the participants during the interview to extract appropriate information and encourage them to provide in-depth information on the subject. This way, they believed that user knowledge is produced to guide or inspire designers in design development activities.

Table 5-4 Data collection methods that frequently preferred by firms.

Data Collection Methods		Firms					
		Firm A	Firm B	Firm D	Firm E	Firm G	Firm H
	Questionnaires	✓	✓		✓		✓
<i>User Interview Techniques</i>	User Interview	✓	✓	✓	✓	✓	✓
	Focus Group		✓		✓		
	Card Sorting				✓		
<i>Product Evaluation Techniques</i>	Usability Tests	✓	✓	✓	✓	✓	✓
	Eye Tracking		✓	✓	✓		
	Neuro-Ergonomic Tests		✓				
	A-B Tests	✓			✓		✓
<i>Observation Techniques</i>	Web Site Tracking and Analysis	✓					
	Field Observations	✓	✓	✓	✓	✓	✓
	Netnography		✓	✓	✓		
	Diaries	✓		✓	✓	✓	
	Workshop				✓	✓	✓

It was observed that companies gained user knowledge mostly by applying user interview techniques. User interview techniques are preferred due to their features such as 'generating many and rich insights' (P1), 'being able to examine the experience in detail' (P10), 'guiding the participant in a way that can generate insights' (P15) and 'better understanding of the scenario when done in the context of use' (P19). Especially in exploratory research processes, user interview methods are preferred in understanding the user's relationship with the experience and creating the necessary insights for experience design. In addition, the firms find it essential to guide the participants during the interview to extract appropriate information and encourage them to provide in-depth information on the subject. This way, they believed that user knowledge is produced to guide or inspire designers in design development activities.

It was seen that usability tests are frequently applied to find and improve the problematic aspects of existing experiences from the user's point of view or to evaluate the precision of design-related decisions. This way, user information is generated to guide product development projects or justify the designer's decisions. Additionally, it was acknowledged that asynchronous approaches are frequently used to evaluate the user experiences of digital services and products that are already in use. This observation allows continuous evaluation of the products and services regarding the experience and improving them with essential design solutions.

The users' behaviour and activities in natural environments are other essential aspects for understanding the experience. Accordingly, various observation methods are applied to examine the context of the experience. Researchers have the chance to 'understand the impact of the actors and the use environment ' (P19) and 'see the behaviour of the users at the time of use' (P1) by implementing observation methods. Therefore, they think that the natural state of the experience can be observed and transferred to the design phase. UX researchers in this research often employed physical observation methods to understand the experience and the environment. This physical observation is believed to promote building empathy for the user while considering environmental elements and their effect on the UX. In addition, online observation with digital tools can be used to examine the experiences of digital products or services. Users' behaviours can be observed through methods such as website tracking or heatmap analysis by monitoring their activities remotely. This way, users' natural movements and behaviour patterns in the online environment can be analysed.

Four companies adopted diary studies and applied them to specific projects and contexts. In research processes where the project duration permits and the experience need to be examined longitudinally, the diary study provides information about different stages of the experience. At the same time, diary studies are often used to support other studies and encourage the user to think about the experience. Such studies are not commonly preferred due to their long duration, cost, and time constraints. In addition, the long duration increases the workload expected from the

participant. For this reason, it is not among the first choices in UXR practices in the commercial context.

Questionnaires are also one of the methods frequently used by companies. Since they think that the questionnaire does not provide in-depth information about the user experience, it is applied as a complementary or supplementary method in research processes. Accordingly, questionnaires are used for purposes such as 'conducting the necessary preliminary research' (P18) or 'verifying user research results with larger sample groups' (P6). Furthermore, firms believe that quantitative data coming from questionnaires increases the persuasiveness of the research results while transferring or presenting the UXR outcomes (P 2, 4, 7, 18, 19). Therefore, surveys are used to verify data in experience research by triangulating the data and to strengthen the credibility of the outcomes by giving objective results.

Finally, three firms stated that they conduct workshops, which is one of the participatory creative user research methods. In these workshops, user knowledge is elicited through design thinking methods. In addition to user knowledge, workshops are frequently used in project preparation stages to understand stakeholders' opinions and project needs or, at the end of the research, to share the results and develop solutions by interpreting them with stakeholders. Therefore, workshops can be used to understand the purpose of the research or to communicate the results.

5.1.2.4 Data Analysis

UX researchers process and evaluate the obtained data to make it meaningful and relevant for design activities by considering the research questions and aims of the project. At this stage, audio and video recordings and the notes were taken by the researchers during data collection are analysed. The firms and UX teams consider that a practical and quick analysis of the data is essential (Firms B, D, E, G, H). In order to achieve this, the firms used a variety of strategies to quickly find and define the design insights that are useful in design activities. Thus, they have a deductive

analysis approach to rapidly determine and reveal the data which help them to design. They similarly use ready-made drafts to take notes while collecting data (Firms B, E, G) and use ready-made analysis and method application systems in research processes (Firms E). Finding the insights required for design is the main objective of the analysis process (Firms B, D, E, G, H). In addition to gathering insights, it is also important to identify problematic points in the system or experience under investigation and to provide and suggest solutions (Firms A, B, E, G, H). In analysis, it is also essential to prioritise the importance of findings and problems, define behavioural or cultural patterns, and consider the experience holistically (Firms A, D, E, H). A detailed explanation of the company's analysis approach is given in Section 5.2.4 by discussing its impact on rigour.

5.1.2.5 Communication and Integration of UX Research

User research needs to be analysed to support the design phase and the information presented should be suitable for use in design activities. It is anticipated that the information utilised in this manner may inspire new products and ideas, serve as a designer's manual, or serve to evaluate the design choices made. Accordingly, the knowledge needs to be organised and presented according to the utilisation of the UX research. User values and interesting points of the experience are presented to inspire designers, while the experience and the user are described in context to guide them. In evaluation studies, design suggestions are presented from the user's point of view to show the results of designers' decisions. Correspondingly, it is critical to explain user research findings in a way that makes sense for the activity for which they will be utilised.

In addition to the appropriateness of the intended use, it is understood that the way of presentation is effective in understanding and using information. In this respect, it is understood that firms use various methods in communicating research results. The methods adopted by firms for data transmission are listed in Table 5-5.

Table 5-5 Methods for communicating research results.

Research Communication Methods	Firms					
	Firm A	Firm B	Firm D	Firm E	Firm G	Firm H
Research Report	✓	✓	✓	✓	✓	✓
Research Presentation	✓	✓	✓	✓	✓	✓
Workshops	✓			✓	✓	
Design Solutions	✓	✓	✓	✓	✓	✓
Customer Journey Maps	✓		✓	✓		
Persona	✓		✓	✓	✓	✓
Observation Videos	✓	✓	✓	✓	✓	✓

It was observed that a detailed report was typically generated to present the results of the research. An executive summary was presented at the beginning of the report, and this way, information was categorised at different levels of detail according to different needs (Firms B, D). In this way, the report can guide the audience according to their interest and relevance to the project. In addition to written reports, it was also observed that companies communicated research results to project stakeholders through oral presentations. Various tactics are utilised during presentations and in reports to improve the comprehensibility of the research results and ensure that the results can be used more efficiently by stakeholders. The research findings are first demonstrated by citing pertinent sections of the video recordings collected during data collection. This illustration helps stakeholders understand the experience context of the research finding and increases the persuasiveness of the findings (P 2, 3, 4, 5, 6, 7, 11, 16, 17, 19, 20). Moreover, the Persona method, which describes user characteristics concerning the experience context, is used extensively. This way, research results are transformed into representations of the sample group. Thus, it is aimed for project stakeholders to empathise with the target user group by displaying the research results as an individual rather than plain data and words (Firm A, D, G, H). Similarly, UX journey maps are another method used to explain research results. Journey maps may be used to represent research findings and the phases of the user experience, allowing insights into the experience's longitudinal

evolution to be communicated to stakeholders. Therefore, what users experience during the experience is explained to stakeholders in various details and levels. These methods collectively help UX researchers create a "bridge between users and stakeholders" (P2).

Besides reports and presentations, research results are communicated through idea development workshops with stakeholders (Firms A, E, G, H). In these workshops, research results are discussed through design thinking methods and transformed into design ideas with the contributions of researchers and other stakeholders. P1 stated that discussing the research findings with project partners increases the impact of the research results as it uses the produced user knowledge by considering the project partners' perspectives. This way, UX designers and researchers guide the project's stakeholders on how research outcomes can be utilised. Therefore, while the result of the research is transformed into design ideas, it is ensured that the information is conveyed correctly and communicated in a relevant way to the project's needs.

5.1.3 UX research Process during COVID-19

During this doctoral study, the COVID-19 pandemic emerged and had an impact on every day and business life all over the world. Accordingly, UX companies and teams in the field had to adapt their research processes to these situations. Although the primary purpose of this study is not COVID-19 and its effects, it was assumed that it would help to understand the conditions of practice with an opportunist approach. For this reason, the research questions were revised to learn the context of this transition process. Some of the companies in this research were regularly using remote user research methods and approaches. However, some companies had to familiarise themselves with these remote user research methods and approaches during this process. Therefore, a comparative evaluation of the effects of this adaptation process on the UX research process helped me to understand the commercial context better. Accordingly, the problems faced by the

researchers in this process and the approaches they found useful were presented regarding the UX research in this section.

The pandemic had a major impact on UX research at this early stage, similar to many other business fields. At the beginning of the outbreak, projects requiring personal interaction, contextual observation, or a laboratory environment had to be suspended or rescheduled (Firms A, B, D, G, H). All of the firms have experience with remote research as firms A and D mainly, B, E, G, and H partially conducted usability testing and worldwide research through digital mediums. This experience enhanced their preparedness and allowed for easy integration into remote work. Additionally, several of the participant firms (Firms A, D, and E) conducted UX research to investigate the areas of opportunities because of the unexpected shift from the real world to the online world. So, they can understand and comprehend their users and employees during COVID-19 and make strategic decisions about their products and structure.

In this setting, firms actively prioritised gathering attitudes data based on user self-report rather than behavioural information that depends on observation. Therefore, firms found it simple to adapt to online platforms to get customer feedback. Thus, firms can continue to obtain knowledge from the users without depending on physical interactions.

“Actually, there is not such a complex situation here. You find the participants and talk to them remotely [...] In the end, there is this human on the other side [of the screen]; we are attempting to gather insights by asking the right questions.” (P10)

It is believed that digital remote collaboration solutions, including video conferencing software and platforms, will allow UX research to continue and keep up with the new normal. Additionally, previously undiscovered benefits of remote work played a crucial part in this normalisation. So, firms and researchers have changed their perspectives on remote work and research.

5.1.3.1 Advantages of the remote approach that comes with COVID-19

Although the pandemic has adverse effects on personal and working life, the conditions created by the pandemic and the remote working environment bring various advantages and opportunities. Moreover, these benefits can turn remote or hybrid approaches into permanent practices after the pandemic. First, researchers and practitioners would *not be limited by location* while conducting their work in remote UX research. This independence has clear practical benefits, including the reduction of travel time and costs, as well as the elimination of geographical constraints on research. Having this benefit was highly valued by all of the participating firms since the cost of projects is relatively reduced too.

The *simplicity of handling participants and recruiting* them is another benefit. In addition, the fact that social life has moved from physical to online environments with the pandemic increases the interest in user experience research in these environments (Firm D). Early on, users could easily schedule time for involvement in UXR because of the increased amount of time spent at home during curfews. Since individuals would save time and money by not having to commute or travel for remote research, it was encouraging for them to participate in studies. These perks may make it possible to include users who are ordinarily difficult to contact or who have demanding schedules (Firms B, C, D). Correspondingly, it enhances the sample's representation of these groups by diverging the sample group with such people (P10).

The *ability to participate remotely from home* was deemed useful since it may improve the quality of the obtained data. The participant's presence in their familiar environment affects data quality by making them more relaxed, less shy and tentative during the interviews (Firms A, C). According to some practitioners (P 2, 3, 8), more accurate portrayal of reality may result in people acting more naturally and at ease when engaging from home. Some even believe practitioners may utilise this to get context-specific information about a user's lifestyle, everyday struggles, and personal preferences. However, this was not achievable in typical face-to-face interviews,

user testing, or lab settings (P 3, 8, 10, 11). So remote digital tools provide the possibility to researchers to observe the hints and daily life section of their users.

“[Nowadays-early period of the pandemic] there are seminars, talks or happy hours [regarding UX research] over Zoom again. There, everybody complains like ‘remote study is hard’, like ‘their kid climbs on them, and they can’t respond’, like ‘here is an intrusion in the background’, and so on... but I tell them ‘the product would be used in that setting, what else do you want more? You get the chance to observe’ [...] I mean in ethnography, as an anthropological method, what matters is observing the setting by being there. In my opinion, video conferencing is something close to being in the setting for observation, even though we see the home partially.” (P11)

So, UX researchers optimistically approach remote research context and turn it into a benefit for their practices. This pragmatic approach was another motivation for the normalisation of unexpected events and conditions. Additionally, the feeling of having similar conditions, problems and destiny encouraged the development of empathy between the researchers and participants. This communication and generating empathy enhance the development of rapport during the research sessions as another factor impacting data quality.

“Actually, we had a shared problem. In a way, this positively affected the connection and communication. I know what the other side [the research participant] is tackling right now.” (P3)

Furthermore, the sudden shift to remote work obligated practitioners to adopt digital tools they might not have experienced before. Throughout this adoption process, they noticed collaboration opportunities and connectivity features that would *improve their work performance* and make it more effective. Digital tools support collaboration, especially when different practitioners or stakeholders simultaneously work on the same project.

Additionally, the unforeseen transition to remote work constrained professionals to adopt digital technologies they may not have been familiar with.

They discovered opportunities for collaboration and communication features that would enhance their job performance and productivity in this adoption phase. Digital technologies facilitate cooperation, specifically when several practitioners or stakeholders simultaneously work on the same project. Additionally, this makes it possible for practitioners to share and transfer knowledge, especially when one has more expertise than the other.

"We write these [data analysis] codes and co-ops in Figma [for data analysis]. We can work together. Both [the less experienced researcher and I] can make changes on the same thing. [...] We open Zoom on one side [of the screen], Figma on the other. We both connect from our Figma accounts and say 'let's code this like that, let's split that code, there is such a story relevant to that code, let's add that code under this heading' and so on... we're working on it like that." (P15)

The ability to manage "quick and dirty" operations got easier as collaboration opportunities increased with digital tools. To give just one example, a complete usability testing study, including all sessions, analysis, and reports, might be completed in only one day using an online whiteboard application (Firm E). Therefore, UX researchers pragmatically adopt digital tools to reduce the requirements of research activities, enabling them in less time and cost. UX researchers exhibit this opportunistic and pragmatic approach to handling data too. Moreover the cooperation between the remote research tools became increasingly important as all activities - data collection, processing, and interpretation- were conducted online (P 1, 2, 3, 4 7, 10, 12, 13, 18). Accordingly, firms aimed to enhance productivity with the help of such systems, which would automatically transmit the collected and coded data for analysis (P 10, 12, 13).

The teleconferencing software's capabilities were also appreciated since they allowed additional participants to engage in the study sessions without disturbing the user participants (P9). Additionally, using these digital tools and remote work greatly enhanced practitioners' productivity since they spent less time travelling and interacting with co-workers in the office (P 1, 2 , 7, 9, 15, 16). Since everything was

done online, the practitioners could document every step of their process. This procedure created order, stopped data loss and helped preserve organisational memory. Lastly, everyone who participated in the study is pleased with the convenience that remote work provides since they have all asked for it to be maintained.

5.1.3.2 Challenges and necessities of the remote approach that comes with COVID-19

Even though remote research brings many advantages, it also comes with problems and challenges. This section is dedicated to explaining the challenges participants face during adaptation to remote work and research. The following two headings are about the most problematic issues that participants mentioned regarding remote research. The last heading explains the preparation for remote UX research, which is one of the most vital parts as researchers cannot or partially communicate with participants.

5.1.3.2.1 Deficiencies in observational research

The inability to observe the context in remote research worried UX researchers since it makes it more challenging to evaluate the experience holistically and produce insights (P 1,2,3,5,6). As a result of this shortcoming, they looked into various informational avenues, such as requesting the participating users to provide additional context during online interviews (P 11) or, if possible, reviewing public camera records (P 19). Additionally, practitioners indicated that they advise users to keep diaries (P 7, 13, 17), complete questionnaires to gauge daily mood (P 1,2,13), and record videos of their own experiences in order to address this shortcoming in addition to the interviews or testing sessions (P13). Such supplementary materials would also aid in raising awareness of the research sessions among consumers and practitioners.

Practitioners indicated that studies that require a laboratory, equipment such as eye-tracking or EEG devices, or evaluation of physical prototypes could not be carried out within the social distancing context (Firms A, B, D, H). Practitioners suggested conducting longitudinal field studies as an alternative to laboratory testing and observation. In such studies, the products would be sent to the user's context, and participants can experience and evaluate without the researcher's presence. However, this usually would not be the preferred method due to the time and monetary constraints (P5).

UX researchers agreed that social distance made it impossible to conduct experiments that necessitated the use of a controlled environment (such as a laboratory), specialised instruments (such as eye-tracking or EEG devices), or the testing of physical prototypes (Firms A, B, D, H). Professionals advocated for longitudinal field trials as an alternative to conventional laboratory testing and observation. In these studies, the items and research mediums need to be delivered to the user's environment, where they would be used, tested, and assessed without the researcher present. Due to time and financial limitations, this approach is typically not favoured (P5). Additionally, because online secrecy cannot be fully guaranteed (in terms of property rights or data privacy), practitioners found it impossible to undertake remote research on goods or systems needing it (P5). So, secrecy of the researched context becomes another issue in remote research settings as the researcher does not have any control over the participant tools and environment.

5.1.3.2.2 Inclusiveness

Because digital technologies are used to facilitate the research sessions, the level of familiarity and accessibility of the participants with these tools are significant considerations in remote research. UX research practitioners feared

studying with vulnerable populations, including the disabled, the elderly, children, and immigrants, would be challenging. Therefore, they believe inclusivity in remote research would be troublesome (P 5, 6, 8, 16, 17). They worried that limiting research samples to tech-savvy individuals might reduce sample representativeness.

“We started to demand for people [participants] who are capable of using technology [...] Because, if that person cannot perform the tasks, that would sabotage the whole test and waste a lot of time, etcetera... Therefore [remote research] changed certain things for us. I mean, I feel bad about this, [but] I’m discriminating [against participants].” P6

When participants with low technological aptitude are included in remote research processes, it is stated that the researcher needs to guide them more than usual. This situation increases stress on both participants and practitioners since these users require frequent direction during the session, which is terrible for rapport in their relationship.

“Sometimes, with users who do not feel competent to use the technology, it is challenging to ask them even to share their screen over Zoom. I feel uncomfortable, constantly saying things like ‘No, do this! No, no, no, not there! Not like that!’. At some point, if you empathise with the other person, I may make them feel like a child. Here, users have to feel comfortable conveying their actual thoughts. These kinds of interventions [...] may make the user feel like ‘I cannot do it!’ and they can just give up.” P17

Practitioners used various techniques to study with these kinds of sampling groups. They use additional techniques, such as observation or netnography, which may be used to supplement the already available information(P13). They also consult expert healthcare professionals to comprehend the context (P 2, 5) or the effort to experience the product from the perspective of users (P6). Accordingly, they can understand the characteristics of the population beforehand and prepare the research sessions and methods.

In conclusion, the UX research practice has been descriptively explained under the headings of “*Current Practices in UX Research Process*”. This section

includes summaries of the UX teams and firms as cases regarding their UX research flows, methods, and strategies they used. It also presents the effect of COVID-19 by providing the challenges and advantages of the remote approach during the adaptation to emergent conditions. Collectively this section gives an overview of the current UXR practices in a commercial context to ground a perspective for the next section. So, this section reveals the general knowledge about UXR practice. In contrast, the following section presents practices of UX firms related to quality of UX research. Therefore, the following section demonstrates issues that can be related to rigour and relevance including strategies firms apply to conduct good UX research and practitioners' perspectives in commercial context.

5.2 The Current Considerations and Strategies for Establishing the Quality of the UX research in Commercial Context

Chapter 2 explains the factors of establishing the quality in research in terms of two concepts: relevance and rigour. Relevance is more related to the aims, outcomes, and benefits of the research, whereas rigour deals with how the research process is conducted. Even though these concepts indicate the research quality, they are perceived and implemented in line with concerns related to commercial context rather than meeting the scientific criteria. The following sections aim to present the perspectives of UX researchers in the industry towards relevance and rigour to reveal the notion of good UX research for the practice.

As all firms in the study indicated, the primary motivation of carrying out UX research and design is developing successful products in commercial contexts. Accordingly, UX practitioners consider UX research as an integral part of the design process in terms of integrating user perspective into design. As P15 conveys *“research is never for the sake of research but always to generate design ideas or to form the design [brief]”*. Thus, the main aim of the UX research is considered as supporting the design process. Therefore, it is expected that UX research and outcomes should enrich and guide design solutions in a commercial context.

Accordingly, the value of user knowledge in research is subject to the evaluations of the external project partners, who receive and use the knowledge, especially such project partners as the clients of consultancy firms (Firms B, E, G, H). Therefore, project partners assess UX research according to usefulness in their product development process or advocating the decisions and solutions. So, project partners as stakeholders expect and evaluate the UX research results in terms of being appropriate, supportive and useful for their product designs (Firms B, E, G, H). In this sense, essential knowledge in UX research is expected to include persuasive and solution-oriented findings for product evaluation studies (Firms A, B, E, H). On the other hand, new product development projects require UX research findings that can generate exciting novel insights and design ideas (Firms A, B, D, E, G, H). So, UX research practitioners focus on how UX research findings are employed in design activities. As indicated below, they even accept that they prefer not to give too much attention to the rigour, even if they are aware of the importance of scientific assumptions.

"Now, research methods application in academia is more about doing academic research. Now there are important issues such as validity, I don't know... or like reliability. [In academia], everything we do needs to be scientifically valid. [...] Since, [in practice], we do not do research for the sake of research, it is more about coming up with design ideas and collecting feedback about the design quickly. The important thing is whether -I am talking about the generative parts - we can come up with interesting design ideas that can convince the client, that can convince us, that can excite us. That would be important!" (P15)

So UX research is conducted with commercial motivations to meet the needs of the product development project and support the design activities that aim to produce new and novel ideas or improve existing solutions. Accordingly, UX research is conducted for several reasons such as inspiring designers to develop new products (P12), guiding the design activity (P15), and justifying design decisions (P2). However, the participants especially with managerial roles (P1, 5, 10, 12, 15,

18) underline that each product development process includes specific expectations and needs that are shaped with commercial motivations of projects. So, it is understood that every project should be considered and evaluated with respect to the dimensions and considerations specific to that project. Thus, UX research insights should lead firms to design alternatives and give them the ability to make sense of investment decisions and product solutions while considering unique dimensions of each project. Correspondingly, the notions of validity and reliability in UX research practices are associated with each particular project's success or usefulness of the research outcomes.

"First, we ensure that they [the results] are plausible. I mean, at the beginning of the project, we had defined our goals. Does it serve that goal, does this observation or this answer really lead us and the firm to this conclusion [solution]? How should I put it?... Reliability depends on the result, the content, rather than the reliability of the data." (P18)

The relevance of the UX research outputs to the expectations and needs of firms becomes the primary factor to evaluate the value of the research. Additionally, limitations of the market and the considerations of firms, such as time and budget, are also significant issues in the UX research and design context. These issues may result in compromises on the scientific rigour of the UX research in terms of considerations such as sample size (P5,10, 12, 13), method selection (P2), duration of the study (P5), questioning style (P10), and approach to analysis (P15). Collectively, relevance as a concept evolves into the main aim of the UX research. Even though the importance of rigour of UX research is stated by participants (P1, 2, 3, 5, 6, 10, 11, 12, 15, 18, 19), it relatively remains at the background and plays a supporting role due to conditions and expectations of commercial context. Accordingly, this thesis study reveals strategies and activities of participant UX researchers and firms to establish the rigour and relevance of UX research including their motivations, concerns, attitudes. By considering the activities carried out during UX research and design processes, the following sections explain UX researchers' strategies under five main headings, namely 'Research Planning', 'Stakeholder

Management’, ‘Data Collection’, ‘Data Analysis’ and ‘Communication and Integration of the Results’.

5.2.1 Strategies employed in Research Planning

As mentioned above, UX research is performed with the aim of supporting product design and development. The need for UX research may arise for various reasons, and these reasons directly affect the research aims of each specific project. Understanding these reasons through exploring the necessities and expectations of the commercial context is the first step in providing relevance (P 12, 15). To this end, UX researchers perform various activities and employ different strategies to understand the research needs and plan the research accordingly. The efforts to understand the need for the research is three folds: first, understanding the commercial context considering the firm and project partners, second, understanding the user of experience and, third, understanding state of art regarding the product or service. These activities will be explained in the following part of this section including the aims, expectations, and considerations that UX research practitioners stated in this study.

Even though the needs and aims of UX researchers in either in-house or consultancy firms show similarity during the research planning, the understanding of the context has a more straightforward process for in-house firms. First, the need for a UX design and research process may arise from several channels (Firm A). For in-house firms, other stakeholders from various departments, such as marketing and management, may require guidance or inspiration about users and demand UX research accordingly (P1). Moreover, product development teams may require ascertaining their decisions by implementing UX research (P3). In addition, I have observed that firms constantly monitor their products to find problems that need to be developed and collect feedback that can be used to define potential projects (P1, 2). This continuous observation must even be considered as a type of UX research that is the beginning point of many other projects. While firms conduct UX research

on products on the market by continuous monitoring, they also survey generative research to find possible project developments and potential investments (P1). Similarly, the research results can be used to start a new project or research (P1). UX researchers from Firm A noted that they might realise some issues and points need to be searched and developed that are not covered by the project on the agenda. UX researchers report and document these findings to investigate later as an individual project (P 2, 3, 4). Even if the UX research results on agenda are not directly relevant to the current project, researchers still employ the information to be used for the firm's sake without losing it. So, relevant knowledge from the research can be transferred to evaluate other products of the firm or develop new services for them (P1). In all these scenarios, UX researchers worked on the products or the experiences they are familiar with, or they already worked on. Moreover, continuous observation and regular UX research on their products helps them to comprehend their potential and existing users. For example, P2 stated that they tested and evaluated their product with their existing and familiar user even before entering the new market and presenting to the new users. So, even if every project comes with unique necessities, they have a prior understanding about their products and potential users due to continuous observations and users' feedback (P 1, 2). Additionally, their collaboration with other project partners increases the shared understanding between project partners which makes it possible to define needs in the design process (P3). Collectively, UX researchers can establish relevance of the UX research process as they define the aims of the project and expectations from the research according to the context; they are familiar with the commercial context. It can be inferred that UX maturity of firms plays a vital role in this collaboration. As one of the limitations of the study, only one in-house firm can be included in the results section which prevents to present the effects of the UX maturity level of firms.

The process of initiating UX research is naturally different *for consultancy firms*. Understanding the context and defining the scope of the project shows a more complicated nature for them. First, they need to *understand the expectations and aims of the project* by understanding the needs of the project to ensure the UX

research outcomes are useful (P 5, 10, 12, 15, 18). This understanding process starts from the early interactions and activities between the consultancy firm and potential clients. Their activities to communicate with potential clients starts with their promotion and advertisement to the industry. As experienced researchers and managers in this study highlight, there is a lack of understanding and knowledge about UX among companies and individuals (P 5, 12). Therefore, they need to present and explain their process to the community to justify that they are capable of providing relevant knowledge and outputs (P 5, 10, 12, 18). Thus, every consultancy firm participating in the study explained the process and methods they used straightforwardly on their website and/or on their social media accounts (Firms B, D, E, G, H). It is noted that they are willing to share their methods and processes, unlike corporate firms, as they want to show their capabilities as a UX firm. These detailed explanations on the website and media help them to create confidence in their process (P 12). They even claimed, as quoted below, that they use various channels such as forums (Firm H), blogs (Firm D), and conferences (Firm B, E) to train the community and potential client firms. So, ‘increasing the knowledge of the UX community’ is considered as a ‘mission’ they adopt for the benefit of both new researchers and the consultancy firms.

“We have indeed undertaken such a mission, you know, I can say that it is in our corporate DNA to inspire and guide. [...] The people who have the opportunity to experience these realities [UX process] are a little more limited in Turkey regarding maturity and so on. We also find it valuable [to share experiences] in that respect.” (P18)

“Let me say this; we had a historical mission as being one of the first companies to establish the UX business in Turkey. At that time, one of the company's essential tasks was to explain these concepts. I mean, at that time when the concept of [UX] design in Turkey was just newly recognised and cherished, we started to explain to them that they needed to do it [design processes] with [user] research and do it with [usability] testing.” (P5)

Accordingly, they also carry out voluntary activities like creating sources (Firm H) or writing UX cases (Firm D) to explain their process and guide the community. Therefore, the encounter phase including the explanation of their process to the community and proposal process serve as a preview to show the competence and proficiency of the company in the UX field (P 5, 10, 12). The encounter phase collectively helps UX firms understand the client firms, present their approach and methodologies, and ensure that they are capable of producing relevant results and address the need of the project. Therefore, UX consultancy firms aim to convince people about their skills and capabilities in producing relevant products by establishing confidence in conducting comprehensive and reliable UX research and design (Firm B, D). Thus, these firms convince their potential client companies that they can produce relevant results by conducting trustworthy and credible processes.

Even though these activities are helpful in explaining their process, there is still a need for a time for a clear understanding and communication of expectations between UX consultancy firms and their clients to define the needs and aims of UX research (P 15, 18). So, it begins with the familiarisation of the companies through meetings and understanding each other before signing an agreement (Firms D, E, G, H). Even though some client firms know what kind of process and UX research methods they need, many firms come to consultancy companies without any knowledge on UX research and design processes (Firms B, D, E, G, H). Accordingly, proposal processes become crucial for consultancy companies to define the project's goals by determining needs (Firms D, G, H). So UX firms can examine the needs and problems of their client and prescribe a proposal accordingly. These proposals are considered as the first plan of the UX research as it defines anticipated methods, time plan and procedure, as quoted below. These early plans of the UX design and research are important for providing rigour of the research as they provide confirmation and trust to the research process between the project partners as audience and the UX researchers (P12).

“Let me explain what happens. First, there is a proposal process in which the client [firm] tells us their problem [...] Every project starts with a draft research plan during the proposal process. The draft includes what we will apply the following techniques in the process, how many weeks or hours we will work, what kind of interface will be designed, etc., within the framework of a draft.”
(P12)

Correspondingly, consultancy firms developed strategies for the proposal process to understand and meet the needs of client firms to define a relevant research and design process. All of the consultancy firms stated that they have specialised teams or experienced managers to operate this process. Moreover, Firm E formed their services under various service packages to guide their potential customers about the context of their services. Similarly, Firm D prefers to direct a questionnaire to question the project's necessities. While these strategies help firms understand and define the scope of the UX design and research, they also make client firms think about their needs and aims (P10). Therefore, client firms are sensitised by guiding them to reflect on the project to reveal how UX research will be valid and novel for them (P10).

Even if the proposal process helps comprehend the client firms' needs, more is needed to understand the *requirements and needs for UX research*. So, the next phase starts as a familiarisation and establishing common understanding for the project (P 15, 16, 17, 18, 19). So as the first step, UX researchers and teams perform meetings to know the audience of the UX design and research and identify their needs and expectations as project partners regarding the context of the project.

“We put project partners interviews as the first step, and sometimes we try to do this with clients even who are not interested in research. At least this gives us the opportunity to learn the project partners ' expectations in this project, the owner's perspective and general view of this business, their level of know-how, and some details about their work. In that respect, it is useful in terms of being able to carry out the project in a meaningful way.” (P18)

While some client companies clearly define their expectations from the research, others do not clearly define this need (P 5, 15, 18). Accordingly, firms held interactive and collaborative meetings with project partners of the project to discuss and explore business objectives, strategic brand positioning and the expected benefits to be derived from the research. Moreover, question sets (Firm D), questionnaires (Firm H), method kits (Firm B), creative activities based on hypothetical scenarios (Firm E) and workshops (Firm G) where business objectives are defined and prioritised by the consulting firms help to understand the client company's objectives and expectations. These methods collectively provide an overview of the project, including factors such as brand identity (P10), targeted achievements (P16), product expectations and strategies (P18). In addition to these objectives, limitations and considerations are questioned with project partners to know the borders of the product and project, as quoted below.

“The project team always starts with a Kickoff Workshop, no matter how much [the client company] has explained its problems during the procurement process. You know, we go and physically conduct a workshop where we physically fill in such huge printouts together with our client; we even play a kind of game. A meeting where we try to understand the client's constraints, strategies, and goals. For example, we give a blank magazine cover, like a Time magazine, and say, 'In 2022, we built this site and got an award.' Furthermore, we ask them, 'Tell us what this award is about.' The CEO says, 'Twenty per cent of the revenue came from here; that is why we got an award'. Someone else says, 'We received an award for the interface usability'. Someone else says, 'We received the award for the site that helps its customers the most'. I mean, everyone is reflecting their points, so we are trying to come up with a holistic goal from their objectives. Alternatively, we try to understand the constraints. Let's assume we have an engineer from the software team at the Kickoff Workshop. He says to the other side of the context, 'There may be a problem here. We are restrained with the database in this issue. There is such a tool here, and it has its limitations.’ (P12)

Through these kinds of activities, project partners can transfer their knowledge about restrictions on the projects. So UX design and research can be implemented to develop solutions and results respecting restrictions. UX researchers can collectively structure UX research by covering issues such as product cost, technological solutions, efficient project management, and project partners' demands (P 10). Addition to understanding the project context, these practices and strategies, which are implemented in the early encounter phase of the project, also help them to create trust in their UX research and capacities. As P18 indicates, this process also "enables them to be in the driver's seat" by showing that the projects are under the UX team's control. Therefore, these activities are defined as a way of increasing the trust to the process by increasing the knowledge of client companies about UX design and research which needs to be more matured.

Additionally, it was acknowledged that the values of relevant project partners in the process should also be considered while defining the aims of the research in terms of their expectations and success criteria definitions (P 1, 15, 17, 19). It is emphasised that client companies and project partners evaluate the validity of the study results based on their experience and knowledge (P5, 10, 12, 15, 18, 19). Because the primary expectation of client organisations from consulting firms (Firm B, E, G, and H) is design solutions, stakeholders from client companies evaluate the UX design according to the design solutions and developed products. Therefore, they may ignore the importance and necessity of UX research, as P18, P19 stated below.

"[Research] is a huge need, but nobody expresses such a need, or when you talk about such a process, [client companies] are not very interested, interestingly." (P18)

"Since people do not yet have awareness of UX research [...], even if the other party comes to a UX Design consultancy, they want to see a screen [design]. [...] Most companies that come to us want to know when they will see the screen[designs] because we are a design studio, and they want to see designs. That's why research is perceived not as a requirement, but as a precursor, a burden of this design process." (P19)

So, UX research is assumed to be a 'burden' of the design process as the awareness of its essentiality has not matured enough. Although the importance and the value of the UX design process are beginning to be understood, it is not known that research is a necessity and a backbone of this process (P 18, 19). Project partners, especially those with limited UX knowledge, may compare it with other research types such as market research that they may have encountered before, although UX research provides other types of added values (P 10, 18). Accordingly, UX consultancy firms make efforts to explain the merits of UX research and its necessity in UX design. Therefore, they try to convince customers on how UX research would positively impact the development of more interesting and novel products (P 5, 18).

In addition to the attitude of project partners, the constraints imposed by market conditions directly affect the time and cost allocation for the research (P 5, 12). Accordingly, the UX design is expected to be completed before the necessary time and conditions are provided as quoted below. So, these pressures and expectations on consultancy firms and UX teams affects how UX design and research is conducted.

“When people think of research, they either think of the street surveys. [We are] confused with surveyors who constantly annoy people, asking if they have five minutes or whatever, or with focus groups in market research. There is an assumption that we ask two questions and continue. [...] They [the client company] have already come to see the design. You say we will spend three weeks on research. And we're going to pay the users on top of that, so it's a nightmare from the PO's [Project Owner] perspective. [...] They may not trust our competence, that's one thing. I mean, of course they trust the competence of Firm H, but in terms of research they think that 'we're going to ask like this', because of the perception of a surveyor. But actually, we refer to sources, then we try to explain by saying, "Look, there are examples like this here, this is how it is done, etc. There is also such an education [educating the client company] part.” (P19)

Limitations such as commercial conditions of the project and project partners' lack of understanding about the importance of research can make it difficult for UX teams or consultancies to conduct comprehensive research (P5). If the UX team or consultancy firm needs to develop UX design in such conditions, they aim to overcome the absence of a thorough UX research process by finding ways to compensate for it during the development of UX designs (P 5, 12, 18). In such situations, UX teams or consultancy firms try to increase the efficiency of the research process at the risk of decreasing comprehensiveness, which can negatively impact its effectiveness. Accordingly, UX teams and firms perform alternative strategies such as decreasing the research timeframe or reducing the sample size to address the commercial considerations (Firms B, E). For instance, companies may conduct usability tests in a single half-day session, report the findings, and make recommendations for improvement all on the same day (Firm E). So, they claim to provide various services in a day to meet the expectations and conditions of every type of actor who needs UX design as quoted below.

“We have usability testing workshops. [...] In one day, we conduct tests with users in the morning, and in the afternoon, in front of the whiteboard - we can now continue online on Miro - we do usability testing studies or similar studies that we can quickly produce formal reports if they want, or we can quickly produce reports and give them, and we focus on making the existing product better.” (P12)

In this context, decisions on issues directly related to research rigour, such as sample size, method selection, application time, the way of asking questions, and the approach to analysis validity and reliability, are being compromised (P 5, 11, 12, 13, 18). In addition to compromises of such elements, limitations of the project also influence the selected methods too. Accordingly, methods that may require large sample sizes, such as the surveys (Firm G), or methods, which are considered time-consuming by clients, such as card sorting (Firm B), or methods which require long-term application, such as diaries, may not be preferred (Firm B). Therefore, even if the needs of the project require implementing such methods and comprehensive

approaches, UX firms and teams could not adopt such processes as participants mentioned (P 2, 5, 11, 15, 18, 19). Accordingly, limitations of the projects may prevent in-depth and comprehensive user knowledge as it limits the options of UX research methods (P 2, 4, 10, 11, 15, 18, 19). Therefore, these limitations may also prevent the researchers from gaining a comprehensive understanding of the user experience, which in turn can decrease the relevance of the project (P11). The lack of useful and relevant user knowledge can make it difficult to inform design and decision-making and may limit the potential impact of the research.

Apart from understanding the commercial context including project partners' expectations and needs, UX researchers stated that they need to understand the user. Accordingly, UX researchers (P1, 2, 5, 10, 11, 18, 19) in the study stated that they prefer to conduct explorative research to deepen their understanding of the context, especially for new product development projects. Exploratory research methods can help researchers gain a deeper understanding of the user experience by providing rich and detailed information about the context in which the product will be used (P10). In these approaches, various UX research methods can be implemented together or in combination like applying diaries and interviews to '*complement each other's results*' as P10 stated. Accordingly, this explorative approach also enables conducting an agile and iterative research process by defining several steps (P 5, 10). This approach requires adding a new method or changing the method altogether to reveal a deeper understanding by recognising the information that arises from previous research, as quoted below.

" We do not only use [agile research] as a buzzword but also as a method; we have an approach like this, we apply a cyclical research process called agile research. What I mean by cyclical is that when you go to a standard research company, whether they are focused on qualitative or quantitative research, the job is completed according to your brief. After the work is done, a report is prepared, the report is given, and it is over. As our firm's tradition, we want to make everything iterative, so we say let us do it with fifty people and come back. [...] When we go human-

oriented while conducting research, consumers already bring us to completely different points and topics. The moment we deepen something in the first sprint, we say -or sometimes we don't say- to the client, let's go to this audience, let's go with this methodology, let's go with this need according to the results of the first sprint. When we deepen that subject [with this approach], we can actually extract much more nuanced insights." (P10)

However, the limitations of the project and commercial contexts prevents firms from adopting an exploratory approach most of the time (P5). So, UX consultancy firms and teams conduct several pre-research activities to comprehend the user itself. It is already mentioned that in-house firms continuously observe their product and collect feedback and complaints to use in design activities (Firm A). Similarly, UX consultancy firms also investigate these complaints and feedback by surveying the online channels. Accordingly, UX researchers pre- investigate the existing data that can be found in online websites or forums regarding the product and experience to evaluate the needs or expectations (Firm B, D, E). In addition to these evaluations, three firms explain that they frequently use the netnography method to make a preliminary examination of the product and the experience (Firm B, D, E). Netnography systematically analyses user-based information found in online environments and social media. So, the current information found with a desktop search can be considered in issues such defining the characteristics of the sampling group or expectations of users. These examinations guide UX researchers to formulate research questions or research procedures including the scenarios, tools or questions that will be used during data collection (P 10). So, UX researchers can define what will be interesting or not interesting for the user with these evaluations by examining the preferences and thoughts on products that can be found online (P11). Therefore, these activities help them to identify the relevant, interesting and novel concepts from users' perspectives.

In addition to understanding the user, comprehending the state of art about the product is considered also important to define the UX research context. Five firms regularly apply benchmark or competitive analysis to review the characteristics

and features of competitor products and services in the beginning of their UX research (Firm A, B, D, E, H). While this process helps define the design process's aims by positioning the product in the market, researchers recognise users' perspectives towards existing solutions (P 2, 5, 10, 12, 13, 14, 19). Therefore, the solutions alternatives presented in the market can be included in the research (P2). Accordingly, researchers can define what would be novel and interesting for the market. In addition to that, some researchers (P 6, 13, 17) in the study highlighted that they prefer to experience the product or service themselves to understand the users' perspectives. They also choose to observe the experience in their natural setting to consider the conditions and factors (P 17). So, they can examine the product or service to define the hypothesis that directs the research. In addition to experiencing the products, three firms (Firm A, B, H) underlined that they conduct heuristic evaluation and expert analysis to define the usability problems of the product or services as an initial step of the UX research process. By experiencing the product first-hand, researchers can gain insights into how the product functions, how users interact with it, and what features or design elements may be confusing or difficult to use (P5). While the potential development areas can be defined with these evaluations, the design process or UX research setup can be defined by considering the state of art of products.

Table 5-6 Strategies to ensure the quality of the UX research in terms of understanding the commercial context

Strategies	Aims of the activity in terms of maintaining the relevance of the UX research	Providing rigour of the UX research
Understanding the Commercial Context		
Defining the UX research needs	✓ To ensure the research outcomes are useful to meet project aims and goals	
Exploring the expectations and success criteria for the UX research outcome	✓ To ensure that the produced knowledge is relevant and interesting for the audience.	! Project partners may be unaware of the importance of UXR, which may cause insufficient resources for research
Considering the limitations of the project	✓ To defines feasible and appropriate UX research process.	! Issues such as sample size, method selection, approach to analysis validity and reliability, are being compromised
Understanding the User		
Having an explorative approach to deepen information.	✓ To deepen understanding of the UX by defining complementary and iterative processes.	
Exploring the social media and forums to obtain attitudes of user.	✓ To reveal what is novel and interesting for users	✓ This understanding helps UX researchers to define characteristics of the sampling group.
Considering users' complains/feedback to define the relevant problems	✓ To reveal what is relevant for users.	✓ This understanding helps UX researchers to define characteristics of the sampling group.
Understanding the State of Art		
Comparing the competitive products to present existing solutions	✓ To provide comprehending about the existing solutions and users' attitudes towards them	
Experiencing current product/service to determine possible usage scenarios	✓ To define proper UX research method and process that produce relevant user knowledge	✓ UX researcher can select appropriate UXR method for data collection tools
Defining the restrictions of the products and technologies by conducting expert evaluation	✓ To define UX research method and questions that produce essential useful user knowledge	

Table 5-6 overviews the activities of UX researchers to understand the research context and their relation to rigour and relevance concepts. These activities are considered helpful for UX researchers in practice to define appropriate UX research processes by considering the aims of the project. First, researchers can gain insights into the target market, and the unique needs and challenges of the organisation by understanding the commercial context. This understanding is used by UX researchers to ensure that the research addresses real-world problems and that the findings are useful for informing design and decision-making. Additionally, understanding the commercial context is defined by participants as vital to identify the key project partners and their needs, this way the research can be designed to meet their requirements and interests. Furthermore, UX practitioners also care about understanding the commercial context and identifying the potential limitations and constraints of the research, such as budget and resource constraints, and to plan accordingly. Moreover, UX researchers investigate the product and user context with various strategies and methods to reveal the state of art product solution, including problems, users' perspectives, and market approaches. Also, they are able to define characteristics of the sampling groups by giving pre-information about their preferences and attitudes by understanding the user group. It is interpreted that familiarisation with the products enable UX researchers to recognize potential usability issues or appropriate scenarios and question sets which will be used during data collection. It also helps them to identify any potential limitations or constraints which is important to define relevance for the context.

It is noted that in the research, UX consultancy firms and teams tend to pay special attention to increase the efficiency of the research process to meet the conditions of the commercial context. Accordingly firms develop strategies such as, conducting reflective meetings for UX research process with researchers (Firms A, E, G, H), develop guidance for the novice researchers (Firms A, G, H), developing toolkits and techniques (Firms B, E), using pre-defined process packages as services (Firms B, E), selecting methods with pre-build charts (Firm E) and implementing automatization between research tool to analyse data (Firms D, E). It is understood

that firms aim to decrease the essential time for the UX research by using the standardised templates, process, and activities (Firms A, B, D, E, G, H). So they can complete UX research relatively faster in contexts that have similar needs and dimensions as the P5 stated. Or they can use these templates to quickly generate assumptions or visualise data graphics during the analysis as the P13 underlined. Moreover, it is observed that these standardised templates and procedures help novice researchers to learn and guide during a UX research context (P1). Several researchers in the study (P 3, 4, 7, 14, 17, 20) mentioned that they feel insufficient in conducting UX research in several aspects and need guidance to conduct in a proper way in the beginning of their career. It was understood that those in the UX committee in Turkey changed jobs quickly and UX firms have to train novice UX researchers and designers who are newcomers to the UX community. Accordingly, five firm have specialised training programs to train and develop UX skills of their employees. Moreover, Firm B and E considers themselves as a school that teaches UX process to newcomers of this community and employees leave when they learn the process as graduates of their firms. Therefore, standardising the UX research process and tools with templates help firms to provide consistency by guiding UX researchers (P13). So, the dependency on the competence of UX researchers, novice researchers in this case, are reduced which helps firms to keep consistency between different research contexts.

5.2.2 Stakeholders Management

Stakeholders in UX research are individuals or groups who are part of the research process. In this thesis study, UX research and design team members are considered as internal members of the research in this study, whereas participant users and project partners are defined as external stakeholders. This section will explain strategies of firms in management of projects as the audience of the research and participant management as the subject of the UX research.

5.2.2.1 Collaboration with Project Partners

The previous section explains the practices of understanding the context of the research in defining the aims of the UX research and design project. Understanding the commercial context of the research is one of the vital considerations to formulate UX research needs, aims, and limitations. UX researchers need to understand project partners in UX research, as explained in the previous section, to formulate and conduct research that is aligned with the business goals and objectives of the design project (P 3, 5, 12, 10, 15, 18). Accordingly, project partners' characteristics and approaches to the research reported as influential determinants in the way of conducting UX design and research (P 5, 11, 15). Therefore, UX firms need to give specific effort to stakeholder management in terms of client management in consultancy services because it affects the aims and process of reaching those aims (Firms D, E, G, H). Collaboration between the UX consultancies and their clients' needs more attention as they are from different firms, and they have different approaches. Based on their previous observations, consultancy UX firms classify their clients into two main groups (P 11). The first group is more innovative, ready to learn and prepared for the ideas and challenges that the research results will bring (P12). In contrast, in the second group, there are client companies that are more conservative, who mostly care about their own views, who want to show their presence in the field and who want to have the research done for "just to have some research done" (P5). Therefore, the level of project partners' interest becomes a criterion when conducting research.

"Corporate life in Turkey is a bit like this, [people work in the corporate firms say] 'I don't want to keep the hot ball, I don't want to be left without a chair when the music stops'. I mean, 'I want to have a chair [when I put my hand out] and not be the one who gets fired'. So, everyone is trying to throw that ball to someone else. Now, why did I give this example? [...] They demand market research from us, and the results are amazing. [...] However, they just say: 'Here is the report from the research company'. So, they ask for [the research service] just for the sake of having 'some

research' done. However, we need to be involved in presenting it. We need to [provide what we learned in the research]; 'UX company has started! Check! [OK!]' They [UX research company] are at this phase now. Check! The client firms have, unfortunately, this perspective." (P12)

"From my point of view, there are two kinds of clients; one says: 'You [UX researchers] know this job and tell me what you have learned [out of the UX research]'. The other one says: 'I know this job too, so what are these?' One client is great; I mean, you tell him like, you explain it to them for hours, the person already wants to understand it, they want to appraise it, they want to do it. The other one has an approach like, 'How can I push [the UX research company] more and harder' [...] It is effortless to make explanations to some clients [the former one], and you can give them something more; that is, you can give them deeper, more creative suggestions because they can understand it, mature it, and come up with something by themselves. However, the other one is not interested in that. In fact, because [the latter one] is interested in being the boss there, you offer him things that are more like unrefined, more like, 'Do this and don't do that!' Less creative, let me say." (P11)

This categorization of project partners is a decisive element in determining what kind of research methods are implemented, how the results are presented and whether the research outcomes are used efficiently or not (P 5, 10, 11, 12, 14, 15, 18). For innovative and open-to-learning project partners as the first group, it is appropriate to adopt a generative and explorative research approach that includes creative research methods and prioritises gaining insights about the user. So, researchers can holistically examine the experience and present in-depth knowledge information that can guide or inspire the designers (P18). Accordingly, designers can employ this rich knowledge to create meaningful and innovative design solutions. On the other hand, it is stated that such a research approach cannot be implemented in collaboration with the second type of stakeholder, which is conservative and closed to change (P1). Accordingly, established methods should be applied to provide strict results and guidance rather than knowledge that emerges from creative

ideas. Even though the guidance is strict and directive, its effectiveness is still questionable; whether the research outputs are considered by the client or not remains unclear as exemplified below.

“In the meantime, what the client does with this information is a question mark. I'm not even sure if some clients even look at it. There are some who actually share it with everyone, and there are teams where everyone reads it, but what they actually do with these presentations is a question mark for us. I think there are hardworking clients and not so hardworking clients. There are those who are as meticulous about what we do as they are about what they do.” (P16)

In addition to types of project partners, the titles or management levels of project partners are also considered as an indicator in defining UX design and research scope and context as P15 said below.

“When we give a proposal that will include new design, new idea development processes and generative user research methods to a client, unfortunately, it is not always possible to make it happen. We can also usually understand [the expectations from the project] from this situation. If we start with mid-level managers, it probably goes in this direction [means improvement of existing product]. If there is the participation of higher-level managers [...], they are more open to innovation [projects], more open to developing something new, [they have a potential] to allocate more time, to spend more money. [...] That is an indication that they are open to coming up with different ideas.” (P15)

A more comprehensive and detailed design process can be implemented in collaboration with the high-level manager as they have more freedom in terms of cost, time and capabilities (P15). Therefore, it is thought that the participation of senior-level managers in the project is relevant to the process's significance to the company (P15). So, the UX research and design outcomes are expected to be more innovative and creative. On the other hand, mid or lower-level management project partners need more focused and specific context and solutions in line with their

design problems (P15). Generally, evaluative or product improvement studies are conducted for such clients within the limitations of the project. Thus, learning in-depth knowledge about the user in collaboration with high-level managers is more likely to present more innovative outcomes. At the same time, projects which include mid-level managers are conducted by aiming at more to-the-point outcomes such as defining and improving usability problems. Correspondingly the level of the project partners in terms of titles affect the aims, and limitations of the project including budget, times, and methods (P15). Accordingly, UX teams need to consider these characteristics of project partners to define their needs and perform the process in line with their sources.

Moreover, all of the participant consultancy firms noted that time spent with project partners during the collaboration also impacts the project's content. Working for longer durations or on multiple projects increases the quality of the collaboration in terms of effectiveness of the results (P6). UX researchers can better understand the needs and necessities of the client company as time goes by and their experience improves (P 3, 7). Accordingly, they can present more meaningful and practical outcomes to client firms in their projects to meet needs and expectations. Because the client company or project partners also get familiar with the UX design and research methodology, it becomes easier for UX researchers and designers to guide and direct the other project partners towards successful outcomes (P6). Conclusively, long-term collaborations increase the efficiency of the projects. On the other hand, the effectiveness of the UX design and research is unclear for UX researchers in one-time only project collaborations as they do not have a chance to observe the outcomes.

“Because our customer is our long-term customer, I wouldn’t say customer, but something like a business partner, you know, we can only observe it there. Now, I am writing a report, the implementation report, and I thought I would look at the old report to get some inspiration. What we have done and what we have presented. For example, I realised that everything written in that report has changed in this implementation. Oh, it was really

implemented in the project. But other than that, if it is only a single-time project, we cannot observe this. This is an awful thing. So, as I said, I don't know exactly where and how it affects the other side.” (P6)

Apart from knowing the project partners characteristics, it was understood that it is essential to be in communication with project partners during the project phases (P19). Accordingly, UX researchers communicate with project partners for maintaining the relevance with several aims as explained by participant firms. The aims of these meetings can be defined as understanding their needs and expectations in the early stages of the research (P16), maintaining the regular contacts with them throughout the research (P19) and delivering useful and effective results in line with goals of the project (P1). The Figure 5-7 **Error! Reference source not found.** demonstrates the reasons for these interactions including their aims and effects in the UX research

process.

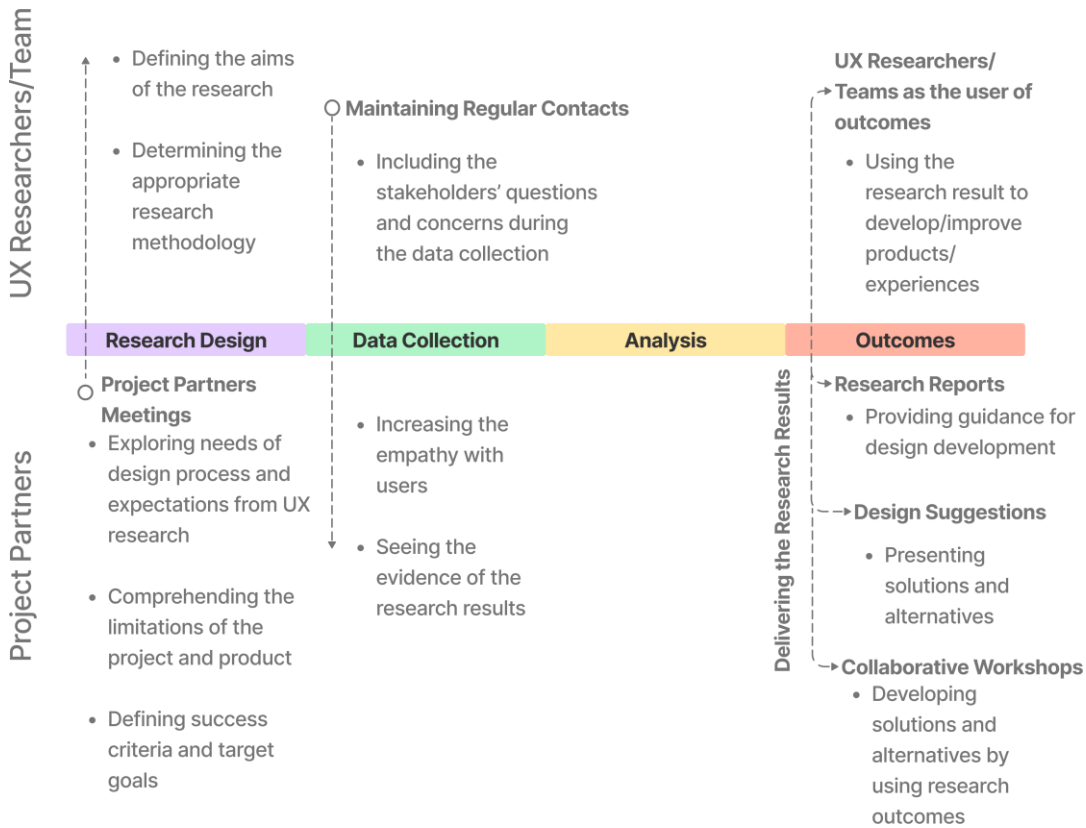


Figure 5-7 Interactions with project partners in UX research practices

As all firms stated every UX project entails its own unique and diverse dimensions and considerations in commercial context. Understanding the project partners' expectations and needs in the early stages of the UX design process is critical for UX teams to define the goals (P10), needs (P12), expectations (P5) and limitations (P7). Accordingly, the participant firms developed several strategies to gain a deeper understanding of the unique needs and challenges of the project partners and can identify any potential limitations or constraints as explained in Section 5.2.1. So early communications with project partners enable UX researchers to define what will be interesting and relevant for the audience of the research (P15). These activities are essential for both parties as it enables them to know each other which increase trust towards the UX design research process (P 18). It also helps to define collaboration characteristics in establishing a shared understanding of each

other (P1). Apart from the first phase, it was observed that UX researchers from four firms (Firm A, B, D, E) underlined that they invite project partners to data collection sessions, if possible, to keep the relevance of the research (Firm A, B, D, E). So UX researchers ask project partners if they have any additional questions for participants during data collection. While project partners quickly develop empathy through participating in the data collection phase, UX researchers learn and notice additional issues they have not considered (P4). Moreover, this interaction helps UX researcher to convince project partners about the truth in results which is vital for rigour of the research outcomes by providing concrete examples as P4 mentioned.

“Here [Firm A] I had to learn the process of persuasion. In the end, I want my work [outcomes of the UX research] to be useful and seeing that users are constantly suffering from the same issues [that the researcher found and reported in the previous research] becomes a huge problem for me. I think it is useful to involve stakeholders [project partners] in the interviews as a strategy for convincing project partners”. (P4)

Accordingly, regular interactions are performed by UX research practitioners to keep and increase both rigour and relevance. The technological developments and familiarisation process to remote communication during the COVID-19 pandemic facilitate researchers to invite their project partners to the data collection activities. Delivering the results as design solutions or research outcomes are considered last interactions between the UX team and project partners during the project. This study found several ways of delivering the UX research outcomes such as presenting research reports or transforming them into design solutions. These strategies will be explained under Section 5.2.4 Communication and Operation of Results considering their relation to the relevancy and rigor concepts.

5.2.2.2 Managing Recruitment Process

As previously discussed in Section 5.2.1, firms begin by working with project partners to understand the commercial context's goals and needs to define the product's target group (P 5, 6, 10, 12, 15, 16, 18, 19). They also conduct preliminary research with users to examine their attitudes, characteristics, and diversity. Through this process, UX researchers are able to define the sampling group in accordance with the target group, ensuring that it is representative of the group being studied (P 2, 6). Representativeness is crucial to demonstrate the applicability of the research in terms of rigour. They also allow UX researchers to produce relevant and applicable knowledge for the target group, thus increasing the relevancy of the research.

At this stage, the UX researchers make decisions on the sample size, taking into account the chosen method and the representativeness of the sample to ensure the validity of the data and to guarantee its applicability (P18). It is understood that they try to apply theoretical rules to define the sample size by considering academic sources and their tacit knowledge on UX research (P 4, 5, 6, 10, 18) Accordingly, they try to reach higher numbers of individuals in quantitative research as they think that they can establish representativeness through this way, as quoted below.

“If we are going to conduct a survey or anything similar, and it is not a survey with too many branches, we are content with a three-digit sample. Of course, if the results are very close to each other, you have the reflex of 'we need to increase this sample a little more,' but as I said, we are satisfied with three-digit samples, of course, we are satisfied after looking at the results of the surveys, or we always include these possible deviations [...] in our result reports. In other words, we try very hard not to claim, 'we performed a poll, and this result came out and it is real, it is written in stone'. Possible variations are always mentioned in such reports, and there may be other explanations for certain things.”
(P18)

As the quote demonstrates, there is an effort to not to generalise findings of the quantitative research, even though the sample size is large. On the other hand, qualitative studies naturally are performed with relatively small numbers. The small sample size of qualitative studies was initially found surprising by the researchers who are not familiar with qualitative studies in their experience as P3 mentioned below. However, they realised in the later experiences that primary purposes of UX research are understanding the reasons and expectations of users, obtaining qualitative data with a small number of people can also be enlightening.

"From my perspective, for example, the oddest thing to me at first was that, since I work quantitatively, the number of individuals, you know, 30 people, 40 people... You go as far as you possibly can. But, in any case, reaching so many individuals in the field of User Experience while working qualitatively is quite challenging. When we have an interview, we send it to 150 individuals, and 15 of them respond. Then we may speak with seven of them. There is such a circumstance. That, for example, struck me as odd at first. We only interviewed seven people, so there was some concern about how much we could generalise, but after working in this industry for a year and a half, I learned... Okay, we're talking to seven people, but the topics they discuss frequently overlap. They address the same topics. This is the section where quantitative and qualitative information are divided. In quantitative research, you're ultimately attempting to figure out how frequently that behaviour occurs, which is why we constantly need so many people. When it comes to comprehending the cause behind such action, seven persons can genuinely provide an explanation." (P3)

Similarly, the sample size of five to eight users is considered enough for usability test studies, especially for problem identification (P 10, 16, 18). So UX researchers can quickly define the usability problems to improve them. Accordingly, they can continue to UX design and research in an iterative and agile way to improve the product in each step and test again (P10).

"Our sample size is very low in prototype testing. We tested with 8 people because really common problems start to recur after 5

people. We are ok with this, it depends on the context of experience [that is subject of the research]” P19

In addition to sample size, UX researchers put effort into increasing the sample group's representativeness by considering potential groups' diversity and inclusiveness. All firms in the study mentioned that they also consider sub-groups of the target to ensure the representativeness of the sampling group. To achieve this, they stratify the sample according to essential factors and apply quotas to ensure data saturation for each stratum (P 6, 18). This allows them to find relevant information about the user experience. Moreover, when the goal is to identify product or service problems, it is essential to expand the sample beyond the target audience to identify problems of people who are not included in the target audience but may still be potential users as quoted below.

“When I send out a user test, I never ask for an age limit. For example, [another researcher] would generally instruct his/her team to keep it between the ages of 20 and 60, but I don't. So, you can clearly see where the elderly are struggling. I believe that extremely basic usability flaws affect everyone. After all, you can never promise that you will never have a 60 or 70-year-old customer; you must also handle their difficulties. (P2)

“When we conduct research, we prioritize everything we find a little bit, for example, the majority, but we can also put one or two elderly people, even if they are not their exact target audience, for example, for someone who prioritises young people, we can put one or two elderly people, if we have such an option, we try to get their different opinions.” (P16)

This way, potential product development opportunities for the company and the team are also observed (P16). UX researchers include some individuals who are not determined as the target group by the project partners to gain more diverse insights and to define potential usability problems by considering the participant's lack of familiarity with the product (P2). In this way, the problems that users may experience during the first use of products and services are also identified. This way,

users with varying degrees of user experience and initial interaction concerns may also be represented.

The recruitment mediums can also pose various concerns regarding data validity. The most common and preferred ways to recruit participants for UX teams and firms is to build their sampling pool (Firms A, B, D, E, G, H). So, UX researchers can easily and quickly recruit participants by building and using the sampling pool. These pools also help UX researchers to invite the relevant individual because they already have knowledge on users' various characteristics. (P6). However, these pools are found to be insufficient in providing diversity because they tend to have similar types of participants. (P6). Moreover, it is observed that the 'loyal customer' profile can ignore problems and give biased answers, the 'loyal customer' profile is known to disregard difficulties and deliver biased replies as stated below;

"Ustesting [Digital remote research tool] has a feature called 'Gene My Recruit' [the name of the feature that enables to invite participants], where the people you invite come and take the same test, and when I invite our own users, for example, they say 'well, we're very happy with [the product], it's a great feature'. They should be harsh in their criticism, yet that is exactly what happens there." (P2)

In addition, although sampling from the company's customers or participant pool is fast and practical, this method can be seen as insufficient in terms of 'reaching specific groups' as stated above. Similarly, UX researchers found their own sampling pools inadequate in 'providing diversity in the sampling group' (P6). Moreover, identifying participants through this pool raises concerns about reaching the right people regarding the project's aim (P14). Thus, the obtained data may not provide actual knowledge about the user experience regarding the sampling group.

So, UX teams and firms can outsource the recruitment process by collaborating with agencies. This approach is considered practical as the recruitment process is outsourced to an external service and helps them to reach the specific group that they can reach with their own pool (P5). However, this approach decreases

the control of UX researchers on the sampling as it depends on the agencies' competences and approach (P16). Thus, there is a risk that the desired characteristics may not be met as researchers cannot be active for participant selection (P16). Moreover, the budget as a limitation also influences the quality of service that UX researchers receive from agencies. For this reason, there are problems such as a lack of accurate representation in the research and a lack of quality information. Therefore, there may be concerns about the applicability of the research.

“Well, there is an agency we work with, and we are not satisfied [...]. Because the incentive [incentive was the money in this context] given by that agency will be as low as the amount they want [cost of their service], the profile of the people who will do this job for that incentive [money] sometimes challenges us a lot, we are really stunned, even if they [recruitment agency] say they look and find [participants] what we call Digital Savvy, even if they use a lot of apps, when they [participants] really come here, we see that they're not that much [tech savvy]. I remember one of my friends conduct a test, he said that it took 15 minutes to make them just sharescreen.” (P16)

As explained in Section 5.1.2.2. three firms use international firms and digital applications to recruit participants. This approach allows firms and UX teams to include participants in the research through the organisations they collaborate with and the digital user research tools they use (P 1, 2). Accordingly, they can reach the sampling groups and conduct UX research on a global scale. As P4 and P13 explained, the participant profile offered by online testing tools is occasionally not entirely reliable because of repeated interactions with the same participants. Moreover, participants taking part in order to receive the money as incentives (P1), and participants who are unable to complete the assigned tasks (P1) raises concerns about the quality of obtained data.

“One of the most frustrating things about ‘Ustesting’ is the user pool. No matter how large the user pool claims to be, I constantly encounter the same users in the user pool. Therefore, I cannot be

sure of the cleanliness of the test I am doing [...] We are looking different platforms from time to time, [...] to renew the pool.” (P4)

“For some reason, the data of the person who will come from that database makes me feel a little uneasy. I mean, I questioned that part a little bit. And of course, I still have that resistance because of that. The fact that the person who comes to the usability test may come millions of times if they have come to previous studies.” (P13)

Therefore, the inclusion of the same people from the sample pools that companies use for practical convenience may raise doubts about representativeness. In other words, the people participating in the studies do not adequately represent the targeted sample group as they may become experienced in tests. UX firms and teams use strategies including diversifying sample recruitment channels, creating focused and methodical sample recruitment tools, and posing control questions before testing to avoid such scenarios (P1). In this manner, it is aimed to ensure that the people participating in the studies are more representative.

Two firms (Firms D, H) reported that they use targeted advertisements on social media as a fourth method of participant recruitment. This approach allows targeting specific sample groups by focusing on users' particular social characteristics and behavioural patterns (P10). Additionally, Firm D mentioned collaboration with digital businesses and brands, as well as using their user databases, as a fifth method of recruitment. Collaboration with an e-commerce website, for example, allows access to users who have already been classified with certain behaviour and purchase patterns. (P10). By implementing these two recruitment methods, firms can reach specific and defined sample groups in accordance with the project's objectives (P10). Participants might be recruited in a targeted manner by using previously obtained information like online behaviours and inclinations. However, as stated by participant 10, these channels raise the cost of recruitment as using these databases and placing advertisements increase expenses.

Despite such efforts, these types of tools and user databases may be insufficient to reach the intended audience, especially in studies based on user opinions and insights (P16). For this reason, researchers prefer sampling techniques like the snowballing to have a more control on recruitment phase (P 16, 17). In this way, participant recruitment can be organised in a controlled manner. However, although they are hesitant to state that the researcher recruited participants from their immediate circle of acquaintances, it is understood that they find the participant profiles provided by their own contacts more valid in terms of accessible communication (P 16). By adopting this approach, the researchers can reach individuals who are more likely to provide detailed insights, while still maintaining control over participant recruitment. As a result, the sampling of the research includes both suitable and willing participants.

" Let's keep this between us. We arranged [the participants] [...] It's like this, in the third step of the chain, we now have people we know, it's not like I call my close friend anymore, I call my friend's friends from the university - there are young profiles, for example, among the people we will consider - I tell him, he calls his friends. We have a SME profile, for example, a middle-aged acquaintance who resides in Fatih [a neighbourhood in Istanbul]. He searches people from that neighbourhood and so eliminates a particular category [the group that cannot be readily connected with using internet technologies]. Of course, that's not very healthy, but a group that has never had any issues with Zoom or anything like that comes as a result of what we do." (P16)

Table 5-7 Strategies to ensure the quality of the UX research in terms of **sampling**

Strategies	Aims of the activity in terms of maintaining the relevance of the UX research	Providing rigour of the UX research
Defining the Sample Group		
Defining the sample group characteristics in collaboration with project partners	✓ To ensure the sample group is relevant and interesting regarding the aims of the project.	

Determining the sample size to provide data saturation for each stratum		✓ Assess the representativeness of the sample group.
Including additional groups that may produce inspiring knowledge for design.	✓ To diversify the target group to obtain enriched data.	✓ Asses the diversity and representativeness in the sample group
Recruitment Ways		
Using own participant pool	✓ To recruit swiftly and effectively participants from those who have previously agreed to take part in the research.	! 'Loyal customer' profiles can ignore problems and give biased answers.⚠ ! It is observed with these pools that they do not provide enough diversity due to having similar types of individuals.
Using Recruitment Agencies	✓ To include groups that they cannot easily reach.	! It may prevent to reach the participants with the desired characteristics ! It may pose a risk for the research due to low control on the sample group
Using Pool of Remote Research Tools and International Collaborations	✓ To diversify the sample group by reaching worldwide populations and groups	! Issues such as repeated interactions with the same participants, participants taking part to receive the reward, and participants who are unable to complete the tasks assigned totally.
Using social media and Targeted Ads	✓ To enable reaching certain groups with pre-defined characteristics and features.	
Using Databases of Websites	✓ To enable reaching certain groups with pre-defined characteristics and features.	

The activities and strategies are listed in the Table 5-7. These strategies help UX researchers to define the sampling group to provide relevant and useful information for the design activities. Therefore they consider the project's aims, including dimensions such as commercial context and user approaches to define the essential features of the sampling group that are representative of the target group. Recruitment methods also influence this management, providing various advantages and disadvantages on issues like diversity in sampling or reaching the proper participants. Recruitment methods also play a role in this management as they offer

different benefits and challenges related to factors such as diversity in the sample or reaching the appropriate participants. As a result, UX research practitioners use various recruitment methods in addition to combining different recruitment channels.

5.2.3 Practices and Strategies regarding Data Collection

Previously, it was briefly mentioned that the pandemic was effective during the period of this thesis. At the start of the pandemic, UX firms and teams had to adjust their research processes due to social isolation regulations that prohibited face-to-face research. It was observed that data collection is the most effected phase of UX research from the COVID-19 while there were slight changes about the other phases Firms A and D were already using mainly remote research methods, while the other firms had to transition from face-to-face to remote data collection methods. So, this study examines this adaptation process to behaviours of UX researchers and teams regarding the quality of the UX research under unexpected situations. Therefore, the following section investigates the data collection phase considering the remote approach to present how UX researchers handle the unexpected situation regarding their priorities and concerns. So, this section explains the practices under two parts as synchronous and asynchronous UX research methods. Accordingly, it starts with the issues related to preparedness to data collection sessions to show the nature of the data collection phase in practice which especially important for remote studies. Then data collection sessions will be explained in this section including differences for synchronous and asynchronous research.

All of the participants underline the importance of the preparation phase to have an effective data collection in remote research. These preparations help UX researchers to obtain data in line with the research questions and project goals by designing the data collection process in an appropriate way (P 3, 4, 5, 6). So, data collection process can generate the data that can be useful to answer research questions which is essential to maintain relevance (P6). These preparations are also

considered vital in establishing rigour because they formulate the research process in terms of consistency, neutrality and credibility of the process as explained in Section 2.3 Accordingly, in the following, various preparation activities are overviewed under three categories. First, there is methodological planning; second, there are the preparations practitioners make for ensuring their readiness; and third, there are the preparations to inform and sensitise participant users about the study session.

Methodological planning refers to the design and definition of research materials (i.e., questions, tasks, scenarios, procedures, and prototypes) and platforms (i.e., digital tools used in the research). UX researchers stressed the need to make all processes, activities, situations, and questions presented to participants as clear and straightforward as possible to efficiently obtain data (P 6, 7, 13, 17, 19). They recommended keeping the activities as straightforward as possible especially in remote studies by breaking them down into simple steps and considering things like memory load and cognitive fatigue because it is not easy to guide participants with online tools (P 1, 2, 19). They also underlined that the fidelity of prototypes is crucial in terms of collecting actual data, as it may interrupt the data process or misguide the participants in remote studies (P20). Therefore, prototype fidelity needs to be appropriate according to the needs of the design phase and users were encouraged to explore the interface independently by having the option to reset the entire interface or by using additional interactions outside the test scenarios (P16). The users' participation in the study session might increase this way.

“[As users don’t feel competent with the online mediums], they feel like the prototype is kind of an alien environment for them. Of course, we put tricks like ‘escape getaways’ for the cases where they are stuck or extra interactions outside the scenarios to provide space for them to navigate more, to try out by themselves. All these for relaxing them a bit.” (P17)

Practitioners emphasised that in addition to the research materials, the digital tools to be used in the sessions should be carefully chosen and researched while

considering the project needs and user capabilities (P 1, 3, 7, 13, 19). The first step should be comprehending the tool alternatives and selecting the most appropriate one for the research aims (P6). Accordingly, firms and UX teams even created fictitious or non-profit projects to test the capabilities of possible products as P 18 explained; “*There we generate an extra task for ourselves and conduct research [on a social service], just to test a remote testing tool.*” It is also important that the research tools are appropriate to the sample group's characteristics and language (P 2, 6, 18, 19). This appropriateness can facilitate the inclusion of sample groups with low technological aptitude or who may have problems with language. In addition to the ease of use of the digital tools and their suitability for the methodology, it is considered necessary that they work in harmony with each other, and that data can be easily transferred between tools (P 12, 13) . This cooperation between tools increases process efficiency and transfers the data without losing it.

Despite all these precautions, technical difficulties can be occasionally seen in remote research. Consequently, UX researchers in this study advised creating backup plans and alternate communication channels by imagining all potential setback scenarios (P12). They believed that pilot studies were necessary to examine all alternative strategies and media for the same reason (P 2, 3, 4, 5, 10, 12, 16, 17, 18). For the same reason, it is considered essential to select the digital tools to be used in the research in line with the participants' preferences and to have alternative tools ready for specific situations (Firms B, D, E). Due to the limited researcher control in remote research processes, it is necessary to identify possible problems that may occur during the implementation and to make alternative plans before the implementation (P 5, 10, 12, 15). For this reason, all participants emphasised that pilot testing is significant in remote research.

Practitioners feel that *being prepared* is just as crucial as methodological preparation for a successful research session. Researchers' preparedness enables them to ensure that they are ready to conduct a research study in an appropriate and feasible way (P2). First, UX researchers want to be ready for the sampling group that they will face during the data collection (P 2, 3, 5). They noted that it is their duty to

ensure that research participants are relaxed and at ease for the whole duration of the study. Accordingly, they emphasised the value of the practitioner's communication abilities and recommended gathering detailed pre-research on the target groups before the sessions (P2, 11). Participant demographics, product history, and relevant background may all be included in such information. So they can know and understand their sampling group which helps them to build rapport with participants and guide them to give useful information.

“It is much easier to maintain a natural conversation with the users and sensitise them to the study when we are from the same culture. However, I experience difficulty, indeed, in building such rapport with users from abroad, because I don’t know anything about the person’s context on the other side. I mean, it could be a terrible day in that country, it could be raining like hell or a disaster maybe... I have no clues.” (P4)

Likewise, the epidemic may negatively impact the user's life. Practitioners believed this would impact the study findings, and it was essential to be aware of such circumstances before the research sessions (P2). They suggest putting off the studies if this turns out to be the case.

“[At the beginning of the pandemic], people seemed abstracted rather than focusing on the user test we’ve been conducting with them. Each person has a worry, let me say [...] If users have other things on their minds, I think user tests can be postponed for a while. Especially in times like this, when people are highly worried, I think the results can be affected to some extent.” (P9)

UX researchers underlined that they should also consider effects of such dimensions and their conditions while determining the research session numbers. For example P6 stated that she/he feels more fatigue while conducting remote research, as communication between her/him and participants is performed with online tools as underlined below. Because digital and online platforms make it more challenging to build rapport with participants and require careful observations, it becomes more exhausting for researchers (P4). Accordingly, UX researchers want to give importance to both participants and their own well-being.

“[Before the pandemic], we could do 6 to 7 tests per day. [Right now], I do 3 in a day, and I finish the day saying, ‘Man! I’m exhausted’. Because you need to be extra alert, extra cautious [...] For the one who moderates the test, it is more tiring than the studies we normally do face-to-face.” (P6)

Last but not least, practitioners believe that preparations need to be taken to *inform and sensitise the participant users* about the study session. The process of informing the participant starts with online tools or phone calls for participation in the study. In the text of the email invitation, it is stated that the subject of the email and the expectations from the participants should be clearly explained and it is important to avoid using words that may be considered spam (P1). Moreover, the participant should learn about the study's objectives, phases, what is expected of them, and the digital tools that will be utilised in the session while inviting the study. Accordingly, firms and UX teams prepared several strategies and techniques to inform the participants. They provided printed handouts for participants (Firms B, E, G), created informational pages for participants on their websites (Firm E), and produced instructional video tutorials (Firm E) in addition to detailed invitation emails and calls.

“At a basic level, we literally guide users, as in, we are preparing a manual on downloading the application, and so on. [In face-to-face sessions] if the guy had a problem downloading, you could take the phone and download and install it for him. There weren’t any problems there.” (P12)

In addition to pre-research on users, it is recommended that researchers should inform the participants at the beginning of the session about the tools and methods to be applied (Firms B, E, G). It is also useful to inform the participants about the date by using tools such as Google Calendar or Calendly after determining the date and participation in the study. Correspondingly, the preparation phase for remote research is vital to mitigate the drawback of remote and in-direct communications. Therefore, UX researchers must implement some strategies to be prepared for methodology, themselves and participants.

UX researchers have an aim to extract data from participants to address research questions and develop design ideas. Accordingly, it is noted that their approach to data collection is shaped by their pragmatic goal to generate information that can turn into design ideas. Accordingly, they perform several activities to reach that aim. So, these data collection practices are presented. Accordingly, the following parts explain UX researchers' practices during data collection to obtain relevant information. These issues may differ depending on whether the session is synchronous or asynchronous.

Synchronous methods: During the implementation of remote research methods, all the participants stated the importance of establishing rapport with the user, which is one of the factors affecting the quality of data. UX researchers applied some strategies to generate rapport with their participants during these sessions. It is recommended to make a conversation with the participant at the beginning of the session and to have warm-up conversations or techniques with the participant before the research (P 2, 3, 4, 6, 7, 9, 10, 15, 17, 18). For the same reason, it is considered important for the researcher to use a language and speaking style that the participant feels comfortable with and to make them feel comfortable by improving the researcher's narrative and empathy skills (P 2, 3, 4, 7, 10, 11, 17). So, it is essential to behave according to the participant characteristic and attitudes to make them feel comfortable by generating common understanding between them as mentioned below;

"Rapport is also an essential issue in my studies, both remotely and in-person, to grasp the condition of the person on the other side and, to some extent, to establish a language of communication. This is the most significant aspect of the interview. Because it has a significant impact on the interview's quality." (P4)

Even though these strategies are helpful to build rapport, there are some situations that participants do not feel right. UX researchers try to building rapport by increasing the empathy between them by giving examples from their personal life as

quoted below. Accordingly, participants feel closer to the UX researchers and feel more relaxed (P 2, 4, 15, 19).

“I mean, I’m chatting more. You know, of course, I don’t ask what you cooked today, but how are you, where do you live, what do you do? We chat for 5 minutes, and I collect some clues, and when I say, “Oh, I think there was something like that,” she/he actually feels that I understood her.” (P19)

This approach also applied to encourage the participant to give more in-depth data about the experience. Therefore, participants are sensitised in this way and give enriched information for the experience. Sensitization is also considered crucial to keep relevance in the research as it encourages to give more relevant and appropriate information. Accordingly, UX researchers may apply a directive approach without maintaining their neutrality towards participants to guide them to express information (P 5, 7, 15, 16, 17). Although it is recognised that this situation may negatively affect data validity, it is stated that sometimes UX researchers prefer guide participants with a non-neutral approach as P15 stated;

“In general, for example, in an interview, when talking about something personal, I can usually give an example about myself, in a way that shows that it is ok so that he/she can talk about it comfortably. Then slowly the other person starts to explain, ‘Oh, something like this happened to me.’ As I said, this may not usually be acceptable as an interview technique in the humanities [scientific studies]. Because the critical thing there is to get the data without creating any bias. However, in design research, it’s more important to be able to get it done in order to develop ideas. [...] if that statement can tell us something interesting about her life that we can develop an idea about, that’s ok for me as long as I’m not doing a master’s degree or a PhD.” (P15)

It can be said that this directive approach without maintaining their neutrality is implemented to continue the information exchange in cases where communication with the participants is weakened during data collection. So, UX researchers try to increase the participant’s willingness and openness to share information even if it

leads to biased data (P15). Therefore, it can be said that the efforts made to provide relevance in the research by directing with examples given by the researcher during the data collection are one of the points that affect the rigour.

Conducting remote synchronous research with digital tools also influences this rapport and sensitising process as the communication is conducted with digital tools (P6). It is stated that even if building rapport is challenging through digital communication, the absence of laboratory observation environments, which may cause stress and unease for users, creates a relaxed atmosphere for participants . (P 12, 17). In addition, since it was observed that some user groups may feel alienated or nervous in the office environment that can be used for interviews and tests, it is thought that remote work is more comfortable for such groups and the data collected may therefore be more qualified (P 11, 17, 19). It is noted that it is difficult to observe facial expressions, and gestures in remote user research (P 5, 6, 12, 15, 18, 19). Although this deficiency has negative effects on developing insights and probing the participant according to the situation, it is stated that it does not create a fundamental deficiency in current practices.

“Facial expression is important in the method we apply now. Need to take facial expressions and so on... That's a bit of a thing. We cannot take it. But if you say, how much were you already analysing those facial expressions in your past studies? That was actually implicit for us. I mean, in terms of managing the process as a researcher, when you control the facial expressions, an experienced researcher can direct the process according to those facial expressions and body movements. Otherwise, we are not doing behavioural research. You know, we don't follow a 100% scientific method. Of course, ours is quick and dirty [in a quick and not high-quality way]. You know, we are doing face-to-face engineering as Nielson taught us, but this mimicry part, that social interaction part is missing.” (P5)

“I mean, it affects the observations a little bit at the observation stage, of course, you can see a little bit better the body language or gestures and facial expressions of someone who is physically

next to you. Here you are a little bit more limited by the frame rate [the rate of picture frames per second]. You may not be able to make much better sense of a gesture and you may not be able to see it or something like that, but I guess there are rarely results that require that much detective work.” (P18)

In addition, sensitising activities and materials that can be used in face-to-face methods may not be possible or less effective in digital environments (P18). Therefore, it is necessary to probe the topic in depth by encouraging participants to talk during remote research (P5). Researchers are also advised to pay attention to the words and accents chosen by participants (P11) and to be alert to clues that can be picked up through the limited observation opportunities provided by remote interviewing tools and to try to develop insights (P 1, 2, 11).

Asynchronous methods: In asynchronous user research sessions, the lack of direct control of the researcher raises concern about efficiency and effectiveness of the data collection. For this reason, all firms stated that the question sets and scenarios to be used in asynchronous methods need to be carefully planned by considering the limited controlled nature of the session.

“In the asynchronous test setup, you can't fix things on the road. The arrow is already released from the bow [when the data collection starts]. The flow needs to be excellent there. If there is a lack of guidance or a directing mistake that will alter the findings, or there may be some issues with the medium. (P18)

In this direction, the tasks to be performed by the participants in the study design should be defined step by step and the answers expected from the participant should be straightforward and brief, taking into account the memory factor (P 1, 2, 3, 10, 11). Additionally, they underline it is important to explain each instruction and step clearly and concisely to the participant, and to use simple, brief task descriptions. Moreover, one firm stated that they use and prepare short videos to facilitate the application of asynchronous methods by informing and guiding their participants (Firm E). Collectively, participants are guided to provide the necessary and relevant information correctly to keep relevance.

"I really try to break down the tasks [the tasks to be given to the participant during the test] question by question as much as possible. When you expect them to do more than one thing in a question, they get very confused. Usertesting users. After writing both of them, he tries to do the second one, not the task you gave him, and what he read last time stays in his mind, and some of them can completely forget about what he read. Another thing, for example, in some parts of the script, sometimes it is necessary to give small retrospective reminders in some of the tasks, you know, 'look, you are doing something like this, so you need to do it like this'. Because it can happen, you know, they can be quite detached from what is happening and what is over. There is already the situation that when it goes to a wrong screen, you can sometimes lose it there. It may never come back." (P3)

It is also important to ensure representatives of the participants in these studies. The fact that the people participating in the study are doing it for money and their current state and situation can affect the quality of the information obtained in the study (P1). Therefore, a surveying test is applied before asynchronous studies to ensure that the correct and real user profiles can participate (Firm A). In this way, UX researchers ensure to exclude participants who do not belong to the targeted group and prevent them from affecting the study outcomes.

"There is a point that we have noticed, especially in remote [asynchronous] user tests, one test does very well and the other does not do well at all. And there is no specific reason. We realised that some users might be very tired and take the test. Before that, they may have taken 20 other tests and taken that test again. 'How do you assess your energy level at that moment to recognize this? How would you assess your current mood?' If he's recently been traumatised or distracted, that affects him too." (P1)

Although the research processes are planned simple and straightforward, asynchronous methods may not be able to generate sufficient information, as the researcher is unable to moderate the session in asynchronous methods (P12). Thus, two firms apply questionnaires to obtain additional complementary information (Firms A, E). In addition to these, techniques such as diary or self-video recording

can also be applied as a complementary method (Firm E). In this way, information relevant to the purpose of the research and the needs of the design process can be fully and accurately elicited. Collectively, UX researchers focus on the essential information and plan the research sessions to elicit relevant information. They need to design and conduct this phase in a rigorous way to obtain essential information by ensuring the process is appropriate and feasible to produce such knowledge.

5.2.4 UX Researchers' Approaches to Data Analysis

Since supporting design activity is the primary goal of UX research, UX researchers practise data analysis phase accordingly. In other words, the analysis process is carried out to produce the type of data that is important and essential for the design phase. All firms in this study use the UX research knowledge to start a new development process, to guide them during design activities or justify design decisions. UX research provides insights that can inspire the development team in developing innovative products (P12) or in defining new strategies for firms (P10). Furthermore, UX research aids in guiding design activities and ensuring the end product meets user needs. This is achieved by communicating the essence of the user experience to project partners (P16) or generating personas to demonstrate the characteristics of the target users (P1). UX research also allows firms to evaluate and optimise their designs, ensuring that they are user-centred and meet the needs of their target audience by testing design alternatives from the perspective of users (P2) or exploring the effect of design decisions (P4). Accordingly, UX researchers perform an analysis process by considering these needs and dimensions of the project.

In practice, UX researchers analyse research data to come up with useful knowledge for the design activity as explained above. So, meeting these expectations is the primary motivation for data analysis in UX research practice by transforming UX data to design knowledge which is related to the relevance of the research (P15). Accordingly, UX researchers focus on the research questions in the analysis and consult with their teammates about the validity of their inferences (P 4, 6, 7, 13, 14,

16, 17, 18, 19, 20). So, they can reveal and present the essential information which is framed by research questions related to the needs, aims and objectives of the project. For this reason, it is essential to formulate the right and relevant research questions in the early stages as underlined by several researchers (P 2, 3, 6, 11, 18, 19).

“I believe that the first step in producing good analysis is to ask good research questions. And to do the analysis in accordance with the research questions. Because using research questions in the analysis section allows you to maintain objectivity. Because suddenly the user says something and you may feel like 'ah, that's what I was thinking'. But I think it is necessary to interpret what they say according to that research question.” (P19)

Accordingly, UX researchers make a directed and reductive search among the data based on their own assumptions, which is affected by their previous experience and research questions. Then, they review the raw data to reveal the information that designers and other project partners can benefit from. Therefore, the analysis aims to find out results that can be helpful for coming up with design ideas or strategies, rather than documenting what is there and presenting the context and experience holistically. Accordingly, UX researchers pragmatically analyse and evaluate the raw data with a directive and reductive approach to demonstrate the relevant knowledge as quoted below.

“We actually code the interesting things that the interviewees say. We organise those codes and turn them into a structure. In a structure that will benefit us and that the customer can understand, for example, motivations of using [the service researched], motivations of using physical spaces related to [service]. Because there is an increasing interest in a digitalised world, we have a question of why a person would still use physical spaces. With that motivation, we come up with different codes. As a place for socialising [service]. [service] as a learning space. [...] If this would have been scientific research, for example, [the other researcher] would assign specific codes to these. First, we would generate codes together. Then when a code system was fixed,

[another researcher] or someone else would code it with it. Then someone else would code it, and then we would look at the percentage of intercoder agreement. We would go to the jury and say, 'Look, this code system works, and we used it.' Here, unfortunately, it is not applied in that way. I cannot say 'unfortunately' because that is not the need; the need is a different need. Therefore, it is not used that way. Unfortunately, that is why 'unfortunately' for example, at the beginning when I started working [in practice], I was getting destroyed when I tried to apply these academic methods here. Then I realised that the need here is a different need." (P15)

As explained below, the time period of the analysis process in the practice becomes a critical issue due to commercial context that have been explained Section 5.2.1. Accordingly, when analysing qualitative data, the coding approach is more concerned with quickly producing design ideas than providing a reliable interpretation of the data. For this reason, it is challenging for researchers to analyse and interpret the experience that is the subject of research with a holistic approach. Because a comprehensive approach takes a long time, a reductive and targeted examination is expected from their analysis process. The researcher may occasionally feel constrained by this circumstance and unable to express his or her opinions and assumptions on experiences, as described below. Therefore, researchers may worry about not being able to convey all of the valuable and inspiring UX information that can be used in design activities. .

"Each and every point is essential in ethnography, and I try to write each and every one of them in the interview, etc. My manager says that 'the [client] firm does not require them, you can leave them as a remark'. You can write that this means this, that dialogue, or I don't know, but you don't have to explain it that way. Sometimes [my manager] adds, "From project to project, it works extremely well in certain projects,"[...]. However, it becomes more specific [in certain projects]. It is important to look at more particular topics [in projects], but I will consider them comprehensively again. I'm not sure whether [my manager] thinks

I'm wasting my time; we haven't discussed it. [My manager] may believe I'm wasting my time, but I don't think [I'm wasting]" P11

Similarly, it was observed that firms and teams tried to increase the efficiency of the analysis process by decreasing the essential time and source to meet the commercial context's conditions and demands. Therefore, several firms (Firms A, B, D, E) underlined that documentation of research steps and managing the research data found vital to analyse the research efficiently. Accordingly, they implement various strategies in documentation of the research to increase efficiency. The approach of increasing the efficiency of the process by automatized and standardised processes and tools can also be seen in the analysis of the UX research data. For example, remote research tools are expected to have support features for the analysis process (Firms A, D). It is noted in this study that a content analysis method in which the researcher predicts the themes from the beginning while coding the data and seeks answers by coding the data accordingly and automatically reveals the repetitions emerged (Firm E).

"In this period, we were a bit obsessed with automation. [...] We are trying to increase the interaction between the tools. For example, automatically transferring all the data from AirTable to Miro as post-it notes... There is this [classical] designer pose in front of a wall, grouping post-its; we are transferring data from AirTable to Miro to replicate the online version of this pose. We generated templates. I mean, there is a template for Journey Maps, there is one for Mental Models. You know, it's because the designer should spend less time with their outlook. Of course, things can change on a project basis. Needs can be different. But we are trying to make their lives easier with such templates."
(P12)

Moreover, the manager of Firm D explained that they were trying to implement artificial intelligence to their analysis process to "optimise the process by defining several users characteristics and features" (P10). There were even efforts to create predefined procedures, which allow data to be transferred from one tool to another based on various rules in order to shorten the analysis process as mentioned

below. So UX researchers and firms implement these strategies to produce relatively faster research outcomes.

“I use AirTable especially for the analysis part. The reason for using it is this; beforehand, when I start analysing while [...] I think about how outcomes can be. You know, I am preparing something accordingly in the report section, I am preparing a template. [...] you know, the output of this will be like this, let this part of the giver come here, here, here, I will get the following outputs from here. For example, I list the themes and I list the positive and negative emotions of these themes, and I assign a comment section at the end. For example, I operate a column in this table, then I enter the formulas in the AirTable. After that, I read and enter the labels, while I enter the labels, it starts calculating the calculations on the one hand and starts processing on the side[...]. In other words, if I use AirTable [...] the output will be something very close to the structure in my head.” (P13)

In addition to these, tacit knowledge based on experience is helpful in determining the research method and analysis of collected data, as well as in developing ideas and insights from the analysis that may be converted into design solutions. So, experienced UX researchers consider their previous experience to make interpretations as they know how the data can be used in design process as explained by P15;

“[Effective use of data] is something related to experience. For example, when I look at an interview script [transcription]. From there, for example, [I can assume] this could mean this. I can also get such additional ideas out of it, like, if I can get five ideas, a friend [like P16 or P17] who is new to the area can get only one. So how can someone develop oneself in this subject? This is also something about the experience; I couldn't say too much about this.” (P15)

Accordingly, the researcher with little experience (P16 - works under the manager P15) mentioned that she was wondering whether she had done the analysis correctly

and that she needed a source for this. Therefore, new coming researchers in the area need guidance for the analysis phase to produce appropriate and credible knowledge.

"[From a research guide] I would expect something established [knowledge] about the analysis process, as I myself lacked it. Conducting [research] is already clear, I mean, there are millions of articles on conducting [research] it anywhere, there are already millions of articles, you do it once, you already understand it. There is no need to talk about them over and over again, there is no need to prepare such a format anyway. I think there could be a slightly more established system for the analysis and preparation processes. [...] Because the important part of the job is that there should be no loss of information. It is very open to human error because [...] Yes, it is a phase where I am not sure if I am doing it 100% right, especially in in-depth [analysis of in-depth interviews]." (P16)

Additionally, firms may prefer to assign more than one researcher in the analysis process to quickly produce relevant user knowledge (Firm B, D, E, G, H) In parallel with this approach, data coding and interpretation are sometimes carried out by two researchers together. Especially with the increasing use of remote tools during the pandemic as mentioned by all of participants, it becomes easier to collaborate, so more than one person to participate in the analysis process in this way as quoted below. In this way, the accuracy of the interpretations made during the analysis is checked by the experienced researcher, and additional inferences can be made that the novice researcher may have missed. This collaboration also helps them to prevent reflecting researchers' bias and personal judgement on the result by consulting the accuracy of the information to the project partners (P19).

"We write these codes and common tasks in Figma [in data analysis]. We can work together. Both of us [the researcher with less experience and me] can make changes on the same thing. There are problems of who selected and who did not. On the one hand we open Zoom and on the other hand we are on Figma. The two of us connect from our Figma accounts and say, let's call it like this, let's split it into two codes. Following that,[we are

asking] is there anything similar to this in this narrative. Let's add this code under this main heading and so on." (P15)

In addition to all these, it is observed that some of the projects proceed directly to the design phase by skipping the data analysis and reporting procedure to reduce the allocated time (B, G, H). In these approaches, the same people and teams conduct the research and transform the results into design solutions. Due to demands of the client firms or their unawareness in UX research, researchers are forced by the firms to directly develop the design solutions.

To sum up, UX researchers have an analysis approach to generate appropriate and useful user knowledge that can be used to develop products or evaluate design decisions. Table 5-8 summarises the analysis approach of UX researchers in the practice. Accordingly, data are reviewed in a directed and reductive way to reveal present design insights. The limitations of commercial context are influential in this process as explained below. Therefore, UX researchers and firms aim to increase efficiency with standardisation and automation of processes to reduce the time. It is also understood that tacit knowledge is important to produce rich knowledge. So, assigning more than one researcher gives other researchers and project partners the possibility to include their perspective through their tacit knowledge.

Table 5-8 Strategies to ensure the quality of the UX research in terms of **data analysis** practices.

Strategies	Aims of the activity in terms of maintaining the relevance of the UX research	Goals about or effects on the rigour of the UX research
Performing the analysis in a way that they can answer the research questions.	✓ To facilitate the research results to meet the needs of the firm and the design process.	✓ To establish the credibility of the research results by answering the research questions.
Applying a directive and reductive approach in the	✓ To facilitate producing user insight that can be	

analysis and assessment of the data	turned into design solutions.	
Having a coding approach is more concerned with quickly producing design ideas than providing a reliable interpretation.	✓ To quickly produce design ideas from the results of the UX research	! Makes it challenging for researchers to analyse and interpret the experience with a holistic approach.
Using automated and standardised analysis approaches	✓ To quickly and automatically analyse the data and generate research results	
Assigning two researchers to data coding and interpretation	✓ To produce more insight by checking interpretations and include missing insights	✓ To increase the credibility of the research by avoiding missing information or misinterpretation

5.2.5 Practices related to Communication and Integration of UX Research Results

As explained in Section 2.3., relevance of the research is more related to outcomes regarding the usefulness for the project, rigour refers to the trustworthiness and reliability of the research process. Accordingly, this section aims to explain current practices of UX researchers in establishing relevance and rigour in communication and integration of UX research results. Therefore, this section starts with the presentation ways of UX research outcomes respecting their effective usage by project partners. The roles of UX researchers including the responsibilities in the firms is provided in the following paragraphs. As the last part of this section, background of practitioners regarding rigour and relevance in the research is described to show how UX researchers manage and use the UX research.

The way of presenting results is considered vital to utilise outcomes of the results in a practical way, as well as the quality of the content (P12). The research results were typically presented in a comprehensive report by all firms, if they did

not directly go to the design process (Firms B, G, H) like explained in Section 5.2.4. The report is delivered at varying depths depending on the needs of a variety of project partners (Firms B, D, E, H). Accordingly, the report gives an executive summary of the outcomes at the beginning to guide readers to find the relevant information (Firms B, D). In addition, classifying the content according to how it would be used is also helpful to guide the other project partners (Firms B, D, E). For example, defining results under titles such as ‘critical issues that need to be immediately fixed’, ‘issues which require development within midterm goals’ and ‘areas that have potential in the long term’ help project partners define their strategies (P16).

Moreover, all firms indicate that they prefer to give an oral presentation to explain the research outcomes to increase the relevance. So, in this way, UX researchers aim to make the study findings more easily understandable and accessible to project partners (P12). Therefore, project partners understand the significance of results from the perspective of the researchers. In this way, UX researchers can communicate more effectively and explain the results to external *“project partners who may feel as if their own products and decisions are being tested”* in UX research (P1). So, this oral presentation helps UX researchers to convince the project partners about the research outcomes (P12). With similar aims, the study findings are presented with pertinent segments from the video recordings collected during data collection in both reports and presentations (Firms A, B, D, E, G, H). Accordingly, project partners can also relate the presented results to the user’s context by seeing the actual footage which helps them to relate the outcomes (P2) or to trust the accuracy of results (P4). In addition, generating a ‘Persona’ is a common way of explaining user characteristics and types concerning the context of experience (Firm A, D, G, H). So, the project partners can generate empathy with the user by seeing examples from the target group rather than seeing as data (P1). Similarly, UX journey maps and derivatives are another way to explain the user experience context (Firm A, D, E). So, these maps visualise the relation between the user experience and time or phases by visualising the user experience. Thus, the developments in

experience related to the time and stages are presented to project partners to show more in-depth content such as expectations, motivations, and pain points of users (P13). Both strategies make the data more understandable and easier to use in design activities by visualising the information (P1). Moreover, the communication of research findings to project partners takes place via idea generation workshops in addition to reports and presentations (A, E, G). Research findings are explored by employing design thinking techniques in these workshops, translated into design proposals with the contributions of researchers and other project partners. Research findings are said to have a more significant impact when they are discussed with associated parties in these workshops, as integration of them is guided by UX researchers (P16). Moreover, the research outcomes are produced more relevant to the limitations and expectations of project partners as they are generated by including their perspectives (P1). Correspondingly, UX researchers put effort into presenting feasible and valuable user knowledge in a usable and convenient way with these strategies to increase the effective use of research outcomes.

Table 5-9 Strategies to ensure the quality of the **communication of UX research results**.

Strategies	Aims of the activity in terms of maintaining the relevance of the UX research	Goals about or effects on the rigour of the UX research
Writing Research Reports		
Prioritising the results and providing the special sections according to the audience	✓ To frame the research report to direct the audience according to their interest and needs.	✓ To provide concrete exemplification to show the nature of the researched experience.
Visualising the UX data with Personas or Journey Maps	✓ To increase the empathy between the user and stakeholders to explain the context comprehensively.	
Providing quotations, video sections or direct evidence from research.	✓ To demonstrate the actual nature of the experience.	✓ To provide thick descriptions to show the nature of the researched experience

Making interactive oral presentations.	✓To explain in an interactive way to discuss the outcomes of the research	
Design Solutions		
Guiding the stakeholders by providing design solutions alternatives	✓To explain the implementation of research outcomes by presenting design alternatives	
Providing the relationship between the design solutions and UX outcomes	✓To provide a cause-and-effect relationship between UX knowledge and products.	✓To establish the truth value of the research by providing the cause-and-effect relation of outcomes and evidence.
Collaborative Workshops		
Inspiring the stakeholders by using outcomes with design thinking methods	✓To guide the stakeholders about implementation strategies of research outcomes.	
Developing design solutions together by considering the project partners' perspectives	✓To facilitate the development of design alternatives by considering both the perspectives of stakeholders and dimensions of user experience.	

It is also explained as crucial to consider the needs of the design activities and produce essential and relevant knowledge according to the project aims (P5, 12, 15). Accordingly, evaluation studies include the design improvement suggestions to show and address usability problems (P6). Similarly design suggestions and alternatives as results of UX research are presented to inspire or guide the design activities (P12). Accordingly, UX researchers increase the effectiveness of outcomes by presenting the relations between outcomes and designs (P2, 4, 7, 12, 15, 16, 17, 18, 19, 20). Additionally, two firms that participated in the research provide only design services (Firm G, H). UX research is not defined as the final product of their services; instead, it is complementary to their design process. So, UX research supports UX designers in their design activities or helps UX teams and firms to convince other project partners with evidence from the users.

Table 5-9 summarises the practices and strategies that UX researchers implemented during the communication of research outcomes. The main activities have been explained as increasing the effectiveness of research results in implementation to the design activities. Therefore, UX researchers use these strategies “to bridge” (P19) UX knowledge to project partners or “advocate” (P2) users by convincing project partners. Therefore, these strategies help UX researchers in establishing both rigour and relevance because they present the way of addressing research questions.

Moreover, the role and place of UX researchers in UX teams or firms also influence how outcomes are implemented in design. The findings revealed that researchers can (1) work as consultancy UX research service providers to project partners, (2) have dual roles of designer and researcher, and (3) function as integral members of the product development teams on a project-by-project or permanent basis. First role defined in this study is that UX researchers can work as a consultancy service provider in certain projects. UX researchers independently conduct and manage the UX research process and deliver to project partners as reports in this role. Even though there are strategies to help UX researchers to increase the effectiveness of research results in explaining to project partners as presented in Table 5-9 the effectiveness of UX research is still questionable for them when they are not part of the team that uses the research outcomes. Participants, both from in-house teams or consultancy firms (P 3, 5, 6, 7, 11, 12, 13, 14) indicate that they have concerns about the implementation of the outcomes after delivering them to other project partners. In other words, UX researchers feel concerned about the impact of the research they conduct if they are not part of the implementation process, as quoted below.

“It is something that has always been on my mind, and I believe that part of what we do is provide the report, and it is done, and after that is lacking for me. Because I do not have the opportunity to observe what has and has not been passed and delivered to the

other party, as well as what improvements have been made in apps and products.” (P6)

This situation also affects their job satisfaction as a researcher and makes them question the meaningfulness of their job.

“I do not have any first-hand experience at present. I mean in [Firm E], but when I compare it to [previous workplace], I feel like I encountered more there. I believe that you conduct research, offer it to the corporate client, and the client continues to do work in the same way. In the position I am presently working in, I have not yet reached the point when I have felt it directly, as if my efforts have been in vain. I arrived to that stage a lot at [previous workplace]; that is, I came to the point of feeling futility and pointlessness of what I was doing” (P14)

The study identified several reasons why UX research results may not be effectively used by project partners. These reasons include such possibilities as; UX research is carried out merely for showing off rather than for actual use (P 11, 12); project partners being sceptical or unconvinced about the research outcomes (P4); difficulty in transferring user experience knowledge in a timely and agile manner, leading to diminishing validity over time (P10), and project partners may not have appropriate sources to apply the results (P10).

In addition, it is noted that some UX researchers in this study have are expected to embrace both designer and researcher roles in some UX design processes (P 5, 7, 15, 16, 17, 20). Accordingly, practitioners who have a designer role with educational background in design fields are expected to conduct UX research, too. Therefore, UX designers are expected to develop and maintain a specific degree of research competency. As P15 said below, designers who are skilled in both research and design handle the process more comprehensively as UX designers become responsible for conducting the whole process.

“We used to have a position called user experience researcher. Then we realised that it was not very efficient. All designers had

to do a certain level of research. [...]. So we found that every single designer has at least a minimum of user research skills. So there is no such thing as a user research team. We aim to bring all user experience designers to a level where they can do user research. P16, for example, is a designer who began as a designer and increased her research abilities through participating in research activities. [...] However, UX designers become project owners that oversee the entire project from start to end. Even if others are participating from start to end, UX designers are in control of the project as an individual.” (P15)

Accordingly, it is believed that the research will offer more appropriate and relevant knowledge to the design process, resulting in a more effective design as designers plan, conduct and complete the process by themselves. In other words, designers can work as both the facilitator of the research and the users or audience of the results in this approach.

Additionally, researchers can work as part of the product development teams permanently or on project basis. In this type of role, UX researchers actively participate in the whole product development process when they are a part of the team. Therefore, the researcher can conduct research by comprehending the context of product usage and the demands of the team as they can consider the perspectives of project partners while defining the aims and needs of the UX research (P4). Moreover, UX researchers can guide the project partners in the implementation of research results by monitoring the process (P19). So, the research results can effectively be implemented in the product design due to UX researchers' guidance.

The researcher's background, degree of education and work experience also have an impact on how the UX research is structured and carried out. As in the design field, it is understood that tacit knowledge based on experience is vital in gaining competence in user research and influences how the research design is formulated (P1, 2, 5, 10, 12, 13, 15, 16, 18). Some participants in this research mention that research planning is a process in which decisions are made instinctively based on experience as quoted below. Therefore, UX researchers are able to manage the

process by instinctively identifying goals, needs and objectives based on their previous experience.

*"Going with metaphors added greater value in [brand X's] circumstance. In this example, we told participants a statement directly and asked them to express the first words that came to mind in reaction to that sentence. This [the process of how I select a research method], maybe a gut feeling, or maybe it's intuitive, like 'if we do this, we'll get the quickest and most value-added result'. It becomes a learned experience after a certain point."
(P10)*

It is observed that this situation regarding the acquisition of competence in research can be associated with the educational background of the researcher as well as the practical experience gained in the field. The need for established education programs in UX design and research leads researchers to acquire the essential competencies through their experiences in their work life (P 4, 6, 7, 11, 13, 14, 16, 17, 20). Accordingly, firms generate inside UX training programs (Firm B, E, G) or encourage them to participate in certificated UX courses like the Norman Nielsen Group presents (Firm A). In addition, firms provide free time and additional budget to their employees to improve their skills with sources and programs (Firm G). In this sense, firms and teams operating in the field can also function as educational institutions; as P5 states, *"We are, of course, a bit like a school. We had a lot of staff, all of whom had graduated. They went to reputable firms both in Turkey and abroad."* Conclusively, firms had to apply strategies to ensure their employees have the appropriate training that formal education cannot provide.

Moreover, supporting competencies in UX research with the scientific background that can be gained in higher education is considered necessary by researchers with an academic background to reveal findings that guide and support the design (P 2, 3, 5, 6, 10, 15, 19). They underline the significance of the systematic and scientific approaches that they learn in higher education because this knowledge helps them to establish rigour of the research as mentioned below.

" People learn about this field on their own. However, I recognise that there is an issue here. Doing a usability test with your downstairs neighbour could be a good start for a being UX researcher. However, it's not that simple; you need to know stuff, and you really need to know what you're testing before you begin. If you have a hypothesis, anything in your head that you can come up with based on your experience and knowledge, for example, you don't think this button, the download button, is simple to find. For example, you must prepare your test for it, reveal it, and expose your hypothesis in such a manner that you can test it appropriately. Therefore, I believe it is critical to approach research from a scientific method standpoint. Making observations, gathering information, developing a theory, testing your hypothesis, and then iterating, [...] you know, one research generally leads to another, being able to comprehend them, and so on, so I believe it's necessary to be a bit more systematic." (P2)

Accordingly, having an academic background and understanding of the scientific approach helps researchers define a research process that effectively supports design activity. So, this academic approach increases the rigour of the research by implementing the proper methodology to address the research problem regarding the need for design activity (P 2, 5, 6, 10). Implementing the proper methodology also supports researchers to produce essential knowledge regarding the needs and aims of the project by maintaining the “relevancy” of the research as explained below.

“Before I came, for example, growth hackers [the team that develops strategies for company growth] were doing this [A/B testing] very roughly, very very roughly, they were changing a landing page completely, comparing it with the old one and just looking at which one had the most people signing up and so on. I'm encouraging people to go a bit more methodical, let's change this first, let's evaluate it, not just to say yes, this is more successful, but what was successful there, to learn from it [...] In all my studies, I attempt to apply the scientific process.” (P2)

“We were already familiar with several procedures at the start of each assignment because we had an academic background. I mean, we were familiar with the literature and so forth. We have

already developed a toolkit [method set] out of these, and we have begun to market them as a package. In other words, we inform the consumer that our services are such and such, with such and such benefits, and they pick a method from them. That is how we decide on a method." (P5)

In addition to all of these, the field of study in which the participant researchers received their formal education also has an effect. Eight individuals from creative disciplines (P 1, 2, 4, 5, 7, 15, 16, 17), six from applied sciences (P8, 9, 10, 12, 18, 20) and six from social sciences are included in the study (P 3, 6, 11, 13, 14, 19). Participants in these meetings who worked in creative fields said they needed to get better overall, particularly in terms of research techniques and procedures (P 4, 7, 16, 17). They require tools and guidance to conduct their studies in this direction (P16).

"In other words, rather than missing in design, I lacked in research methodology. so we were definitely doing research, interviews, surveys, etc. but we were doing it in a sufficient and predominantly non-methodical way. Thanks to [her previous workplace], I have learned what these research methodologies are, how to research user experience, how to interview individuals, and what are the distinctions between these studies? I began to discover specifics such as which studies get which findings." (P4)

On the other hand, those from social sciences mentioned that while they are proficient in research methods and procedures, they struggle to transfer their findings into design suggestions or solutions (P4, 6, 11, 14). They added that they need help from designers who are their teammates in this regard as exemplified below. So, they can effectively transfer research results to design suggestions or alternatives by collaboratively working with their colleagues (P4, 6, 19). Therefore, researchers from creative disciplines have concerns about the rigour of the research, but researchers with backgrounds in social sciences struggle to ensure relevance. There was no discernible pattern among individuals from the applied sciences in this regard.

“If it is a report that only asks for findings or expert opinion, I can handle it on my own, but at the point where a design proposal is needed, I have to pass the ball to my friends a lot. I mean, of course, something comes to my mind, but I don't feel competent to present a full design proposal, so I pass the ball to my friends.”
(P6)

Strategies and relevant practices of UX researchers for establishing the rigour and the relevance presented in the previous section are the major findings of this study. They are presented to reveal the current practices including the UX researchers aims, motivations, expectations and concerns regarding rigour and relevance. The discussions for the findings are presented in the following section by considering the academic literature to provide a model for establishing the rigour and relevance for UX research practices.

5.3 Conclusion Regarding the Results

This chapter is dedicated to explaining the results of this thesis. These results present the practices of UX research teams and firms, including the practitioners' mindsets and approaches towards the UX research process. The results of these activities show that the ultimate aim of the UX research practice is supporting the design activities by inspiring and guiding them or justifying the design decisions during the process. So, to effectively support these activities, the outcomes of the UX research should be valuable and relevant to the design activities. Thus, establishing the relevance in the UX research explained as the primary aims of researchers in practice. Current practices of UX researchers to produce essential UX knowledge have been described in this chapter, and the flow of the process is presented to examine the elements and factors of the commercial context. These activities can be categorised under three heading to define the essential management areas to achieve relevance in outcomes: 'Management of Research Process', 'Management of External Project Partners', and 'Firm's Internal Management'.

Management of the Research Process refers to the core activities of producing the essential UX knowledge that supports design activities. It includes the phases of the research process as research planning and design, data collection process, analysis of data and communication of the results. In the research design phase, UX researchers must define the appropriate process by understanding the project's aims and partners' needs. Then, they must maintain relevance during the data collection by communicating with project partners. In the following step, UX researchers evaluate the data along with the project aims to find relevant UX knowledge. So, they can deliver their findings in the final phase according to the project's needs. Therefore, UX researchers must manage each step carefully to have successful outcomes.

In these steps, project partners need to be managed in the research process, as they are the ones who will achieve the outcomes of the projects. Therefore, our participants highlighted the importance of the management of the project partners during research planning. This understanding helps them to define the research objectives that support the project aims. Maintaining relevance during the data collection also keeps them on track for the project's aims. The effectiveness of the research is closely related to the ability to deliver outcomes that align with the goals and requirements of the project.

Management of the UX research team is the last issue found in the study regarding the success of UX research. Increasing the efficiency of the research process has been mentioned by several UX firms to be able to conduct studies in the commercial context. Efforts related to efficiency facilitates UX researchers to complete a relatively faster research process with predefined activities. In addition, the placement and role of the researchers were also found to be influential in the effectiveness of the UX research.

The collective results of this PhD study revealed these three management issues need to be considered in the commercial context. In the next chapter, strategies

will be explained by considering the scientific requirements of the research process in line with commercial considerations.

CHAPTER 6

RIGOUR AND RELEVANCE MODEL FOR UX RESEARCH PRACTICE

This chapter presents this thesis' primary outcome as a model for establishing rigour and relevance of the UX research practice to have effective research outcomes. The chapter starts with explaining strategies for the management issues revealed while investigating current UX research practices. Three management issues are management of the research process, management of project partners, and management of the UX research team. Strategies and guidelines are formulated for each management issue to produce appropriate and essential UX knowledge within the practical utility and scientific assumptions. So, rigour and relevance have been discussed regarding the UX research practices to consider both concepts. After that, these management issues and their impacts on the UX research process have been presented by positioning the model's structure. So, this model can give an overview of rigour and relevance concepts in UX research practices by demonstrating their effects on each other. Thus, the chapter ends with an explanation of how the model can be considered in UX research practices by managing three issues regarding the commercial context.

6.1 Management of Research Process

Management of the research plays the head role of establishing the rigour and relevance in the UX research. Accordingly, this section will be presented by following the flow of research phases by providing guidelines, strategies, and issues that need to be considered. Accordingly, it will start with the explanation of the *research planning and design* and will continue with *data collection, data analysis and communication and integration of the results*.

6.1.1 Research planning and design

Research planning and design is important in UX research because it helps to ensure that the research study is well-designed and executed, which in turn increases the chances of obtaining valid and relevant data. Accordingly, UX researchers need to *define well-formulated research* questions considering the aims, to determine *an appropriate research method* respecting the limitations and needs and identify a *sample group* which establishes the applicability of the research. These aspects help them establish rigour in the research process and produce UX knowledge according to the project's aims.

I explained the activities of UX practitioners to comprehend the UX research context in Section 5.1. and 5.2. They explore, understand and define the project's aims, needs and limitations by considering the commercial context, users and state of art regarding the products. Accordingly, they use this information to formulate research questions to determine the aims and objectives of the research. Furthermore, clearly defined research questions give the study a specific purpose and contribute to the existing body of knowledge on the subject and its practical applications. The practices discussed in section 5.2.1 align with the guidelines outlined by Goldschmidt and Matthews (2022) for formulating research questions in design research, as demonstrated in Figure 6-1.

As Goldschmidt and Matthews (2022) explain, the usefulness of the research results depends on the research questions meeting the criteria of 'relevant', 'interesting', and 'novel', as discussed in Section 2.2.2. While discussing and defining the aims of the project and the characteristics of essential knowledge with other stakeholders, UX researchers also determine what would be relevant to the project. So, UX researchers understand what is needed for the project and define relevant questions to meet the needs. Moreover, comprehending the expectations of design research related to design activity reveals what will be interesting for people who will use the research outcomes. The characteristics of the outcomes lead designers and other stakeholders with appropriate and valuable knowledge. Lastly,

examining the existing solutions or exploring the use context helps researchers to determine what will be novel for the field. They also conduct the research to guide design activity which will be ended with novel solutions by considering the users' approach towards the novelty as a concept. Collectively, UX researchers can frame the questions of a research process whose results may be valuable and practical for the design activity. UX researchers also pay attention to formulating 'appropriate' and 'feasible' research questions, which are parallel to Goldschmidt and Matthews's (2022) criteria related to the application way of research.

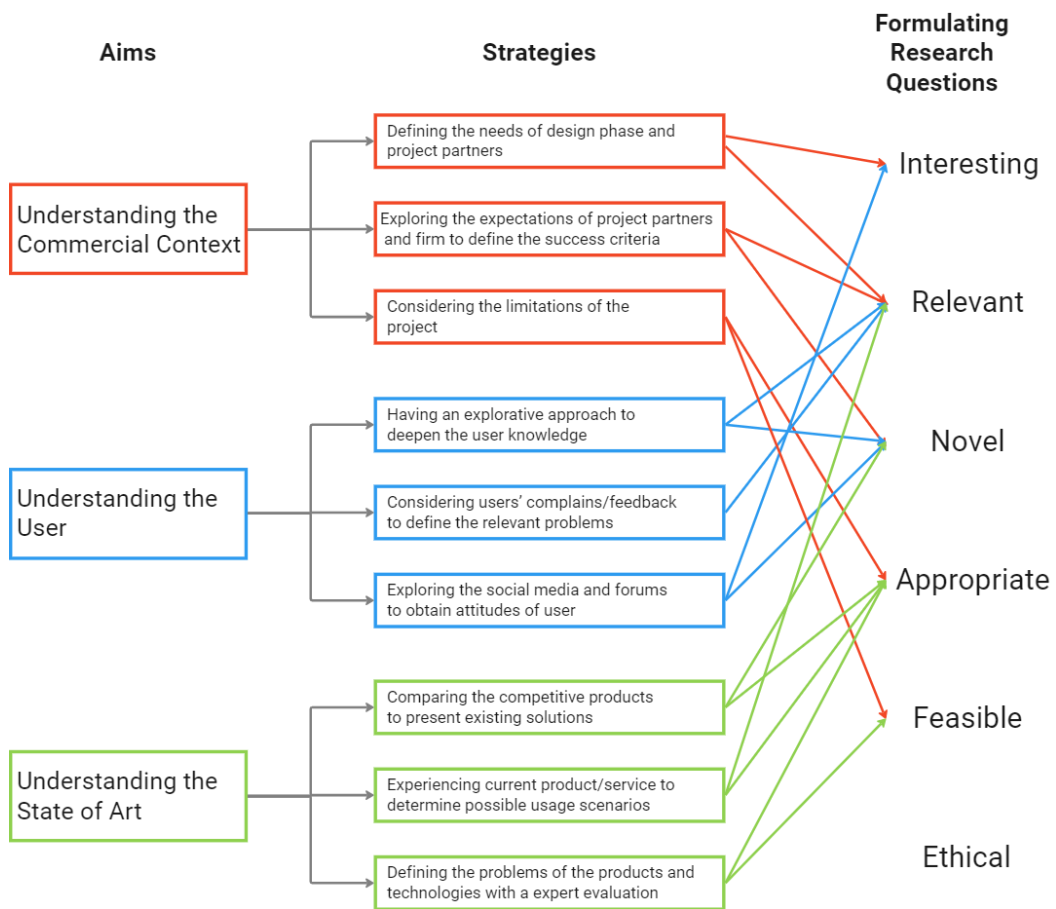


Figure 6-1 Formulating the research questions by understanding the context (adapted from Goldschmidt and Matthew, 2022).

As frequently mentioned by the participants, the dimensions and conditions of the firms or clients limit the capacities of the research process. Time, budget, and infrastructure are defined as constraining factors in conducting research and design

processes. Moreover, deadlines come from the competitiveness of the firm or client sector, forcing researchers to conduct their tasks quickly. So, researchers must learn about the project limitations depending on the firm or client approach to manage the research and design process. Meanwhile, feasible and appropriate criteria are crucial for defining research questions; this thesis study found nothing specific to ethical considerations, which is the last criterion of Goldschmidt and Matthews (2022). The participants did not mention anything related to ethical considerations; however, this does not mean they just ignored or refused this. Interview questions in this study focused on the most influential factor during the research plan and formulating of the research questions. Accordingly, they may consider ethics an innate part of the research that does not need to be mentioned. Alternatively, even if they conduct malpractices, like C. M. Gray et al. (2018) exemplify in their article, UX researchers and designers may be reluctant to share with us. Therefore, ethical considerations during formulating research questions in UX research practices needed to be studied separately with specialised methodology and cannot be explained with the results of this study.

As every UX design project comes with a unique nature, UX research needs to be conducted by addressing them. Therefore, the UX research methods that will be implemented in the study should be determined by the aims of the research and modified and adjusted according to the conditions of the project. The research questions will guide UX researchers in this process as they define the type of data that needs to be collected, the population that needs to be studied, and the most suitable research design that respects the necessities of commercial context. In addition to the guidance of the research questions, UX researchers can use such guidance as UXMx (Töre Yargın et al., 2018) UXMx, which has been explained in Section 3.2. or Martin and Hanington's (2012) book about the user research methods.

Selecting the UX research method by considering the research questions enables UX researchers to select the research method by considering how the

relevant UX knowledge can be obtained from users. Thus, selecting and defining the appropriate method increases the truth value concept of rigour in research.

As the UX research practices need to work on specific cases as experiences, the applicability of the research regarding the sampling definition should be considered accordingly. Therefore, UX researchers should consider the generalizability and applicability respecting the conditions of experience and they need to define a representative sampling characteristic regarding the project's target group. As Cash et al. (2022) point out, UX researchers can employ various sampling strategies in their studies, such as:

- “Purposive” sampling is a method of selecting participants based on specific characteristics or traits that align with the research project's goals.
- “Quota” sampling is a method of selecting participants based on pre-determined quotas for different subgroups or personas within the population.
- “Convenience” sampling is a method of selecting participants based on their willingness and availability to participate in the study.

Therefore, UX researchers adopt a combination of recruitment channels, as mentioned in Section 5.2.2.2. to reach the appropriate sampling group with a purposive aim and to diversify the sampling by ensuring the participation of essential user profiles.

Figure 6-2 presents a research plan for UX research, which includes the steps for defining the commercial context, user, state of the art of products and services, and external factors and considerations. The aim is to establish the relevance and rigour of the research by defining the appropriate and feasible method to produce essential knowledge and characteristics of the sampling group that represents the population. The research questions are defined by considering the usefulness of the research results to establish relevance and the credibility of the research process to establish rigour. The research methods and sampling group are also defined by considering how to obtain relevant UX knowledge from users to increase the truth value concept of rigour in research. However, the pressure and limitations that come

from the project’s commercial context may result in compromises in rigour concepts in issues such as selecting appropriate research methods, sampling recruitment and size and exploration style. Accordingly, the research outcomes may not provide enough and relevant UX knowledge.

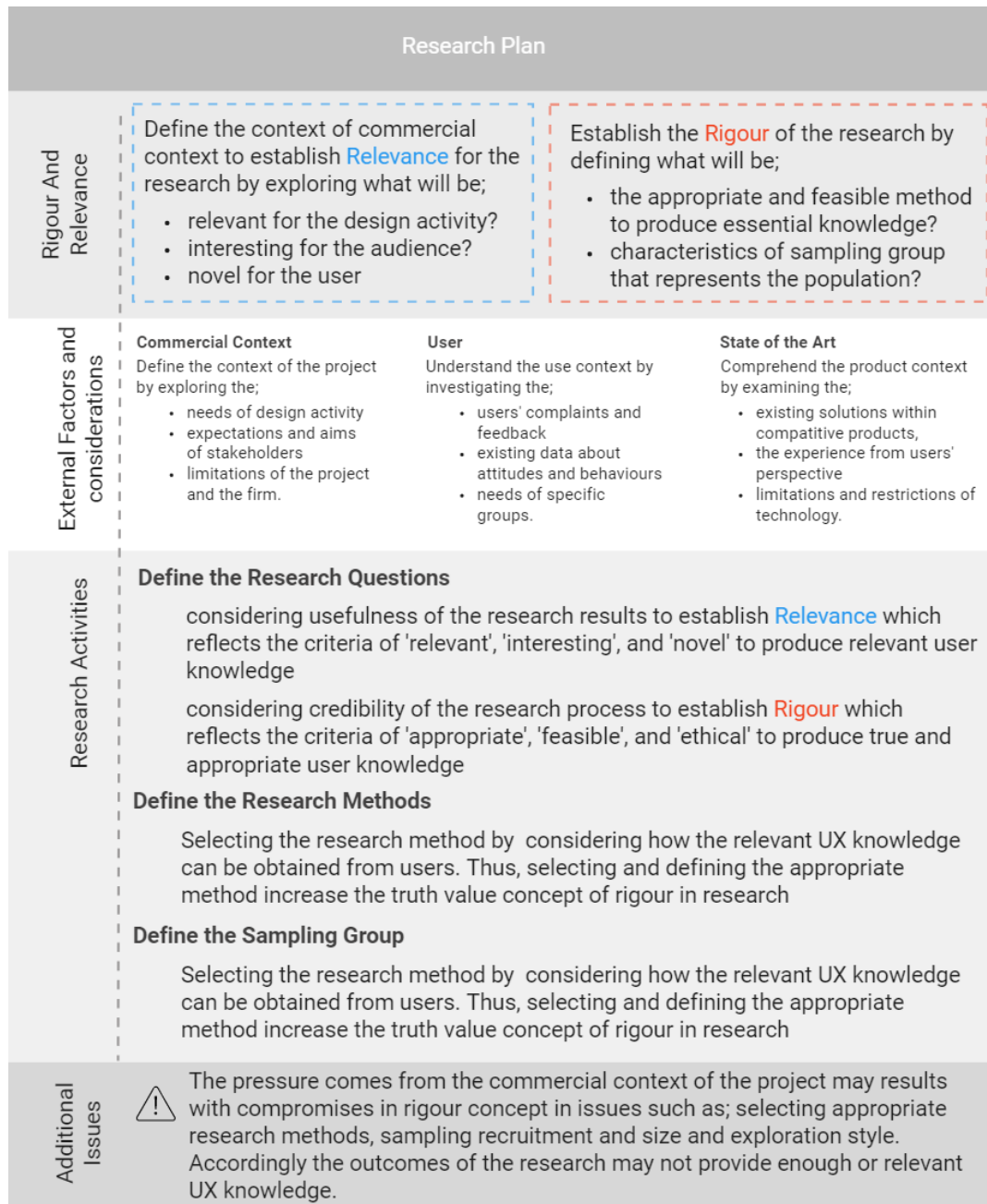


Figure 6-2 Guideline for establishing the rigour and relevance of UX research planning in the commercial context.

6.1.2 Preparedness for data collection

Preparedness for data collection is one of the vital phases for conducting rigorous research as it increases the quality of the data collection phase. Preparedness especially becomes crucial in *remote studies* as it is harder to intervene. So, it is known that research sessions require a rigorous preparation and planning process and especially need special attention in remote studies (Rubin & Chisnell, 2008). In this direction, methodological preparedness, participants' preparedness, and researchers' preparedness are important for the rigour of the research, as shown in Section 5.2.3. Methodological preparedness is essential regarding the efficiency of the data collection process and the data quality to be obtained. Accordingly, the method's content and steps must be designed so the participant can clearly understand. Moreover, the method implementation and the tools used are tested in detail before the session. In this way, it will be guaranteed that the information will be received in an accurate and applicable way during the research sessions. Participants should be made ready for participation by informing them about the research process and the tools to be used in the session and learning their preferences before the interview. In this way, the participant will be able to provide in-depth information accurately and effectively during the research. The researcher should prepare for the session by obtaining preliminary information about the participant before the interview, making the necessary technical infrastructure work smoothly, and planning the session times considering possible negativities scenarios. While doing all these, the study's environment and participants' conditions should be considered. For example, the adverse effects of conditions such as epidemics on people should be considered. Studies should be postponed or cancelled if necessary to avoid forcing participants to give information under adverse conditions.

The preparedness for remote UX research sessions

Methodological Preparedness



- Make all processes, activities, situations, and questions offered to participants as clear and straightforward as possible.
- Carefully select software and tools to be used in the sessions by considering the project requirements and capabilities of the participant users.
- Identify possible problems that may occur during the implementation and to make alternative plans before the implementation.

Researchers' Preparedness



- Collect information about the participant including include demographics, previous experience with the product and the participant's current context.
- Be careful about the vital developments and events in participants' life.
- Consider the well-being of both researchers and participants.

Participants' Preparedness



- Explain the subject of the study and the expectations from the participants in invitations.
- Clarify the study's objectives, phases, what is expected of them, and the digital tools that will be utilized in the session while inviting the study.
- Prepare information mediums such as printed handouts for participants, created informational pages for participants on their websites, and produced instructional video guides.

Figure 6-3 Preparedness for remote research studies

6.1.3 Data Collection

During the data collection, conducting research methods with attention to their specific requirements is crucial for establishing rigour. In particular, building rapport is considered essential in moderated research studies. Especially in methods such as “think aloud” interviews, where participants may not be familiar with the format, it is essential to create a comfortable environment for them to share their thoughts and feelings. Additionally, there may be situations where participants do not provide accurate information due to factors such as loyalty to a company or the embarrassment of giving negative feedback. In such cases, building trust and rapport

with the participants is critical to obtaining valid information. This rapport can be achieved by clearly explaining the purpose of the research, discussing everyday topics, and adapting to the participant's profile during the data collection process. It is acknowledged that the participant's willingness and openness to share information is relevant in this situation. In this sense, to provide valid information, it is vital to warm up the participant to the interview and pay attention to speaking without judging the participant. Moreover, it was discovered that practices like directed questioning are used in data-collecting procedures, particularly in user interviews. Although it is recognised that this situation may negatively affect data validity, it is stated that it is sometimes preferred to relax the participant and to reveal data that can form an opinion. In other words, it can be said that it is done to continue the information exchange in cases where communication with the participants is weakened during data collection. In such cases, as Rubin and Chisnel (2008, p. 238) mentioned, alternative approaches such as 'devil's advocate' can be adopted to sensitise the participants. However, in this approach, the researcher's own approach and directions must not impose ideas on the participants. Therefore, it can be said that the efforts made to provide relevance in the research by directing participants during the data collection are one of the issues that affect the rigour. In order to ensure validity in user research, there are various issues that researchers pay attention to during the application of the method. In order to ensure data validity, especially in interviews and tests, it is avoided to ask leading questions and direct the user's answers.

Figure 6-4 overviews the importance of maintaining relevance and rigour in the UX research data collection process. To maintain relevance, the sampling group and the research methods should be chosen based on the needs of the design activity and the participants should be invited and prepared accordingly. To maintain rigour, the method needs to be applied according to its requirements, credible data be collected and documented without bias, and a representative sample is reached. Building rapport with users to elicit accurate information about their experience is also emphasised as necessary for rigour. Additionally, not maintaining neutrality

while directing participants to elicit relevant information during UX research sessions can be applied to increase the relevance of the data. However, these approaches may adversely affect the rigour by affecting participants with the biases and assumptions of the moderator.

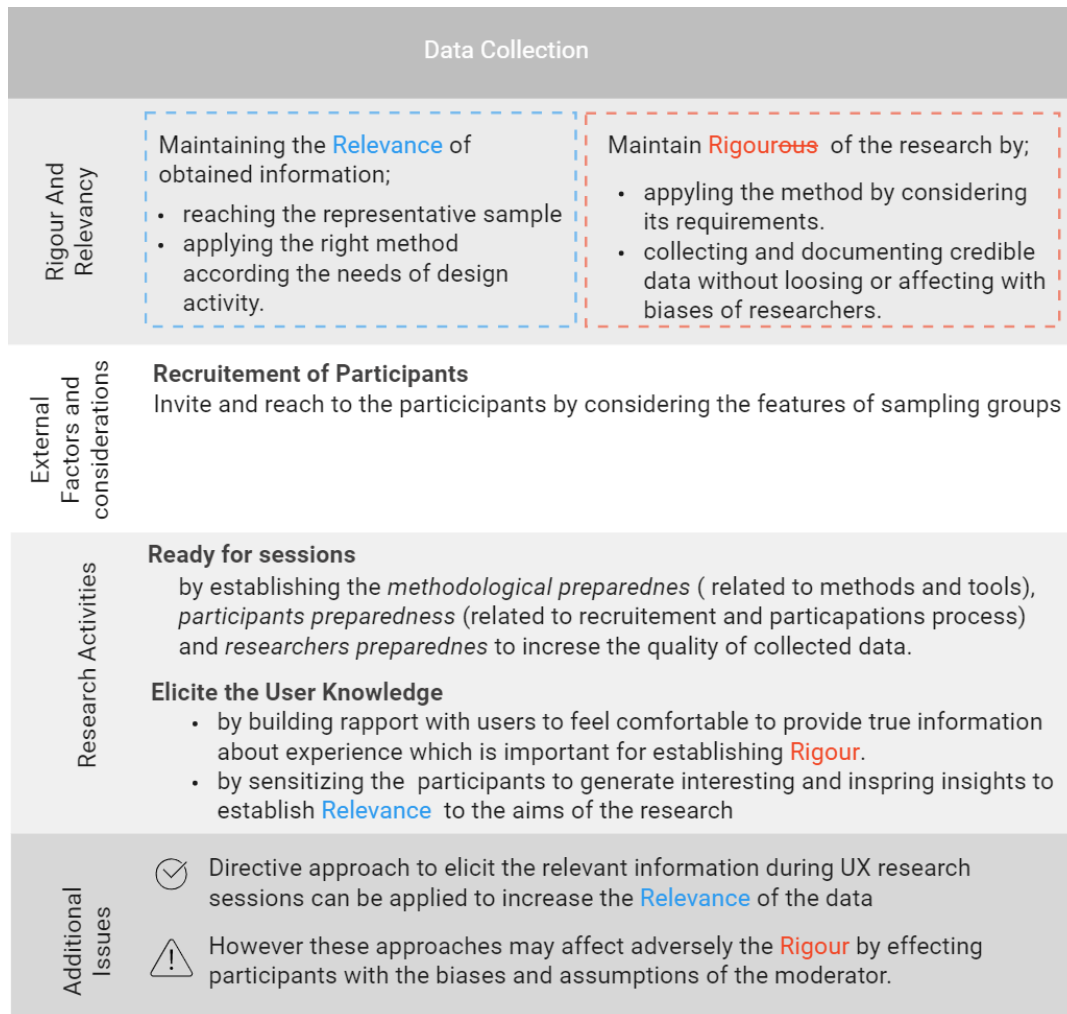


Figure 6-4 Guideline for establishing the rigour and relevance of data collection in the commercial context.

6.1.4 Data Analysis

During the analysis of the UX research, UX researchers focus on ensuring that their research results are relevant to the needs of the company and the design

process. Ensuring the research results are relevant is achieved by defining explicit research questions that align with the research goals and the project's objectives. By interpreting and analysing the UX data in light of these research questions, UX researchers are able to produce valuable and applicable UX knowledge that can be used to inform the development of new products or services, guide project partners in design activities, and evaluate design decisions from the users' perspectives. These needs of design activity are supported by the findings of this thesis, which highlight the importance of relevance in UX research and how UX research can be used to address the needs of firms and project partners.

Accordingly, UX researchers focus on the usefulness of the research findings rather than the truth about them. Accordingly, UX researchers pragmatically analyse and evaluate the UX data to define insights and findings that can guide, inspire, or justify the designer's decisions. In this manner, this thesis found several practices to quickly make interpretations, such as a reductive approach rather than holistically analysing the data, using predefined templates to structure the results, automation of results and visualisations, and predicting the patterns from the beginning. UX research practitioners in this study also believe that having a reductive and directive approach increases the process's efficiency as they decrease the essential time for analysis. Even if the grounded theory (Maher et al., 2018) where theory and insights are based on knowledge gained from context, is linked to design research in the literature, the approach to analysis explained below is quite far from it. Such approaches, which save the researcher time by automatically transferring the data and creating visuals and models, may prevent the researcher from immersing into the data. So, researchers may not interpret data to develop comprehensive insight, which is vital to ensure the rigour of qualitative analysis. Accordingly, this automation may affect the establishment and interpretation of the cause-and-effect relationship, which is essential for the truth value of the research. Thus, despite efforts to increase relevance by concentrating on the design idea's extraction, the fact that certain concepts that might generate essential and innovative ideas can be neglected can decrease relevance. As a result, the careless and reductive nature of

the analysis may negatively affect both rigour and relevance concepts of the research. In this direction, the automation must be designed to both carry qualified information and ensure that accurate information is extracted.

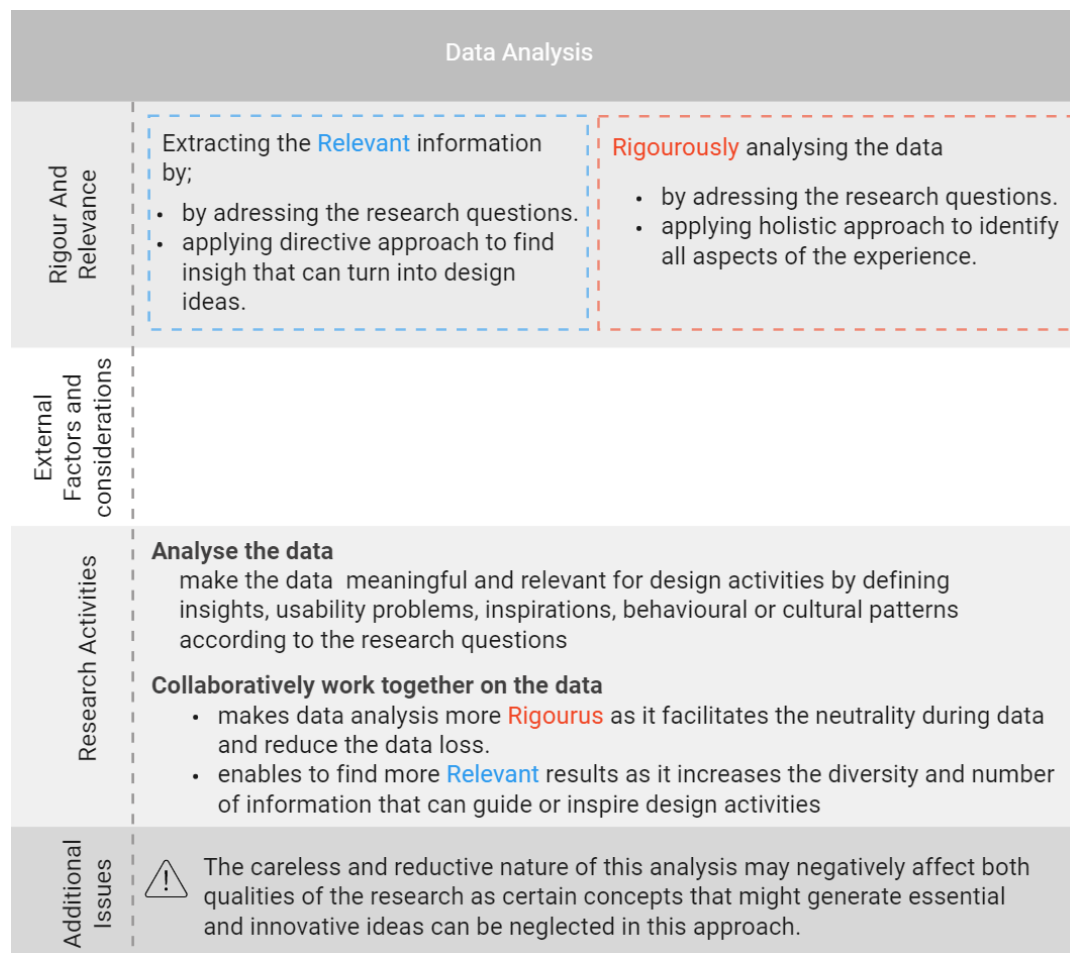


Figure 6-5 Guideline for establishing the rigour and relevance in data analysis of UX research in the commercial context.

In order to ensure the validity and reliability of research results, it is essential to have multiple researchers involved in the data coding and interpretation process. This approach, mainly instrumental in remote studies, helps prevent personal biases and opinions from influencing the research outcome. By having two researchers work together, not only is the neutrality of the research ensured, but it also provides an opportunity for experienced researchers to guide and mentor less experienced researchers. This collaborative work can improve the accuracy of the interpretations

and prevent missed inferences. Additionally, having a more experienced researcher check the work of a novice researcher can provide them with the confidence and resources they need to improve their skills. This cooperation also helps novice researchers and designers learn new areas and improve their knowledge. This way, the researcher can create accurate and relevant information beyond their current expertise and turn it into design output.

Figure 6-5 summarises the discussion about the analysis of data in UX research regarding rigour and relevance. The relevance of the data is ensured by addressing the research questions and applying a holistic approach to identify all aspects of the user experience. The rigour of the data is ensured by applying a directive approach and collaborating with other researchers to find insights that can guide design decisions. The table also notes that a reductive analysis approach may negatively affect the quality of the research as essential ideas can be ignored.

6.1.5 Communication and Integration of the results

Communication and Integration of the results is the last phase of the UX research. In this stage of UX research, the analysed user information is communicated to project partners to address their needs and aims or integrated to the design solutions to reflect the knowledge of products. Accordingly, it is important that it is transmitted in a way that will answer the research questions determined in the planning phase. This allows for the necessary and relevant information to be obtained for drawing meaningful conclusions, which is the primary purpose of the research. Accordingly, UX researchers can direct the design process to make a better environment, product and services as mentioned in the literature to explain designers' attitudes and behaviours (see also Cross, 2007; Heskett, 2005; Nelson & Stolterman, 2012; Norman, 2013).

Accordingly, UX research should be delivered by applying various strategies to improve the impact and effectiveness of results. First, for this information to be

used in design activity, it needs to be prepared in a way that inspire, guide or justify to efficiently impact design activities. This impact of the research are also associated with the job satisfaction by UX practitioners in this study. In this direction, UX research practitioners try to “bridge” the information they receive from users by making it usable for design activities. In addition, by ensuring that the information obtained is convincing, the “advocacy” of the users is ensured. Finally, project partners need to be guided on how to use this information and how to apply it in products. Therefore, the following strategies for identifying, persuading and guiding knowledge can be summarised as follows.

Explain the research results: First of all, the information obtained as a result of the research should be presented in an accurate and real way, taking into account the objectives of the project and the project partners. The information presented should be explained according to the purpose of the project and the interests and interests of the people who will use it. In this direction, the reports of the research should be guided, structured and organised according to the needs and interests of the people who will use them. In this direction, as mentioned in Nunnally & Farkas (2016), prioritising the research results according to the company and project objectives or classifying them according to the activities to be done will increase their comprehensibility. In addition, explaining the data with known visualisation methods such as personas or UX journey maps will increase the comprehensibility of the information created. In this direction, the empathy level of the project partners towards the user will be increased. Therefore, UX information can be used more accurately and relevantly in line with project needs.

Convince the project partners about research results: As Sharon (2012) mentions, it is important for project partners to be convinced about the research results in order to accept and implement them. It is important to present the information in a clear and concise manner including the cause-and-effect relationship. Accordingly, providing concrete examples and data like video sections to support the conclusions can also help to increase the credibility and persuasiveness of the research results. Additionally, highlighting the benefits and impact of the

research results on the project goals by showing the relevance of the project. Accordingly, both rigour and relevance play a role to persuade project partners about implementing in design activities.

Guide the implementation of research results: Project partners can better understand the user needs and insights that were revealed in the research and can apply them to the design of products or services. Additionally, by guiding project partners in the implementation of research results, researchers can help to ensure the impact of the research. Accordingly, providing design suggestions and presenting data related to the product features can help project partners in integration of results. Moreover, UX researchers can collaboratively work on integration of the research results through being a part of the team or workshops.

Collectively the strategies have been explained below is important for the establishing rigour to produce appropriate true data about UX and relevance to generate relevant and useful information for design activities. Both concepts should be considered during the UX research to achieve the objectives by presenting essential UX knowledge regarding project and commercial context. As the centre of the UX knowledge production process, UX research has been explained in detail to show the way of establishing both rigour and relevance in these sections. The next section will delve into managing project partners and how their relationship with UX researchers affects the research process.

6.2 Management of External Project Partners

The definition and understanding of rigour and relevance in practical implementations of UX research diverges from scientific assumptions at certain points because the research practices aim to support the design development. Accordingly, as Gaver (2014) and Sanders (2005) underline that design research has different focus about the success criteria as; scientific truth versus practical utility. One of the most important reasons for this difference is that the target group of the

research is also the project partner. And on top of that, project partners are not only the target audience, but they are also sponsors, collaborators and beneficiaries of UX research in a commercial context. Therefore, UX researchers need to comprehend what is relevant for these project partners. As Zielhuis et al. (2022) underline this comprehension is vital for the success of the criteria of the research because project partners as the audience of the research have project specific needs and expectations. To address this, UX researchers can use various strategies for interaction and collaboration to define the research process relevant to project goals, maintain relevance throughout the process, and deliver research outcomes that address project goals.

Understand the commercial context: Defining project partners' needs and expectations is crucial for UX researchers so they can ensure that the research is aligned with the business goals and objectives of the organisation. Moreover UX design and research can be implemented to develop solutions and results respecting restrictions by covering issues such as product cost, technological solutions, efficient project management, and stakeholders' demands because UX researchers understand the limitations of the project and products. Additionally, this process helps project partners to familiarise with the design thinking methods and process by showing them designers' approach and mindsets. So UX researchers' and designers also have a chance to express and introduce themselves and their process. Accordingly, project partners' trust on process increases towards the UX design project and research process which is influential. Furthermore, project contexts are discussed and evaluated by both project partners and UX practitioners to formulate the process including aims, objectives and needs. Accordingly, project partners re-evaluate and make a reflection on the project context. This reflection helps UX researchers and project partners what will be relevant and interesting for the project.

Maintain the regular contacts: Even though project partners are the audience of the research, it is possible to employ them as an active collaborator to maintain the relevance of the research. Accordingly, UX researchers communicate with

project partners to include and maintain their perspectives on the UX research process. Accordingly, project partners can be observers during the data collection sessions to reflect their interests and concerns. Moreover, these observations increase trust in the UX research process by showing the nature of the collected data and providing the evidence from it. In addition to that, these regular contacts enable UX researchers to gather feedback and input from project partners by presenting progress updates. Correspondingly, UX research can be conducted with an iterative and agile approach by regularly defining the following steps by including project partners. Altogether these regular contacts aid UX researchers to keep the relevance of the project.

Communication of the research results: These interactions involve explaining the nature of the UX, convincing the project partners about the outcomes and guiding them in integration of the results as explained in previous Section UX researchers present the research outcomes by considering the research aims and objectives during these interactions. There are two ways to communicate and integrate the research outcomes to the design process. First, UX research outcomes can be delivered to project partners without the involvement of UX researchers in the integration process. In this way, UX research guides the implementation process indirectly via research reports, presentations, and design suggestions. Second, UX researchers can take an active role in the outcome implementation process. These roles define the involvement level of UX researchers in integration of UX research results into design activities regarding to keep relevance which will be discussed in Section 6.3

In conclusion, the relationship between project partners and the UX research process needs to be managed as they are also involved in the entire process. The involvement of project partners, who are not only the target audience but also the sponsors, collaborators, and beneficiaries of the research, means that UX researchers must comprehend their specific needs and expectations. To achieve this, UX researchers can employ various strategies for interaction and collaboration to define

the research process in alignment with project goals, maintain relevance throughout the process and deliver research outcomes that address project goals. This includes understanding the commercial context, maintaining regular contacts with project partners, and effectively communicating and integrating the research results into design activities. Overall, it is important for UX researchers to actively involve project partners in the research process to ensure relevance and success of the research criteria.

6.3 Management of the UX research team

In this study, it is observed that the management of the UX design and research is another factor that affects the quality of the research process. The standardisation effort of firms to increase efficiency is the first issue that needs to be discussed in this manner. This discussion is followed by the roles and placement of UX researchers in this section.

This study shows that firms and UX teams have several activities to increase the efficiency of the research process to meet the demands and pressure of commercial conditions. In this manner, they use various strategies like pre-made UX research process packages, pre-built templates for data collection and analysis, and automated analysis processes. They aim to decrease the allocated time for the research phases by standardising the process. Standardisation also helps firms to manage UX research that cannot be structured by reducing the uncertainty of commercial context, as similarly mentioned by Garvey and Childs (2016). Hence, firms try to reduce the risk of conducting design activities under uncertain conditions that may expose the firm to unintended consequences such as not meeting client expectations with design solutions or not fulfilling user needs. Moreover, this study also revealed that UX firms need to manage the training process of novice UX designers and researchers in addition to the uncertainty of commercial context because newcomers do not have UX competence yet. Standardised research processes and activities help firms to effectively allocate inexperienced employees

by reducing the impact of the researchers' competence on the process. So, the research process becomes less dependent on the researcher's competence. Thus, this approach may allow the design process and related research activities to be managed systematically and predictably, thereby enhancing productivity by reducing the dependency on individuals. Correspondingly, these efforts for standardisation overlap with the desire of individuals to make the outcomes of complicated and unstructured design processes predictable, as described by Stolterman (2021).

Although the standardisation and automation of the process are intended to increase efficiency, its place in design activities should be carefully considered. As Stolterman (2021) mentions, the nature of the design process aims to achieve new and original results by embracing unpredictability and surprises. Therefore, standardisation efforts to increase efficiency may prevent the design from producing creative results. For this reason, UX research that supports design processes should also be conducted according to the changing needs of the process. Therefore, defining research processes from the beginning may result in not responding to possible needs. In addition, as Gaver et al. (2022) mentioned, design research should be conducted emergently according to the changing conditions and results presented in its own process. Thus, the process should be managed by considering the results of the ongoing process of the research. Therefore, the UX research process can facilitate the co-emergence regarding design opportunities and solutions. For this reason, understanding and managing emerging understandings and possibilities, one of the main characteristics of good designers (Nelson & Stolterman, 2012), should also exist within the approaches of UX researchers. This way, the design activities, a kind of solution-seeking process, can be supported by research that provides convenient and relevant information. In conclusion, it is natural for companies seeking to standardise processes and aiming to increase efficiency through a standardised process. However, the characteristics of UX design and UX research should be considered. As Gaver et al. (2022) and Stolterman (2021) suggest, the process should welcome the surprise and emerging conditions to feed the creativity of design activities. Therefore, to manage the research process effectively and

meaningfully, a balance must be maintained between adaptation to emergent situations to support the nature of design activity and standardisation to reduce the unpredictability in the commercial context.

In addition to the efforts of standardisation, it is noted that the role and placement of the UX researcher affect the efficiency of outcomes in communication and integration to the design activities. The first role UX researchers adopted in this study is working as a consultancy service provider. In this type of role, UX researchers communicate the research result to project partners without involvement in integrating these results. So UX researchers conduct and communicate results being external experts, which helps her/him to keep neutrality throughout the process. So, the research process and outcomes are prevented from the biases and judgements of project partners. However, it is observed in this study that there are concerns about the effectiveness of integrating the research results into product development activities due to various reasons like project partners' unawareness of UX knowledge or the need for guidance in implementation. Moreover, the produced knowledge and outcomes may not be appropriate to implement because the researcher could not produce relevant outcomes as they do not entirely comprehend the project partners' perspectives. So, the exclusion of UX researchers' in integrating results and immersion into the development process reduces the relevance of both UX research and outcomes.

The second role noted in the study is that UX researchers are employed as part of the development teams. In this role, UX researchers plan, conduct and deliver the UX research with the full collaboration of project partners in the development team. Therefore, relevance is established effortlessly in this role because project partners have actively collaborated in the whole process. This collaboration enables UX researchers to maintain relevance with regular contacts while project partners' trust in the research increases as they see the whole process. Moreover, UX researchers ensure that the research results are integrated appropriately during product development. Even though this type of role has advantages to keeping

relevance for the whole project, it is understood that UX research may not be needed for the whole product development process. Therefore, it could be inefficient for firms to use valuable human sources who know the UX research in this way.

It is recognised that some practitioners can embrace both designers and researchers in practice. According to this approach, UX designers are expected to develop and maintain a specific degree of research competency and have proper design skills. In this way, individuals can work as both the identifier of the research from a UX researcher's perspective and the users of the research results from a designer's perspective. So, the designer becomes both facilitator and beneficiary of UX research. This way, UX research is conducted with total relevance to design activities as the designer maintains throughout the process. Moreover, this approach ensures that research results are implemented efficiently as his/her comprehension of UX knowledge. While having both roles have some advantages, it may raise doubts about the validity of the conclusions if the designer is also the evaluator of the design. Especially in evaluative studies, it may raise doubts about the research results as the designers' bias may influence the research outcomes. Therefore, to maintain rigour, it is crucial to ensure that research is done objectively, and that reliable data is obtained.

In conclusion, there are two major issues regarding the management of UX teams and firms. The standardisation and automation of the process are intended to increase efficiency, but their place in design development should be carefully considered. To manage the research process effectively and meaningfully, a balance must be maintained between adaptation to emergent situations to support the nature of design activity and standardisation to reduce the unpredictability in the commercial context. It also noted the role and placement of UX researchers in the research process and their effect on the efficiency of outcomes in communication and integration to the design activities. It is found that the exclusion of UX researchers from integrating results and immersion to the development process can reduce the relevance of both UX research and outcomes. Therefore, the roles and

placement of UX researchers should be defined by considering their advantages and drawbacks.

6.4 Improving the UX research Quality: Rigour and Relevance model for UX Research Practice

UX design is a kind of design activity which is motivated by the creation of a desired reality shaped by the introduction of new and novel artefacts. Accordingly, the ultimate aim of the design process in a commercial context is to provide something new and novel considering the expectations and needs of both project partners and users, which is affected by various factors such as users, stakeholders, and existing products. This aim is defined as “ultimate particular” by Nelson and Stolterman (2012, p.27) and used to determine the success of design activities. As a part of UX design, UX research pursues the same goal by providing valuable and appropriate UX knowledge. Therefore, UX research is inherently pragmatic in nature due to its focus on relevance, as it aims to have a practical impact on the design process. However, simply having practical utility with a pragmatic approach is not enough to produce essential knowledge related to the quality of UX research results. Therefore, rigour and relevance should also be considered together rather than entirely separate concepts in UX research practice to ensure the quality of outcomes. Figure 6-6 illustrates the relation between rigour and relevance and how they interact with other elements in the UX research process. This model demonstrates how the ultimate goal of UX research can be attained.

The main goal of UX research is to produce essential and useful information for design activities. The model presented in this study considers relevance to be the primary objective of UX research and describes how the other components and elements of the research process contribute to achieving this goal. The elements in the process and their relationship with each other are represented to reach the necessary and usable information. According to the results of the study during the case study conducted in the UX research process the process of knowledge

generation in this commercial context, there are three main management issues that relates to rigour and relevance of the research parts need to be managed:

Management of the research process: This process defines the characteristics of the information required and the project's objectives and requirements. This requires taking UX information from the users and transforms it into something that can be used in the design process. Maintaining relevance in UX research is crucial for producing information that is both applicable and beneficial for design activities. It is important for UX researchers to adhere to the principles of rigour in their research process to provide valuable insights that can inform the design process as the primary goal of UX research. Therefore, produced UX knowledge is accurate and reliable, as the result of a well-designed and executed research process. By following rigorous research methods, UX researchers can be confident that their findings are relevant and can be used to inform design decisions. So, establishing rigour also increases the confidence of the project partners, making it easier for them to convince.

Management of project partners' interests, needs, and expectations: The second major issue identified in this research is managing the relationship with project partners considering their interests, needs, and expectations, since they are the intended audience of the UX research. Therefore, while defining the project success criteria and objectives, UX researchers need to consider the project partners, who are not just the intended audience but also play the role of sponsors, collaborators, and beneficiaries. This can be achieved through various interaction and collaboration strategies. Thus, they need to define research process that align with project goals, maintain relevance throughout the process, and deliver outcomes that meet the project goals.

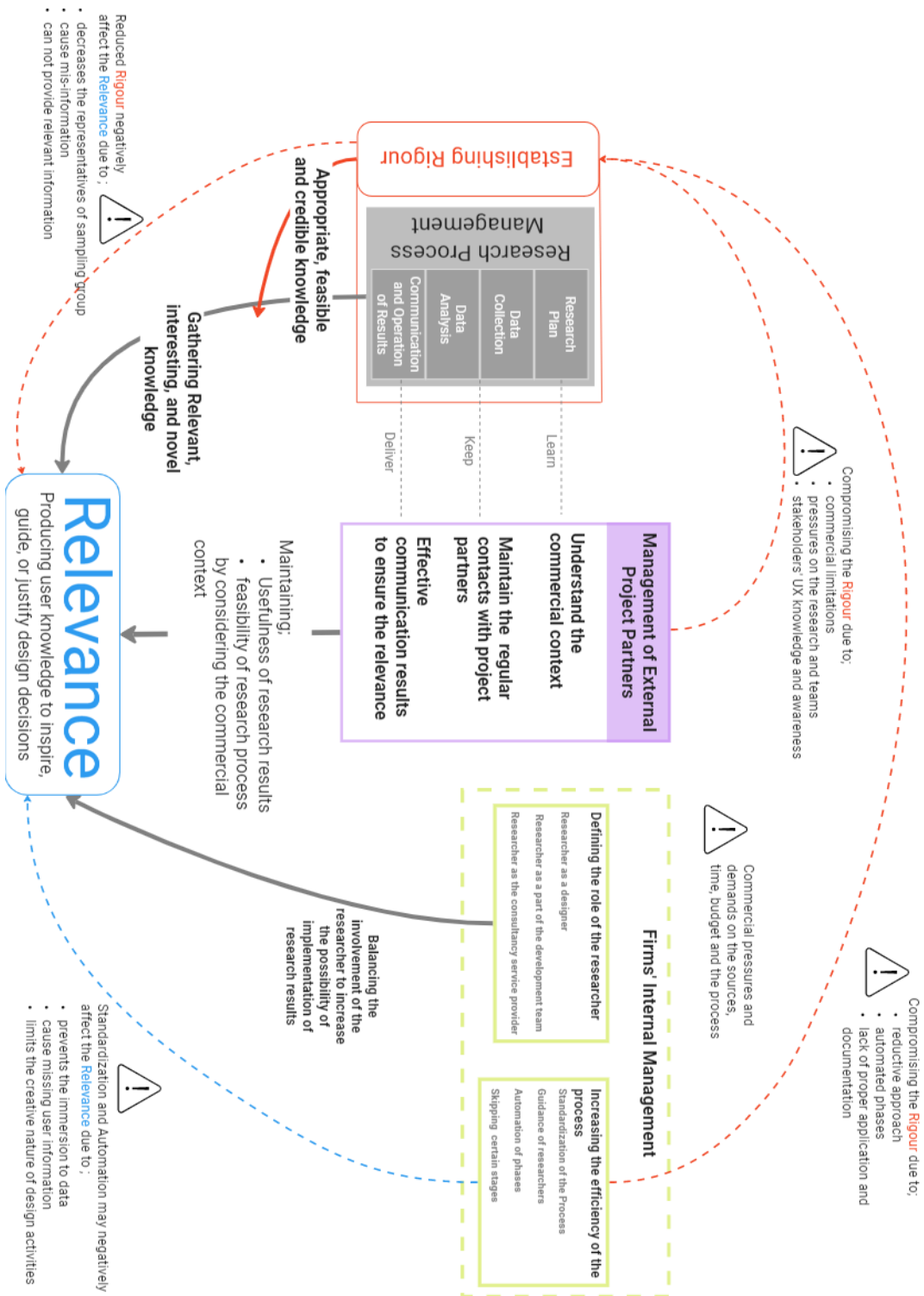


Figure 6-6 Rigour and Relevance model for UX Research Practice (RRforUX).

First, the objectives of the research, which are directly related to relevance, and how the results will be used should be explored and defined together with the project partners. So UX researchers can have a comprehension about commercial context and project aims and needs, during the process defining the project aims. Then, UX researchers must involve project partners actively in the research process to maintain its relevance and ensure its success. In the last phase, the objectives of the research, which are directly related to relevance, and how the results will be used should be explored and defined together with the project partners. Furthermore, the results of the research need to be conveyed to the interest and needs of the project partners and the target audience. In this process, the level of awareness of the project partners on UX is one of the definitive factors that affects rigour and the quality of the research as explained in Section 5.2.2.1 and 6.1.3. Project partners' approach may define the sources and time that is allocated for the research. Moreover, their needs may be influenced from the project partners characteristics like being a high-level executive or lower level titles. Additionally, pressure arising from commercial concerns such as limitations on time and budget may cause compromising from the rigour of the research. Although the research in this direction is carried out according to the expectations and needs of the audience, it negatively affects the concept of relevance as the research rigour is affected.

Management of the firm's UX design and research team: Certain issues related to the management of the firm's UX design and research team were influential in the UX research process and the integration of outcomes. The standardisation of the research process is found to be the first critical issue in the management. This standardisation helps companies to manage UX research that cannot be structured, reducing the uncertainty of commercial context to reduce the risk of conducting design activities under dynamic and complex conditions of design activities, thereby improving productivity by reducing the dependency on individuals. However, standardisation and automation of the process should be approached with caution. This approach may affect the rigour of the research by preventing the researcher from immersing in the UX information and extracting the correct information as explained in Section

5.2.4. Moreover, the nature of the design process involves embracing unpredictability to achieve new and original results. To this end, UX research that supports design processes should be conducted according to the changing needs of the process and be managed with consideration of the results of the ongoing research process. This will facilitate the co-emergence of design opportunities and solutions, thereby supporting the solution-seeking nature of the design development process.

The role and placement of UX researchers also play a crucial role in the efficiency of the research outcomes, as well as the relevance of the research results. Working as an external consultancy service provider can help UX researchers maintain their neutrality, but it may limit the integration of research results into the development process. On the other hand, working as part of the development team can ensure relevance and integration, but it may not be efficient for the firm if UX research is not needed throughout the entire product development process. And as the last type the study acknowledges the existence of professionals who possess both design and research skills, who are expected to maintain a certain level of research proficiency and design expertise. This allows them to act as both UX researchers and designers, blending research perspectives into design. However, this approach demands a high level of expertise and may not be achievable for all practitioners. It may also raise doubts about the neutrality of the research results especially in the evaluation studies.

In conclusion, the quality of UX research can be improved by considering both rigour and relevance. The model presented in this study emphasises the importance of relevance as the primary objective of UX research while ensuring the rigour of the research process. The model defines the main goal of the research and evaluation condition as providing the concept of relevance and considers the interaction between various components and elements in the UX research process. To achieve the ultimate goal of UX research, the management of the research process and establishing the rigour in the process helps UX researchers to produce appropriate, essential and relevant UX knowledge. Therefore, rigour plays a supporting and providing role for maintaining relevance for the project.

Additionally, the management of the project partners are crucial as they are the audience and collaborator of the UX research practices. Therefore, the study highlights the need for UX researchers to involve project partners actively in the research process to maintain its relevance and ensure its success, as well as to convey the results of the research to meet the project partners' and target audience's needs. Ensuring the rigour of the research process will provide valuable and applicable information for design activities, increase the confidence of project partners, and enhance the quality of the UX research outcomes. The last but not least issue needs to be considered is the firm's internal management. Accordingly, UX practitioners and researchers, who want to develop process and methods to improve efficiency of UX research practice, should consider the nature of design activity by giving flexibility and requirements of rigorous data collection and analysis research process.

CHAPTER 7

CONCLUSIONS

This chapter aligns the study's key findings with the relevant literature to achieve the objectives of this thesis and respond to the research questions. The chapter begins by revisiting the research questions including how findings address them. After, the thesis's methodological and practical contributions are presented. The chapter then examines the limitations of the study and concludes by providing suggestions for future research.

7.1 Reflections on the Research Questions

This thesis aims to investigate the nature of the UX research process and the considerations for the concepts of rigour and relevance in UX research practices and understand how commercial conditions impact these concepts. Thus, by drawing key dimensions on design research literature that defines the concepts of rigour and relevance in UX research, this thesis conducts a multi-case study to answer the following research questions:

7.1.1 How are rigour and relevance identified in the literature?

RQ1: How are rigour and relevance identified in the literature, and in which ways they apply to UX research?

Rigour and relevance are defined as concepts to define the quality of the research in the literature as explained Chapter 2. Rigour focuses on the process while relevance refers to the usefulness of outcomes. Therefore these two concepts enable UX researchers to produce essential and appropriate UX knowledge.

Section 2.2 gives an overview about the rigour and key terms to establish it. Rigour is related to providing trust in the process. Therefore researchers should ensure the rigour of the process as a sense of their approach to produce trustworthy results. The model of Lincoln and Guba (1985) is used to explain rigour in UX research because it expresses the rigour concept by including both quantitative and qualitative research methods. The four criteria used are truth value, applicability, consistency and neutrality.

- To achieve *truth value* in research, researchers should answer how they found particular findings regarding the specific inquiry or phenomenon, including subjects, context and their relation to the results. Several strategies can be implemented to improve the truth value, such as prolonged engagement, persistent observation, triangulation technique, appropriate and adequate data collection, peer debriefing, and explaining rival explanations.
- *Applicability* refers to the ability to generalise findings and results of examined contexts in other settings. The terms ‘external validity’, ‘generalizability’, and ‘transferability’ have been used in the literature to explain the applicability of the research. These terms are mainly used to determine which research context, such as populations, variables, setting and measurement, can be generalised. In order to achieve applicability, researchers should explain similarities between “receiving and sending contexts” and provide a clear explanation of the limitations of their research.
- *Consistency*, also known as reliability, is a criterion for evaluating the quality of research. It refers to the repeatability or consistency of the design and instruments used in a study and whether other researchers in similar contexts can replicate the research findings. Consistency is essential for minimising errors and biases and providing a procedure protocol for the research. However, it should not be considered a sign of validity but rather a precondition for achieving validity.

- *Neutrality* refers to maintaining objectivity and freedom from bias in the research process and findings. Researchers should use proper research design, data analysis, and reporting strategies, as well as involve multiple sources of data, and maintain transparency in the research process.

Section 2.3. explains the relevance concept by showing the realtor to the design research. Relevance in research, refers to the degree to which a study's findings and conclusions are valuable and applicable to the current understanding. So, the research is conducted in a way that outcomes are meaningful and beneficial for the research audience. Thus, the following issues should be considered for the relevance of the design research:

- UX researchers should define what is relevant, interesting and novel for the research audience and users. Therefore, they can understand how research outcomes can be useful in design activities.
- Research questions should be formulated by considering what is relevant, interesting, and novel for the audience. These research questions enable UX researchers to define, conduct and analyse the design research by maintaining relevance.
- Sampling group should be defined as the representative of the target group. Thus, the research outcomes will be applicable and relevant for the users.
- UX researchers should define the UX research method by considering several issues like characteristics of user information, phases of design and application way. So, the obtained data can be helpful in the design activities by providing relevant essential UX knowledge.

7.1.2 What are the characteristics of current UX research?

RQ2: What are the characteristics of current UX research in practice considering the planning, design, data collection, analysis, and communication phases?

Chapter 5 explains the considerations of commercial context by presenting the firm's UX research process as cases. As a result of the case study, literal replications can be found in Section 5.1 by presenting examples and stories from the practices of firms. As it is essential to reveal different perspectives in the case study, this study investigates various firms that represent different characteristics of the UX community. Even though this representation cannot be generalized to the whole UX community worldwide, it is still valuable to understand UX research practices. Moreover, it is natural for case studies to aim to establish external validity rather than generalizability, so the study results should consider the unique dimensions of cases explained in Section 5.1. Thus, explaining the firms' and teams' UX research processes respecting the methods and practices they prefer to give an overview of current practices guide the model to be applicable in commercial settings.

Moreover, Section 5.1.3 also provides effects of the pandemic to reveal the resilience of UX researchers. This resilience process shows us the reactions and behaviours of UX researchers how they respond the unexpected situations respecting the demand and requirements of commercial context. Additionally, Section 5.2 provides strategies and practices of UX researchers and firms regarding the rigour and relevance concepts in UX research to consider the factors related to the commercial context while answering the RQ3 and the main questions. Therefore, the approaches and mindset of UX research practitioners can be reflected while providing a way of producing relevant and appropriate UX knowledge. Maintaining this reflection while explaining the strategies and practices to produce appropriate and useful UX knowledge, as one of the aims of the thesis is improving the quality of the UX research process by guiding practitioners. Thus, this reflection enables us to keep relevance for the UX research practitioners as the part of the audience of this thesis. Accordingly current practices are categories according to the UX researchers needs and considerations related to quality of the research. It is observed that there are three main issues that need to be addressed in the research practices as the results of the collective evaluation: '*Management of Research Process*', '*Management of External Project Partners*', and '*Firm's Internal Management*'.

- *Management of Research Process* refers to the systematic process conducting the UX research project to ensure the outcomes are relevant and appropriate for the project aims. This process involves planning, data analysis, and Communication and Integration of UX Research Results. Management of the research process is crucial to the success of the study and ensures that UX research establishes the rigour and relevance.
- *The management of external project partners* refers to management of relationships with partners who are external to the UX research process. This involves collaboratively working to define the project and UX research aim for relevance of the project, maintaining relevance during the research process, and ensuring that project goals and deliverables are met with research outcomes.
- *Firm's Internal Management* refers to the efforts and strategies about how the firm handles and manages the UX research process within its own operations. This can encompass aspects such as increasing the efficiency of UX research with standardisation of the process and defining UX researcher roles related to their immersion to implementation of the research results.

These management categories guide to develop strategies during answering next research questions by maintaining the needs and consideration of UX research practitioners. Following part of this section discusses the issues that need to be considered during the UX research process regarding establishing rigour and relevance.

7.1.3 How can UX researchers produce appropriate and useful UX knowledge?

RQ3: How can UX researchers produce appropriate and useful UX knowledge for the design activity in a feasible way?

Producing appropriate and essential knowledge for design activities is the primary aim of UX research in a commercial context which also refer to the concept of relevance. So ‘Rigour and Relevance Model for UX Research Practice’ (RRforUX) presented in Chapter 6 illustrates a holistic approach to the UX research process by respecting three issues that need to be managed according to the results of the case study. Each management issue must be considered while producing relevant and valuable UX knowledge. The accumulative insights and strategies presented for three different issues can be summarised in the following paragraphs.

Management of the research process itself is the most critical part as it is the main activity of producing UX knowledge. Establishing relevance in the results of the UX research process is the main aim of the practices. Meanwhile, UX researchers need to follow the principles of rigour in their research process to provide valuable insights for design. Thus, rigour ensures the produced UX knowledge is accurate and reliable due to a well-designed and executed research process. However, commercial context conditions do not allow UX researchers to conduct an ideal and rigorous research process. In those conditions, UX researchers need to put effort into not sacrificing the rigour of the research to provide relevance of the research. So they should be careful about practices that prevent them from holistically understanding the experience context, such as reductive approaches or strictly predefined activities. There may still be some affective conditions like budget and time that researchers can not control. In such conditions, UX researchers prefer to apply alternative or complementary research methods to mitigate those conditions. The following inferences regarding the management of research process phases can be made based on insights from the case study and scientific assumptions.

- Research planning should be defined by considering the commercial context and needs of project partners as explained Section 6.1.1. UX researchers must define well-formulated research questions, an appropriate research method, and a functional sample group to establish rigour in the research process and produce UX knowledge according to the project's aims. The usefulness of research results depends on the research questions meeting the criteria of 'relevant', 'interesting', 'novel', 'appropriate' and 'feasible'. Additionally, UX research methods should be determined by the research aims and modified according to the conditions of the project.
- The preparedness for data collection is a vital phase of conducting rigorous research, especially in remote studies as explained Section 6.1.2. Methodological preparedness, participants' preparedness, and researchers' preparedness are essential for the quality of the data collection process.
- Researchers must follow the requirements and regulations of each data collection method to obtain actual data from users. Moreover, design researchers should be careful about neutrality in this phase.
- UX researchers ensure research results are relevant to the needs of the company and design process by defining explicit research questions that align with research goals and project objectives, as highlighted in Section 6.1.4. The approach to analysis can be made pragmatically by focusing on the usefulness of research findings rather than the truth about them. However, practices for making quick interpretations, such as a reductive approach, predefined templates, automation of results, and visualizations, may neglect essential concepts and negatively affect the rigour and relevance of research.
- The information should be transmitted in a way that answers the research questions determined in the planning phase to draw

meaningful conclusions, as explained in Section 6.1.5. UX researchers should apply various strategies to improve the impact and effectiveness of results, such as explaining the research results, convincing the project partners about research results, and guiding the implementation of research results.

The place and position of the project partners as the research audience are among the most influential factors defining the context of UX research practices. Project partners employ the roles of facilitators, sponsors and beneficiaries of the UX research while also actively collaborating with the process. So the relationship between the process and project partners should be carefully managed by the UX researchers to obtain essential data, produce relevant outcomes and efficiently communicate them. Therefore, UX researchers should ensure that the research is aligned with the organisation's business goals and objectives. They should be aware of project limitations such as product cost, technological solutions, efficient project management, and stakeholder needs. By maintaining regular contact with project partners, UX researchers can include their perspectives and feedback in the research process and ensure the project's relevance. Communication of research results is also essential. There are two ways to integrate research outcomes into the design process: indirect guidance via reports and presentations or active involvement in the implementation process.

The management of UX design and research is crucial to the quality of the research process. Firms use standardisation and automation processes to increase efficiency in UX research. However, standardisation should be balanced as it may prevent creativity and originality. The role and placement of UX researchers in the team also affect the efficiency of outcomes in communication and integration to the design activities. There are two roles that UX researchers can adopt, working as a consultancy service provider or being part of the development team. Working in collaboration with project partners ensures the relevance of the research results to the product development process. The study suggests that a balance between

adaptation to emergent situations and standardisation should be maintained to manage the research process effectively and meaningfully.

These three management issues of the presented model collectively support UX researchers in producing relevant and essential knowledge for design activities. Establishing relevance in the UX research process is the primary goal, as it is the core activity of the research process. So, rigour is crucial in this process to produce the right and appropriate knowledge. Therefore rigour sense in UX research practice becomes the supporter and provider of the relevance concept. Management of the project partners also influences these activities. By involving project partners in the research process, they can better understand user needs and become more invested in designing and developing solutions that meet those needs. Employing the project partners as active collaborators in the research can help build empathy and trust among team members, leading to a more collaborative and productive project environment. Moreover, the insights and data from UX research can provide a shared understanding and alignment around user needs and goals. This shared understanding can help make informed decisions and prioritise user impact features. Furthermore, finally, the management of the UX research team also influences the research process as it defines the role and placement of UX researchers in the design activities. Even though standardisation and automation of processes are needed and demanded by the commercial context, it should be carefully considered regarding the researchers' immersion in the user data. So, these efforts to increase the effectiveness of the UX research process should be made to enable researchers to approach the experience holistically and produce results suitable for the nature of design activities.

7.2 Implications of the study

The study presents a research model that aims to enhance the rigour and relevance of UX research by considering commercial aspects. This model outlines suggestions, strategies, and various factors that influence the rigour and relevance

of UX research practices, specifically focusing on the requirements and needs of firms and UX teams during design processes. The model and strategies presented in the study have several implications.

7.2.1 Theoretical Implications

The thesis would contribute to the existing knowledge of UX research literature by providing knowledge and a model that explains the practices of UX researchers in the commercial context. The implications of the model and the recommended strategies have the following theoretical implications:

- The Rigour and Relevance in the UX research practice model can guide the construction of research methodologies aiming to improve the notion of good UX research and design practices. This model guides further studies by providing a deeper understanding of the relationship between commercial conditions and practitioners' mindsets in UX research and how it affects the research process. The research could inform the development of guidelines, methods, and frameworks for conducting UX research practice with rigour and relevance.
- Additionally, the thesis contributes to the ongoing debate about the role of rigour and relevance in UX research and provides a new perspective on how to employ these two concepts in UX research practices. Many academicians (i.e. Fallman & Stolterman, 2010; Frauenberger et al., 2015; Hevner, 2007; Wood, 2000) highlight that the rigour of design research is crucial to produce appropriate and essential knowledge. However, there are some concerns about UX research's rigour because practitioners prefer practical utility over scientific truth. Therefore, this study contributes to the literature by revealing the relationship between these two concepts regarding the effects of commercial context and how they influence the quality of the research outcomes.

- Furthermore, the rigour and relevance model explains three management issues that affect the research process and outcomes. Therefore, the model presents essential factors and elements of UX research practices and how they affect the quality and effectiveness of UX knowledge. While holistically addressing the UX research process, the model reveals the relationship between the actors and their impacts on producing UX knowledge.
- This thesis also presents the UX research practitioners' perspectives towards good UX research regarding the rigour and relevance concepts. Therefore, the study reveals what is interesting and relevant for UX research practitioners by examining the expectation, needs and concerns of the process. Showing the audience's interest as design practitioners is essential for design research and their implication to the practice, as discussed in the literature about the transition of design research to practise.

7.2.2 Practical Implications

The practical implications of this thesis are numerous and far-reaching as it aims to improve the UX research practice. The main takeaway from the research is maintaining rigour and relevance in UX research practice by considering the commercial context and scientific approach. This is particularly important for UX teams and firms, as it helps to ensure that their research is high-quality, reliable, and valid. The implications of model and the recommended strategies have the following practical implications:

- This thesis provides a new perspective for UX practitioners by providing a way of establishing relevance and rigour to improve the research outcomes. So, it encourages UX practitioners to reflect and evaluate their approach towards the rigour and relevance concept by providing how both concepts are important for outcomes.
- This study aims to explain the UX research process and implementation journey by defining the steps and stages to improve its quality. So, the model

and the guidelines provided under the model help UX researchers to conduct and manage the research process by considering both rigour and relevance. So they can use this guide to define the project's aims and implement an appropriate research process to achieve the aim. It also supports the UX managers and executives in making decisions on the research process by considering commercial demands, pressure and expectations.

- Moreover, the study presents the strategies for managing project partners, which are a crucial part of the research as they are the sponsors and users of it. The research also highlights the importance of networking and collaboration in the UX field. By connecting with other practitioners, researchers, and designers, individuals can learn from one another, share ideas and best practices, and build valuable professional relationships. So, as the audience of research project partners are essential to consider maintaining relevance while their approach may cause some concern about the rigour. Thus, this guidance supports UX researchers in communicating with project partners in UX research.
- The research also has real-world applications for carrying out user experience (UX) research during unexpected circumstances like the COVID-19 pandemic. The study offers an understanding of the difficulties and possibilities of such unexpected situations, particularly in transitioning to a remote approach, and how they can be overcome to enhance the UX research quality.

Overall, the practical implications of this research are far-reaching and are likely to be of interest and benefit to practitioners, researchers, and designers working in the field of UX research who want to improve the quality of their practices.

7.3 Limitations of the Study

The research process and findings revealed several limitations. The field of user experience is a relatively new field in the Turkish context. The companies

interviewed within the scope of the project cover a large proportion of the companies operating in the field. The participating companies were treated as cases, and semi-structured interviews were conducted with managers and employees from these companies. Conducting case studies with the participant observation method, in which researchers observe firms' practices one-on-one, can provide in-depth and multidimensional information about the case. However, there is no such observation opportunity due to the pandemic conditions. In addition, since participant observation requires a long-term research process, it will not be possible to reach the number of firms considered as cases in the project. Therefore, it can be said that the study conducted within the scope of the project provided a diversity of firms but did not provide the depth that participant observation of firms can provide. For this reason, in future studies, examining the telecommuting experiences of companies through the participant observation method may provide different insights on the subject.

Having only one in-house UX team in the sampling pools can be considered as another limitation. It is noted that firms with in-house UX research teams are reluctant to share their process and participate in this study. Moreover, one in-house firm completely, one in-house firm partially withdrew from the study during the member checking with firms. Even though it is intended to find literal replications between in-house teams and consultancy firms, we could not evaluate the data in that respect. So only in-house UX firms have been considered as a particular case and evaluated with the consultancy firms collectively.

Another limitation is that the case data is based only on the self-reported views of the participants. This self-reported data may have led to tendencies such as promoting the firm and showing the good aspects of the firm, especially at the executive level. However, to reduce the impact of this limitation, it aimed to include the UX researchers and designers working in the firms in the study, thus providing data diversity by multiplying the data source. However, observation in this regard will increase data diversity and make inferences more reliable.

Due to the high number of topics addressed during the interviews, some topics may not have been examined in depth enough. It is undeniable that the firms considered as cases form a cultural context within themselves and create their own terms and jargon. Therefore, additional data may be needed to ensure the full validity of some of the descriptive inferences that are based on observations. For example, although information was obtained about which methods were applied in the user experience research process, how these methods were applied could not be observed and learned in depth. There needs to be additional studies that focuses on the methods to make inferences about whether these methods align with the practices described in the literature. Therefore, this issue should also be addressed in future studies.

7.4 Recommendations for Further Research

The results of this study can be expanded by continuing with three different studies. First, the resulting models and strategies can be presented to the companies and participants participating in the study and asked to evaluate them from their perspectives. In this way, it can be questioned whether the model and information presented improve UX research practices as intended. In another study, the participating companies and teams can work on integrating the presented model into their working processes. In this way, the model presented can be made more effective by determining the points that need to be implemented and improved in practice through an action research process. In addition, the results of the case study can be evaluated by reaching a broader audience to increase its applicability and generalisability. A national or international survey can be conducted to question the results obtained with a broader audience.

In addition, the three management areas identified in the model and results, whose effects on each other are examined holistically, can be studied separately. This way, these issues can be examined in more depth, and the effectiveness of the recommended strategies and practices can be understood. So, each management issue can be worked on individually in the following studies to present deeper

insights about the subjects, especially in managing project partners and the UX research team.

Moreover, the views of project partners were not included in this study. Although the communication between the project partners and the UX researcher is described from the researcher's perspective, the project partners' views and expectations should also be questioned and revealed. This way, how the project partners can continue the management more holistically and interactively can be understood. It also helps to define the UX research terms and process by revealing the perceptions of the audience in the UX community.

In addition, it can support new studies on some issues identified as limitations. First, a more in-depth study of in-house firms, which can only be included as one case due to availability, will provide a better understanding of the team and researchers in corporate firms. Moreover, the impact of UX maturity level, a critical issue in UX design and research, on research quality will be more clearly revealed. Furthermore, longer-term observation of companies and their teams will lead to a better understanding of issues such as company culture and functioning that have not emerged in the research.

It is also mentioned that thesis data is based on the self-reported views of UX researchers, which may prevent me from reaching objective information. So, less subjective can be gathered by employing UX researchers as a part of data collection. UX researchers are familiar with many methods and can quickly generate data using diaries, observation templates and self-reflection activities. So, more accurate information about their practices can be obtained rather than trusting just their memories.

Finally, although the issue of ethics is vital in UX research, no significant findings were obtained in this study. Direct questioning of ethics, which is a sensitive issue by nature, was not included in this study because it may affect other study

issues. Therefore, it will be necessary for the UX field to investigate specialised methods within its' own characteristics and requirements.

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APPENDICES

A. Study Call Turkish Version

Amacımız; Bu araştırma, 120K215 nolu “Kullanıcı Deneyimi Araştırması Sürecini Uzaktan Gerçekleştirmeyi Destekleyici Bir Rehber Geliştirilmesi” başlıklı TÜBİTAK 1001 projesinin ve ODTÜ Endüstri Ürünleri Tasarımı Bölümü doktora öğrencisi Semih Danış tarafından Dr. Öğr. Üyesi Gülşen Töre Yargın danışmanlığında ve Dr. Öğr. Üyesi Sedef Süner Pla Cerda eş danışmanlığında yürütülen tez çalışmasının parçasıdır. Bu çalışmanın amacı, Kullanıcı Deneyimi (UX) tasarımı alanında mevcut uzaktan kullanıcı araştırma uygulamalarını inceleyerek, UX tasarımcıları ve araştırmacılarının uzaktan kullanıcı araştırması (remote UX) sırasında kullandıkları yöntemler ve uygulamalar hakkında görüşlerini ve temel düşünce yapılarını anlamaktır.

Sizden ne bekliyoruz? Çalışmaya katılmayı kabul ederseniz, araştırmacı, kullanıcı araştırması çalışmalarından sorumlu yöneticiniz ve kullanıcı araştırması yürüten çalışanlarımız ile birer görüşme yapacaktır. Görüşmeler sizinle ortak belirlenecek zamanlarda yürütülecektir. Görüşmelerde, uzaktan yapılan araştırmalar odak noktası olacak şekilde, sizden yaşadığımız kullanıcı araştırması süreçleri ve bu süreçlere yaklaşımınız ile ilgili bilgi vermeniz istenecektir. Bu bilgiler, çalışmanın amaçları doğrultusunda değerlendirilecektir. Görüşme sürecinde, eğer uygun görürseniz, yöntemlerin uygulanmasında kullanılan yardımcı malzeme ve dokümanlardan uygun gördüklerinizi bizimle paylaşmanızı rica edeceğiz.

Çalışmada Ne olmayacak? Çalışma sırasında yaptığımız projelerin içerikleri ile ilgilenmeyeceğiz. Bu çalışma, daha önce de belirtildiği üzere, hangi uzaktan kullanıcı araştırma yöntemlerini benimsediğiniz ve pratikte bunları uygulama biçiminize odaklanacaktır.

Çalışmanın sonuçları herhangi bir yerde sizin onayınız olmadan yayınlanmayacaktır. Sonuçların ve çıktıların paylaşımı ve sunumunda sizin onayınız ve tercihleriniz esas alınacaktır.

Çalışma sırasında, projede çalışan kişilerin yaklaşımları ve firma yöntemleri hiçbir zaman eleştirel bir şekilde sorgulanmayacaktır. Pratikte gerçekleşen uygulamaları olduğu gibi anlamamız bizim açımızdan çok değerlidir.

Görüşmeler izniniz dâhilinde kayıt alınacaktır. Bu kayıtlar, görüşme sürecinden itibaren 2 yıl boyunca saklanacak, bu sürenin sonunda kayıtlı bulunan yerlerden silinerek imha edileceklerdir.

Çalışma sırasında, süreç akışlarınızın araştırma sürecimizden etkilenmemesi konusunda hassasiyet gösterilecektir. Görüşme süreçleri sizlerle beraber planlanacak ve bu süreçte doğal iş akışınız hakkındaki yönlendirmeleriniz ve uyarılarınız temel alınacaktır.

Çalışmanın Çıktıları: Çalışma sonucunda, uzaktan kullanıcı araştırma süreci kurgusunu yönlendirebilecek bir rehber hazırlanması hedeflenmektedir. Çalışma çıktıları sadece bilimsel amaçlar ile doktora tezi ve bilimsel rapor ve yayınlarda kullanılacaktır. Bu kapsamda herhangi bir ticari kaygı güdülmemektedir. Ayrıca talep etmeniz durumunda, çalışma çıktıları herhangi bir yerde yayınlanmadan önce sizlerle paylaşılacak ve onayınız olmayan herhangi bir sonuç veya veri kullanılmayacak, yayınlanmayacak veya başka kişilerle paylaşılmayacaktır.

B. Consent Form

Bu araştırma, 120K215 nolu “Kullanıcı Deneyimi Araştırması Sürecini Uzaktan Gerçekleştirmeyi Destekleyici Bir Rehber Geliştirilmesi” başlıklı TÜBİTAK 1001 projesinin ve ODTÜ Endüstri Ürünleri Tasarımı Bölümü doktora öğrencisi Semih Danış tarafından Dr. Öğr. Üyesi Gülşen Töre Yargın danışmanlığında ve Dr. Öğr. Üyesi Sedef Süner Pla Cerda eş danışmanlığında yürütülen tez çalışmasının parçasıdır. Bu form sizi araştırma koşulları hakkında bilgilendirmek için hazırlanmıştır.

Çalışmanın Amacı Nedir?

Bu çalışmanın amacı, Kullanıcı Deneyimi (UX) tasarımı alanında mevcut uzaktan kullanıcı araştırma uygulamalarını inceleyerek, UX tasarımcıları ve araştırmacılarının kullandıkları yöntemler hakkında görüşlerini ve temel düşünce yapılarını anlamaktır. Araştırmaya katılmayı kabul ederseniz, sizden beklenen, şirketinizde gerçekleştirilen kullanıcı deneyimi araştırması pratiklerini anlamak amacıyla yaptığımız çalışmada kendi görüşlerinizi bizimle paylaşmanızdır. Bunun için sizinle bir yarı yapılandırılmış bir görüşme gerçekleştirilecektir.

Bize Nasıl Yardımcı Olmanızı İsteyeceğiz? Şirketinizde uygulanan süreçlerini daha iyi anlamak üzere, sizin uygun gördüğünüz bir zamanda görüşme gerçekleştireceğiz. Görüşmede kullanıcı araştırmaları odak noktası olacak şekilde, yaşadığımız şirket içi süreçlerle ilgili veri toplanacak ve bu veriler, çalışmanın amaçları doğrultusunda incelenecektir. Bu inceleme sırasında verdiğiniz bilgiler sadece aşağıda araştırma ekibinde ismi geçen araştırmacılar tarafından incelenecek, incelemenin sonuçları kişisel kimliğinizi koruyacak şekilde, şirketinizin onayı alınarak kullanılacaktır. Çalışma için gerekli olan verileri firma çalışanları ile yapacağımız görüşmeler neticesinde elde edeceğiz. Bu mülakatlar sırasında araştırmacının tuttuğunu notların yanı sıra, izniniz dahilinde ses ve görüntü kaydı

alınacaktır. Elde edilen notlar dokümanite edilerek, görüntü ve ses kayıtları ise deşifre edilerek veri analizinde kullanılacaktır.

Sizden Topladığımız Bilgileri Nasıl Kullanacağız? Araştırmaya katılımınız tamamen gönüllülük temelinde olmalıdır. Çalışmanın çıktıları sadece bilimsel amaçlar ile proje raporunda, doktora tezi ve bilimsel yayınlarda kullanılacaktır ve bu kapsamda herhangi bir ticari kaygı güdülmemektedir. Ayrıca çalışmanın çıktıları farklı zamanlarda sizlerle paylaşılacak ve sizin onayınız olmayan herhangi bir sonuç veya veri kullanılmayacak, yayınlanmayacak veya başka kişiler ile paylaşılmayacaktır. Görüşme sonucu elde edilen ses ve görüntü kayıtları 2 seneyi aşmayacak şekilde korunarak saklanacak, bu 2 senelik sürecin sonunda ise silinerek imha edilecektir.

Katılımınızla ilgili bilmeniz gerekenler: Çalışma sırasında yaptığımız projelerin içerikleri ile ilgilenmeyeceğiz. Sadece hangi kullanıcı araştırma yöntemlerini benimsediğiniz ve pratikte bunları uygulama biçiminize odaklanacağız. Çalışma sırasında projede çalışan kişilerin yaklaşımları ve firma yöntemleri hiçbir zaman eleştirel bir şekilde sorgulanmayacaktır ve şirketin veya sizin performansınız değerlendirilmeyecektir. Çalışmanın hedeflerine ulaşabilmesi için deneyimlerinizi olduğu gibi aktarabilmeniz ve soruları içtenlikle yanıtlamanız bizim için çok önemli ve değerlidir. Görüşme size rahatsızlık verebilecek herhangi bir soru içermemektedir. Ancak buna rağmen herhangi bir rahatsızlık hissederseniz, neden belirtmeksizin, çalışmayı uygulayan kişiye çalışmadan ayrılmak istediğinizi söylemeniz yeterli olacaktır. Görüşme sonunda araştırmayla ilgili tüm sorularınız cevaplanacaktır.

Araştırmayla ilgili daha fazla bilgi almak isterseniz, aşağıda iletişim bilgileri yer alan araştırma ekibimiz ile iletişim kurabilirsiniz.

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Çalışmaya katılmayı kabul ettiğiniz için şimdiden teşekkür ederiz.

Yukarıdaki bilgileri okudum ve bu çalışmaya tamamen gönüllü olarak katılıyorum.

(Formu doldurup imzaladıktan sonra uygulayıcıya geri veriniz).

İsim Soyad

Tarih

İmza

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C. Case Study Protocol

The primary goal of this thesis is to suggest strategies for improving the quality of UX research by considering the industry's demands, expectations, and considerations. Accordingly, the outcome of this dissertation will contribute to the theory by establishing the considerations of the user knowledge production process in the industry to inform literature about the quality of the UXR, including the conditions of adaptation to fully remote research. Demonstrating and forming theories on these considerations, enriched with industry examples, the thesis also aims to help practitioners prepare them to conduct proper and useful UXR. Considering the primary goal, the aims of this study are;

1. to investigate the existing practices of UXR,
2. to understand how practitioners implement UX research into design development,
3. to examine the adaptation process of remote UXR during the COVID-19 pandemic.

Section A: an overview of the case study (objectives and auspices, case study issues, and relevant readings about the topic being investigated)

The study aims to contribute to the literature by providing a guide for practitioners' applying remote UXR within practitioners' views and practice-based considerations. Respecting that, multiple case studies will be conducted to examine various UXR practices.

Section B: data collection procedures (procedures for protecting human subjects, identification of likely sources of data, presentation of credentials to field contacts, and other logistical reminders)

Data Collection Plan; Multiple semi-structured interviews will be conducted as the first step of case study because of three reasons, 1) examine UXR process from the various perspectives of practitioners, 2) understand the firm strategy and view on UX process and 3) practitioners mind-sets including their knowledge about UXR process.

Interviews

Head Manager: Meetings will be conducted under two parts. The first part will focus on the company's perspective on user experience and user research processes that the company applies remotely. The purpose of this part is to question the strategies developed by the company in order to examine the daily workflows in the UX process. In the second part of the meeting with the managers, the managers' personal opinions and perspectives, who have more experience and decision-making positions than other employees in the company, will be focused. The aim here is to determine the characteristics of the remote UXR methods, applications, and tools that can be proposed through the personal opinions of an experienced user experience researcher about the process.

Team Members: This section will focus on the daily workflows of user researchers and designers while practicing remote UXR. During the interview, how they use the methods and tools during remote user research or how they adapt them to their process, and their expectations about them will be questioned. In this way, it can be understood how the conditions and project-specific situations affect the methods and tools used.

Section C: protocol questions (the specific questions that the case study researcher must keep in mind in collecting data and)

Main Question;

How can the quality of UX research be improved regarding the industry demands, expectations, and considerations?

Sub questions:

1. What is the rigour and relevance of UX research? How are rigour and relevance identified in the literature?
 - a) How can rigour of research be established? What are the key concepts and terms for establishing rigour?
 - b) What is relevance for the design research? How does research ensure the outcomes are useful for design activities?
2. What are the characteristics of current UXR practices?
 - a) How do practitioners plan, design, conduct, analyse and communicate UXR practices?
 - b) How do practitioners adapt their UX research to a remote approach during COVID-19?
3. How can UX researchers produce user knowledge for design activity in feasible and useful ways?
 - a) How can UX researchers establish rigour in UXR practices to support the design process?
 - b) How can UX researchers provide relevancy in UXR practices to be useful for design activity?

Section D: a tentative outline for the case study report

All of the recordings will be transcribed. These data will go through the content analysis process. The content analysis process will be carried out with coding in two cycles. In the first cycle, the data will be coded and stacked in order to be summarized. The aim of summarization is to collect the sentences that are learned from different interviews and under the piles of data chunks that may be relevant for their meaning. These data chunks will be gathered under the themes to be grouped in the second cycle. The purpose here is to collect user experience researchers by gathering the obtained data to reveal the opinions, behaviors, and situation patterns within the scope of the subject.

Revealed patterns and themes will be presented according to phases of the UX process as

1. *Planning*
2. *Recruitment Management*
3. *Data Collecting*
4. *Analysis*
5. *Presentation/Communication*
6. *Management of the Process*

D. Manager Interview Questions Turkish Version

Bölüm 1: Firmayı ve firmanın kullanıcı deneyimine bakış açısını tanımak

Öncelikle bizimle bu görüşmeyi yapmayı kabul ettiğiniz ve zaman ayırdığınız için teşekkür ederim. Bu görüşmeyi bildiğiniz üzere firmanızın kullanıcı deneyimi araştırması sürecini anlamak ve sizin bir kullanıcı deneyimi ekibi yöneticisi olarak görüşlerinizi almak için yapacağız. Terimler açısından kolaylık sağlamak için görüşme sırasında UX, User experience terimlerini kullanıcı deneyimi olarak ifade edeceğim. Yine benzer bir şekilde UXR, user experience research, kullanıcı deneyimi araştırma deneyim araştırması gibi terimleri ise kullanıcı araştırması olarak adlandıracam.

Q1: Firmanızdan ve kullanıcı deneyimi araştırması ekibinizden bahsedebilir misiniz? Ekibiniz kaç kişiden oluşuyor? Ekibin nasıl bir yapısı var, kimlerden oluşuyor? (kişilerin mesleki altyapıları, profesyonel özellikleri) Bu ekibin nasıl oluştuğunu firma içerisindeki tarihçesi bakımından kısaca anlatabilir misiniz?

a) (consultancy): Diğer firmalara verdiğiniz servisi nasıl tanımlarsınız? Ne tür hizmetlerde bulunuyorsunuz?

b) (inhouse): Biriminizin firma içerisindeki yerini nasıl tanımlıyorsunuz? Biriminiz ne gibi işler yapıyor? Firmanın ekibinizden beklentileri nelerdir?

Q2 (UX tanımı sorusu): Firma/Ekip olarak kullanıcı deneyimini (UX'i) nasıl tanımlarsınız? [Genel tanım ve firma görüşü ayrışıyor mu? Probe edilebilir]

Q3 (Proje aşamaları): Biriminizde/firmanızda kullanıcı deneyimi araştırmasının tipik uygulama biçimlerinden biraz bahsedebilir misiniz? Bu uygulamalar ne gibi aşamalar içeriyor? [remote yapıyorlar mı?]

Q4 Kullanıcı araştırması, çalışma süreçlerinizin hangi aşamalarında dahil oluyor? Biraz bahsedebilir misiniz? Hangi durumlarda kullanıcı ile araştırma yapma ihtiyacı doğuyor?

a) (danışmanlık): Müşterinin size geliş sürecinden, çalışmaya başladığınız sürece kadar olan süreyi bize anlatabilir misiniz?

b) (inhouse) Firma içerisinde kullanıcı araştırmasına başlama kararı nasıl veriliyor? Araştırmaya başlama sürecini anlatabilir misiniz?

Q5: Kullanıcı araştırmalarını kurgularken, araştırmada kullanacağınız yöntemleri ve araçları nasıl seçiyorsunuz?

a) Sıklıkla kullandığınız araştırma yöntemleri neler? [tipik yöntemler not olarak sonrasında yönlendirme oluşturulacaktır]

b) Sıklıkla kullandığınız araştırma araçları hangileri?

c) Bu yöntem ve araçları seçerken faydalandığınız kaynaklar var mı? Varsa nelerdir? Sizce en faydalı olan hangisi? Neden?

d) Müşteri firmanın veya diğer departmanların istekleri bu süreçte nasıl etkili oluyor?

e) COVID-19 sonraki süreçte bu sürece özel sizden beklentiler ve talepler ne yönlerde değişti?

Bölüm 2: Firmanın yüzyüze ve uzaktan araştırma deneyiminin incelenmesi

Kullanıcı araştırması yöntemlerini nasıl seçtiğinizi anlattınız. Şimdi, bu tez çalışmasının odağında, uzaktan kullanıcı araştırması deneyiminiz ile ilgili konuşmak istiyorum. Burada uzaktan araştırma ile kastettiğim, araştırmacının fiziksel olarak kullanıcı ile aynı ortamda bulunmasını gerektirmeyen çalışmalardır. Bunlar, kullanıcı ve araştırmacının araştırma konusuna aynı anda odaklandığı, senkron (moderated-araştırmacı tarafından yönetilen) yapılan görüşmeleri içerebileceği gibi; kullanıcının araştırmacının mevcudiyetinden bağımsız olarak katılabildiği, asenkron (unmoderated- araştırmacı tarafından yönetilmeyen) yapılan anketler veya günlük çalışmaları gibi yöntemleri de içerebilir.

Q6 Öncelikle şu an yürüttüğünüz [hem uzaktan hem de birebir yapılan] kullanıcı araştırması çalışmalarından bahsedebilir misiniz?

a) Şu anki koşulları göz önünde bulundurduğumuzda, bu süreçte uzaktan yürütemediğiniz için iptal ettiğiniz ya da riski göze alarak yüz yüze yürütmek zorunda kaldığınız çalışmalar oldu mu? Bu şekilde yürütmeye karar vermenize neden olan etkenler nelerdi? Bu çalışmada müşterinin/diğer birimin sizden beklentiler nelerdi?

b) Bu süreçte iptal etmek yerine uzaktan yürütmeye karar verdiğiniz çalışmalar oldu mu? Bu çalışmaları uzaktan yürütmeye nasıl karar verdiniz? Uzaktan yürütülebileceğine karar vermenize neden olan etkenler nelerdi? Biraz açıklar mısınız? Bu çalışmada müşterinin/diğer birimin sizden beklentiler nelerdi? (Daha önce yüzyüze planlanıp değiştirildiyse) Bu çalışmaları uzaktan yürütmeye adapte ederken ne tür kararlar aldınız? Planlarınızda ne tür değişiklikler yaptınız?

Şimdi, araştırmaların aşamaları ile ilgili biraz daha detaylıca konuşmak istiyorum.

Q7 Kısaca araştırma sürecini tipik olarak nasıl planladığınızdan, kararları nasıl aldığınızdan bahsedebilmisiniz? Araştırma süreci öncesinde yaptığınız hazırlıkları kısaca anlatabilir misiniz?

a) (Tipik olarak uzaktan değilse) Peki planlama süreci uzaktan olduğunda nasıl yürüyor? Uzaktan kullanıcı araştırması sürecine başlamadan önce yaptığınız hazırlıkları anlatabilir misiniz? Bu sürece özel şekilde nasıl hazırlanıyorsunuz?

b) (prob edilebilir) Peki özellikle COVID-19 sürecinde yaptığınız çalışmalarda özel olarak yaptığınız bir hazırlanma süreci oldu mu?

Q8: Kullanıcı araştırması uygulama süreciniz hakkında da biraz konuşmak istiyorum. Planlanmasından sonra, kullanıcı araştırmasının tipik olarak uygulandığı süreci kısaca anlatabilir misiniz?

- a) Örneğin, yüz yüze uyguladığınız araştırmalarda kullanıcı örneklemini nasıl tanımlıyorsunuz ve onlara nasıl ulaşıyorsunuz? Onlara ulaşmak için hangi mecraları kullanıyorsunuz?
- b) Uzaktan yürüttüğünüz çalışmalarda kullanıcı örneklemini nasıl tanımlıyorsunuz? Onlara ulaşmak için hangi mecraları kullanıyorsunuz?
- c) Kullanıcı araştırması uygularken ne tür araçlar kullanıyorsunuz? (Yazılım araçları, fiziksel araçlar).
- d) Uzaktan çalışmada veri toplarken ne tür araçlar kullanıyorsunuz? [Araçları göstermeleri istenebilir] Normalde kullandığınız ama uzaktan çalışırken kullanmadığınız araçlar var mı (ya da tersi)?
- e) Bu araçları seçme sebeplerinden bahsedebilir misiniz? Araçların eksik gördüğünüz kısımları nelerdir?
- f) Peki özellikle sonradan uzaktan yapmak zorunda kaldığınız süreçlerde yöntemler üzerinde ne gibi değişiklikler uyguladığınızı anlatabilir misiniz?
- g) Yöntemleri uzaktan uygulamak için kendini geliştirdiğiniz strateji veya uygulamalar var mı? Bunları bize anlatabilir misiniz?
- h) [adapte edilmiş süreç varsa] COVID-19 sürecinde araştırma yürütmek isteyenlere ne gibi tavsiyeleriniz-önerileriniz olur?

Q9: Tipik kullanıcı araştırmalarınızda, analiz sürecinde kullandığımız yöntemlerden ve bunları kolaylaştırmak için kullandığınız araçlardan bahsedebilir misiniz?

- a) Uzaktan kullanıcı araştırmasında yaptığınız analiz çalışmalarına yönelik değişiklikler var mıdır? Bu konuda özellikle kullandığınız araçlardan bize bahsedebilir misiniz? [Araçları göstermeleri istenebilir]

Q10: Analiz sürecinden sonra bu bilgileri nasıl değerlendiriyorsunuz?

- a) Analiz sonuçlarını nerelerde sunuyorsunuz? Elde ettiğiniz sonuçları müşteriye/diğer birimlere sunmak için ne gibi yöntemler kullanıyorsunuz? Bu yöntemleri neye göre belirliyorsunuz?
- b) Sunduğunuz bilgiler nasıl değerlendiriliyor? Bu bilgilerin firmanız veya müşteriniz tarafından nasıl kullanıldığını düşünüyorsunuz? [probe: etkili kullanımını artırmak için neler yapılabilir?]
- c) Verilerin uzaktan çalışılarak toplanmış olmasının sunuma etkileri nasıl oluyor? Bu konuda sizin uyguladığınız stratejiler var mı?
- d) COVID-19 sonrası sunumlarınızı uzaktan yapmak zorunda kaldıysanız, bu sizin verileri sunma sürecinizi nasıl etkiledi? [verilerin cevrimiçi ortamda paylaşılmasının sürece bir etkisi var mı?]

Q11 Daha önce uzaktan çalışmadığınız, ama uzaktan kullanıcı araştırması yapılabilecek bir çalışmanızı düşünmenizi istiyorum. Bu çalışmanın içeriğinden kısaca bahsederek uzaktan çalışmaya adapte etmek için nasıl bir yol izlersiniz? Hangi yöntemleri kullanırdınız?

- a) Aynı şekilde daha önce çalıştığımız ama uzaktan yapılamayacak bir çalışma düşünmenizi istiyorum? Bunun neden uzaktan yapılamayacağını düşünüyorsunuz? Yapabilmek için neleri değiştirirdiniz? Nasıl mümkün olabilirdi?

Q12 COVID-19 sürecinden sonra, yüzyüze çalışılabilme imkanı doğduktan sonra, uzaktan araştırma deneyiminizden aktaracaklarınız olur mu? Nelerdir?

Q13: Son olarak kullanıcı araştırma yöntem ve araçları ile ilgili bana söyleyeceğiniz ya da firma ile ilgili bana vereceğiniz ipuçları var mıdır?

E. Manager Interview Questions English Version

First of all, thank you for agreeing to have this meeting with us. As you know, we are going to ask some questions to understand your company's remote user experience research process and to get your feedback as a team manager. For convenience, I will refer to the terms UX, User experience, user experience design, experience design as user experience during the interview. Similarly, I will call the terms UXR, user experience research, experience research as user research.

Q1: Can you talk about your company and your user experience research team? How many people does your team consist of? What is the structure of the team? What do you tell about the team (Professional background of people, professional characteristics)? Can you briefly explain how this team was formed in terms of its history within the company?

- a) (consultancy): How would you describe your service to other companies? What kind of services do you provide for other companies?
- b) (in-house): How do you define the placement of your team within the company? What is the primary duty of your team? What are the expectations of the company from your team?

Q2: (UX definition question): How would you describe the user experience (UX) as a company/team? [Does the manager's perspective, and the firm opinion diverge? Can be probed]

Q3: (Project phases): Could you tell us about the typical practices of user research in your team/ company? Can you tell us about the stages of the user research which is practiced in your company? [do they conduct remote UXR?]

Q4: Which stages of your UX processes involve user research? Can you talk and give detail a little bit? In which cases do you need to research with the user?

- a) (consulting): Can you tell us the period which refers the time from the first arrival of the customer to the start of the business
- b) (in-house) How do you make a decision about conducting user research within the company? Can you describe the process of starting research?

Q5: How do you choose the methods and tools that you will use in research when designing user research?

- a) What are the research methods you use frequently? [typical methods should be noted to guide them later]
- b) What are the research tools do you use regularly?
- c) Are there any resources you use when choosing these methods and tools? If yes, what are they? Which is the most useful in your opinion? Why?
- d) How do the requests and expectations of the client or other departments of firms affect this process?
- e) How has COVID-19 changed expectations and demands that are requested from you?

Part 2: Examining the company's face-to-face and remote research experience

You explained how you plan the User research process. Now, I want to talk about your remote user research experience as it is the focus of this study. What I mean by remote research here are studies that do not require the researcher to be physically in the same environment with the user. These may include synchronous (moderated-research) methods like interviews with the user, or it may also include asynchronous (unmoderated research) surveys or diaries, allowing the user to participate independently of the researcher's presence.

Q6 First of all, could you tell us about the [both remote and one-to-one] user research studies you are currently conducting?

a) Considering the current conditions, are there any studies you have canceled because you could not run remotely in this process or had to carry out face to face even it includes risk? What were the reasons for applying this way? What were the expectations of the customer / other departments from you in this study?

b) Have there been any studies you decided to conduct remotely instead of cancelling in this process? How did you choose to conduct these studies remotely? Can you explain a little? What were the expectations of the customer / other departments from your team in this case? (If it was planned as face to face and had to be changed to remote) What kind of decisions did you make while adapting these studies to remote execution? What kind of changes have you made to your plans?

Now I want to talk a little more about the stages of research.

Q7 Could you briefly talk about a typical plan phase for the user research process? How do you make decisions in this stage? Could you briefly describe your preparations before the research process?

a) (If Typical user research is not remote) So how does the planning process occur for remote user research? Can you describe your preparations before starting the remote user research process? What are your specific qualifications for the remote UXR process?

b) (can be probed) So has there been any special preparations in your user research studies during the COVID-19 process?

Q8: I want to talk about your practicing user research process. After planning, can you briefly describe the process in which data are collected from users?

a) First, how do you define the user sample in the user research you apply to face to face, and how do you recruit them? Which channels, mediums or methods do you use to reach them?

b) How do you define the user sample in the remote studies you conduct? Which mediums or tools do you use to contact them?

c) What kind of tools do you use when applying user research? (Software tools, physical devices).

d) What kind of tools do you use to collect data in remote work? [They may be asked to show the tools] Are there any tools that you usually use but cannot use while working remotely (and vice versa)?

e) Can you tell us the reasons for choosing these tools? How can these tools be improved?

f) Can you tell us what changes and adaptations you applied to the methods to make them appropriate for remote user research? (especially the process that have changed to remote from face to face)

g) Are there any strategies or practices you have developed to applied remote user research methods? Can you tell us these?

h) [If there is an adapted process] What advice and suggestions do you want to give for those who wish to conduct research in the COVID-19 process?

Q9: Considering your typical user research, could you talk about the methods and tools to analyse it? Could you explain the analysis stage of your user research?

a) Are there any differences between remote and face to face user research in terms of the analysis stage? Can you tell us about the tools you use, especially in this regard? [They may be asked to show the tools]

Q10: I want to talk about the last stage of user research now. How do you use this information after the analysis process?

a) Where do you present the results of the analysis? What methods do you use to display your results to the customer / other departments? How do you decide these methods?

b) How is the information you provide is used by clients/different departments? How do you think this information is used by your company or customer? [probe: what can be done to increase its effectiveness?]

c) How does the remotely collected data affect the presentation of results? Are there any strategies you have implemented in this regard?

d) If you had to remotely present your results during and after COVID-19, how did this affect your process of presenting data? [Does sharing the data online have an impact on the process?]

Q11: I would like you to think about a previous case that has not used remote methods, but that study can be done with remote user methods? What kind of strategy do you follow to adopt remote user research methods? What methods would you use?

a) Likewise, I want you to think of a previous user research case that cannot be done remotely. Why do you think this study cannot be conducted remotely? What would you change to be able to perform remotely?

Q12: When you will have the opportunity to work face-to-face, do you have anything to transfer from your remote research experience during COVID-19?

Q13: Finally, do you want to add anything related to remote user research methods or tools or give tips about UX practices in the industry?

F. Translation of Quotations

	English Quotation	Turkish Quotation
5.2 The Current Considerations and Strategies for Establishing the Quality of the UX research in Commercial Context		
P15	Now, research methods application in academia is more about doing academic research. Now there are important issues such as validity, I don't know... or like reliability. [In academia], everything we do needs to be scientifically valid. [...] Since, [in practice], we do not do research for the sake of research, it is more about coming up with design ideas and collecting feedback about the design quickly. The important thing is whether -I am talking about the generative parts - we can come up with interesting design ideas that can convince the client, that can convince us, that can excite us. That would be important.	Şimdi akademideki research methods yöntemleri daha çok akademik araştırma yapmak için şeyler de olabiliyor. Şimdi orada mesela validity ne biliyim reliability gibi önemli konular var. Bilimsel anlamda geçerli olması gerekiyor bütün yaptığımız şeylerin. Bazen bizim şeylerde reliability konuları biz araştırmayı for the sake araştırma yapmadığımız için daha çok tasarım fikri çıkarmak tasarım ile ilgili hızlıca feedback toplamak için önemli olan şey bizde o generative kısımlardan bahsediyorum, ilginç , müşteriye ikna edebilecek, bizi ikna edebilecek, bizi heyecanlandırabilecek fikir öbekleri çıkarabiliyor muyuz bu önemli oluyor
P18	First, we ensure that they [the results] are plausible. I mean, at the beginning of the project, we had defined our goals. Does it serve that goal, does this observation or this answer really lead us and the firm to this conclusion [solution]? How should I put it?... Reliability depends on the result, the content, rather than the reliability of the data	Ya akla yatkın olmasına dikkat ediyoruz her şeyden önce. Yani hedefimizi en başta ortaya koymuştuk. Bu hedefe hizmet ediyor mu, işte bu gözlem veya bu yanıt gerçekten bizi bu sonuca vardiıyor mu gibi şeyin nasıl diyeyim verilerin güvenilirliğinden ziyade sonucun, içeriğin güvenilirliğini esas almaya çalışıyoruz.
5.2.1 Strategies employed in Research Planning		
P18	We have indeed undertaken such a mission, you know, I can say that it is in our corporate DNA to inspire and guide. [...] The people who have the opportunity to experience these realities [UX process] are a little more limited in Turkey regarding maturity and so on. We also find it valuable [to share experiences] in that respect.	Hakikaten öyle bir misyon üstlendik, hani bizim kurum DNAmızda var diyebilirim ilham vermek ve rehberlik etmek. Sizin de görüşme talebinizi hiç değerlendirmeden, sadece takvimde neresinin boş olduğuna baktım. Dolayısıyla bu bir bütün hani, doğru bir tespitiniz de oldu orada.
p5	Let me say this; we had a historical mission as being one of the first	Şöyle söyleyeyim; Türkiye'de UX işini ilk kuran şirketlerden biri olarak tarihi bir

	<p>companies to establish the UX business in Turkey. At that time, one of the company's essential tasks was to explain these concepts. I mean, at that time when the concept of [UX] design in Turkey was just newly recognised and cherished, we started to explain to them that they needed to do it [design processes] with [user] research and do it with [usability] testing.”</p>	<p>misyonumuz vardı. O dönemde şirketin asli görevlerinden biri de bu kavramları anlatmaktı. Yani Türkiye'de [UX] tasarım kavramının yeni yeni tanındığı ve önemsendiği o dönemde biz onlara bunu [tasarım süreçlerini] [kullanıcı] araştırması ile yapmaları gerektiğini ve [kullanılabilirlik] testi ile yapmaları gerektiğini anlatmaya başladık.</p>
P12	<p>Of course. Let me explain what happens. First, there is a proposal process in which the client [firm] tells us their problem [...] Every project starts with a draft research plan during the proposal process. The draft includes what we will apply the following techniques in the process, how many weeks or hours we will work, what kind of interface will be designed, etc., within the framework of a draft.</p>	<p>Tabii ki. Aslında şu oluyor. Tabii ki önce bir satın alma süreci var müşterinin bize derdini anlattığı. [...] Her proje aslında draft araştırma planında satın alma teklifi ile satın alma sürecindeki teklifle çıkıyor. Ama draft bir araştırma planı, draft bir tasarım plana çıkıyor. İşte bunda şu teknikleri uyguluyoruz şu kadar hafta uyguluyoruz, bu kadar hafta arayüz tasarlarız vs. gibi bir draft çerçevesinde bunun eforlanmasıyla beraber bir teklif hazırlanıyor karşı tarafa.</p>
P18	<p>We put project partners interviews as the first step, and sometimes we try to do this with clients even who are not interested in research. At least this gives us the opportunity to learn the project partners ' expectations in this project, the owner's perspective and general view of this business, their level of know-how, and some details about their work. In that respect, it is useful in terms of being able to carry out the project in a meaningful way.</p>	<p>Paydaş görüşmelerini de aslında ilk adım olarak koyuyoruz bazen researche yanaşmayan müşterilerde de bunu yapmaya çalışıyoruz. En azından bu projedeki paydaşların beklentisini, işin sahibinin perspektifini ve genel bu işe bakışını know-how seviyesini, yaptığı işle ilişkin bazı detayları öğrenme fırsatı veriyor bu bize. O açıdan projeyi anlamlı yürütmek açısından faydalı oluyor.</p>
P12	<p>The project team always starts with a Kickoff Workshop, no matter how much [the client company] has explained its problems during the procurement process. You know, we go and physically conduct a workshop where we physically fill in such huge printouts together with our client; we even play a kind of game. A meeting where we try to understand the client's constraints, strategies, and goals. For example, we give a blank magazine cover, like a Time magazine, and say, 'In 2022, we built this site and got an award.' Furthermore, we ask them, 'Tell us what this award is about.' The CEO says,</p>	<p>Proje ekibi çalışmaya aslında hep şey ile başlıyor ne kadar satın alma sürecinde derdini anlatmış olursa olsun bir Kickoff Workshop'u ile başlıyor. Hani şu an online yapıyoruz ama normalde gidip bizzat fiziksel olarak böyle devasa çıktıları beraber doldurduğumuz, böyle bir oyun oynadığımız hatta, bir workshop yapıyoruz. Müşterinin kısıtlarını, stratejisini, hedeflerini anlamaya çalıştığımız oyun. Bu mesela bir tane Time dergisi gibi boş bir dergi kapağı veriyoruz ve diyoruz ki “2022'de bu siteyi yaptık ödül aldık.” mesela “Bu ödülün ne olduğunu bize anlatın.”. CEO diyor ki</p>

	<p>'Twenty per cent of the revenue came from here; that is why we got an award'. Someone else says, 'We received an award for the interface usability'. Someone else says, 'We received the award for the site that helps its customers the most'. I mean, everyone is reflecting their points, so we are trying to come up with a holistic goal from their objectives. Alternatively, we try to understand the constraints. Let's assume we have an engineer from the software team at the Kickoff Workshop. He says to the other side of the context, 'There may be a problem here. We are restrained with the database in this issue. There is such a tool here, and it has its limitations.</p>	<p>"Cironun yüzde yirmisi buradan geldi, o yüzden ödül aldık.". Başkası diyor ki "En kolay arayüz ödülü aldık.", başkası "Müşterilerine en fazla yardım eden site ödülü aldık.". Yani herkes böyle kendi şeyinden bahsediyor ki kendi hedefinden ortaya bütünsel bir hedef çıkarmaya çalışıyoruz. Ya da kısıtları anlamaya çalışıyoruz. İşte yazılım ekibindeki arkadaş oluyor Kickoff Workshop'unda. Karşı tarafa "Burada şöyle bir problem olabilir. Burada şuradaki veri tabanına bağlıyız. Burada şöyle bir CRM aracı var, onun kısıtları var." gibi gibi.</p>
P18	<p>[Research] is a huge need, but nobody expresses such a need, or when you talk about such a process, [client companies] are not very interested, interestingly.</p>	<p>Büyük bir ihtiyaç ama kimse böyle bir ihtiyacı dile getirmiyor ya da böyle bir süreçten bahsettiğinizde [müşteri şirketler] pek ilgilenmiyor, ilginçtir.</p>
P19	<p>Since people do not yet have awareness of UX research [...], even if the other party comes to a UX Design consultancy, they want to see a screen [design]. [...]Most companies that come to us want to know when they will see the screen[designs] because we are a design studio, and they want to see designs. That's why research is perceived not as a requirement, but as a precursor, a burden of this design process.</p>	<p>Research tarafında insanlarda henüz UX Design bilinci de oluşmadığı için bu çok normal çok başındayız bence sürecin. [...] bir UX Design stüdyosuna geliyorsa bile karşı taraf ekran görmek için geliyor[...] Bize gelen çoğu firma biz ekranları ne zaman göreceğiz, çünkü biz bir tasarım stüdyosuyuz neticesinde ve o da tasarım görmek istiyor. O yüzden Research bu tasarım sürecinin bir nesi kısıtı da değil ama bir yükü olarak algılanıyor.</p>
P19	<p>When people think of research, they either think of the street surveys. [We are] confused with surveyors who constantly annoy people, asking if they have five minutes or whatever, or with focus groups in market research. There is an assumption that we ask two questions and continue. [...] They [the client company] have already come to see the design. You say we will spend three weeks on research. And we're going to pay the users on top of that, so it's a nightmare from the PO's [Project Owner] perspective. [...]They may not trust our competence, that's one thing. I mean, of course they trust the competence of Firm H, but in</p>	<p>İnsanlar araştırma deyince ya anketle özdeşleştirilir sokakta yaptığımız anketle. Bu işte sürekli birilerini taciz eden anketörler, 5 dakikanız var mı falan derler ya onlarla karıştırılıyor ya da pazar araştırmasındaki Focus grupla karıştırılıyor. 2 soru sorar geçeriz gibi bir yaklaşım var araştırmaya karşı. Bu da aslında öyle bir kültürümüzün içinde, öyle bir entegrasyonu olmamasından kaynaklanıyor. O yüzden ne araştırmanın ne olduğunu anlamıyoruz ne de ne işe yarayacağını anlamıyoruz. Biz zaten tasarım görmeye gelmişiz. Sen diyorsun ki 3 haftayı araştırma harcayacağız. Bir de kullanıcılara para vereceğiz üstüne yani</p>

	<p>terms of research they think that ‘we're going to ask like this’, because of the perception of a surveyor. But actually, we refer to sources, then we try to explain by saying, "Look, there are examples like this here, this is how it is done, etc. There is also such an education [educating the client company] part.</p>	<p>korkunç bir şey PO [Project Owner] tarafından baktığımızda. [...] Yetkinliğimize güvenemeyebiliyorlar. Yani tabii ki Firma H 'nın yetkinliğine güveniyorlar ama Research konusunda o Anketör algısından ötürü, böyle mi soracağız falan oluyor ama aslında kaynak atıyoruz sonra bakın burada böyle örnekler var böyle yapılır bu falan deyip anlatmaya çalışıyoruz. Öyle bir edication kısmı da oluyor.</p>
P12	<p>We have usability testing workshops. [...] In one day, we conduct tests with users in the morning, and in the afternoon, in front of the whiteboard - we can now continue online on Miro - we do usability testing studies or similar studies that we can quickly produce formal reports if they want, or we can quickly produce reports and give them, and we focus on making the existing product better</p>	<p>Kullanılabilirlik testi çalıştaylarımız var. [...] Bir gün içerisinde sabah kullanıcılarla testler yapıyoruz, öğleden sonra da beyaz tahtanın önünde -artık Miro üzerinden online devam edebiliyoruz- isterlerse hızlıca formal raporlar üretebileceğimiz ya da hızlıca raporlar üretip verebileceğimiz kullanılabilirlik testi çalışmaları ya da benzeri çalışmalar yapıyoruz ve mevcut ürünü daha iyi hale getirmeye odaklanıyoruz</p>
P10	<p>We do not only use [agile research] as a buzzword but also as a method; we have an approach like this, we apply a cyclical research process called agile research. What I mean by cyclical is that when you go to a standard research company, whether they are focused on qualitative or quantitative research, the job is completed according to your brief. After the work is done, a report is prepared, the report is given, and it is over. As our firm's tradition, we want to make everything iterative, so we say let us do it with fifty people and come back. [...] When we go human-oriented while conducting research, consumers already bring us to completely different points and topics. The moment we deepen something in the first sprint, we say -or sometimes we don't say- to the client, let's go to this audience, let's go with this methodology, let's go with this need according to the results of the first sprint. When we deepen that subject [with this approach], we can actually extract much more nuanced insights</p>	<p>Hani follow-up araştırmaları oluyor veya biz şimdi insan odaklı bir araştırma yapıyoruz dedik Bunu sadece bir buzz word olarak değil aynı zamanda şey olarak yapıyoruz, metod olarak şöyle bir yaklaşımımız var, biz Çevik böyle agile research dediğimiz böyle döngüsel bir araştırma süreci uyguluyoruz. Döngüselden kastım da şu , siz bir Araştırma Şirketine gittiğiniz zaman Kalitatif araştırma Kantitatif araştırma, brief veriyorsunuz, o briefe göre bir iş yapılıyor. İş yaptıktan sonra bir tane rapor hazırlanıyor rapor veriliyor ve bitiyor. Bizim yaptığımız geleneksel kullanıcı araştırmasında Hadi Her şey iteratif yapalım falan bi elli kişiyle yapıp dönülüyor. [...] Bir araştırma yaparken insan odaklı bir şekilde gittiğimiz zaman zaten tüketiciler bizi bambaşka noktalara bambaşka konulara çeviriyor. Biz ilk Sprintte bir şeyleri derinleştirdiğimiz an ilk sprintte markaya diyoruz veya bazen demiyoruz, şu kitleye gidelim şu metodoloji ile gidelim şu ihtiyaç vesilesi ile gidelim bizi be ve o</p>

		konuyu derinleştirdiğimiz zaman işte aslında çok daha nüanslı iç görüler çıkartabiliyoruz.
5.2.2 Stakeholders Management / 5.2.2.1 Collaboration with Project Partners		
P12	<p>Corporate life in Turkey is a bit like this, [people work in the corporate firms say] ‘I don’t want to keep the hot ball, I don’t want to be left without a chair when the music stops’. I mean, ‘I want to have a chair [when I put my hand out] and not be the one who gets fired’. So, everyone is trying to throw that ball to someone else. Now, why did I give this example? [...] They demand market research from us, and the results are amazing. [...] However, they just say: ‘Here is the report from the research company’. So, they ask for [the research service] just for the sake of having ‘some research’ done. However, we need to be involved in presenting it. We need to [provide what we learned in the research]; ‘UX company has started! Check! [OK!]’ They [UX research company] are at this phase now. Check! The client firms have, unfortunately, this perspective</p>	<p>Yani Türkiye'deki kurumsal hayat biraz şöyle, sıcak top bende kalmasın, müzik sustuğunda sandalyesiz kalmayayım. Yani elimi sandalyem olsun kovulan ben olmayayım tarafı olduğu için herkes o topu birisine atmanın peşinde. Şimdi bunu neden örnek verdim? [...] Bir pazar araştırması yaptırıyorlar bize çıktısı harika. [...] Ama sadece şunu diyorlar: “Buyurun bu pazar araştırması şirketinden gelen doküman.”. Yani tamamen vermiş olmak için veriyorlar. Oysa bizim onun sunumuna dahil olmamız lazım. Onun yani o öğrenimi; “UX şirketi başladı?, Çek. Bu noktadalar şimdi. Müşteri de bu noktada ne yazık ki.</p>
P11	<p>From my point of view, there are two kinds of clients; one says: ‘You [UX researchers] know this job and tell me what you have learned [out of the UX research]’. The other one says: ‘I know this job too, so what are these?’ One client is great; I mean, you tell him like, you explain it to them for hours, the person already wants to understand it, they want to appraise it, they want to do it. The other one has an approach like, ‘How can I push [the UX research company] more and harder’ [...] It is effortless to make explanations to some clients [the former one], and you can give them something more; that is, you can give them deeper, more creative suggestions because they can understand it, mature it, and come up with something by themselves. However, the other one is not interested in that. In fact, because [the latter one] is interested</p>	<p>Anladım şimdi şöyle 2 çeşit. Bence benim bakış açım la iki çeşit müşteri var Birisi diyor ki sen bu işi biliyorsun ve bana anlat ne çıkardın. Diğeri de diyor ki ben de bu işi biliyorum Eeee bunlar ne? Bir müşteri müthiş yani ona böyle anlatıyorsun saatlerce anlat Adam zaten onu anlamak istiyor o insan onu değerlendirmek istiyor yapmak istiyor. Diğeri de yani sanki böyle nasıl daha çok üstüne binerim gibi bir yaklaşımı oluyor ama [...] bazı müşterileri anlatmak çok kolay ve ona daha şey verebiliyorsun yani daha derin daha böyle hayal gücü yüksek öneriler verebiliyorsun çünkü o anlayıp onu harmanlayıp kendine bir şey çıkartabiliyor. Ama diğeri onunla ilgilenmiyor Aslında o orada patron olmakla ilgilendiği için ona daha böyle ham daha böyle bu budur bunu yap bunu</p>

	in being the boss there, you offer him things that are more like unrefined, more like, 'Do this and don't do that!' Less creative, let me say	yapma şeklinde daha şey daha az hayal gücü olan diyeyim şeyler sunuyorsun.
P16	In the meantime, what the client does with this information is a question mark. I'm not even sure if some clients even look at it. There are some who actually share it with everyone, and there are teams where everyone reads it, but what they actually do with these presentations is a question mark for us. I think there are hardworking clients and not so hardworking clients. There are those who are as meticulous about what we do as they are about what they do.	Bu arada müşterinin bu bilgilerle ne yaptığı bir soru işareti. Bazı müşteri bakıyor mu emin bile değilim. Bazıları gerçekten bunun üzerine herkese paylaşıp, oradaki ekipte herkesin okuduğu ekipler de var ama gerçekten onların bu sunumlarla ne yaptığı bizde bir soru işareti. Çalışkan müşteriler ve çalışkan olmayan müşteriler var bence. Bizim çıktıklarımızı da bir o kadar kendi yaptıkları şeyler kadar titiz davrananlar var.
P15	When we give a proposal that will include new design, new idea development processes and generative user research methods to a client, unfortunately, it is not always possible to make it happen. We can also usually understand [the expectations from the project] from this situation. If we start with mid-level managers, it probably goes in this direction [means improvement of existing product]. If there is the participation of higher-level managers [...], they are more open to innovation [projects], more open to developing something new, [they have a potential] to allocate more time, to spend more money. [...] That is an indication that they are open to coming up with different ideas.”	Yani şöyle durumlar oluyor, yeni tasarım, yeni fikir geliştirme süreçlerini içinde barındıracak ve bununla ilgili olarak generative user research metotlarını barındıracak bir teklifi çok zamanımız bir müşteriye verdiğimizde onun gerçekleşmesi çok mümkün olmuyor ne yazık ki. Bu da genellikle şeyden de anlayabiliriz. Daha böyle orta seviye yöneticilerle başlıyorsak büyük ihtimal böyle bir yöne gidiyor. Daha üst seviye yöneticilerin katılımı söz konusuysa bir sonraki toplantıyı onlarla yapacağımız biliyorsak, birazcık daha yeniliğe daha acık, yeni bir şeyler yapmaya biraz daha fazla zaman harcıyıp iyice anlamaya, biraz daha para harcıyıp müşteri açısından. İşte farklı fikirler çıkarmaya açık olduklarının göstergesi oluyor.
P6	Because our customer is our long-term customer, I wouldn't say customer, but something like a business partner, you know, we can only observe it there. Now, I am writing a report, the implementation report, and I thought I would look at the old report to get some inspiration. What we have done and what we have presented. For example, I realised that everything written in that report has changed in this implementation. Oh, it was really implemented in the project. But other than that, if it is only a single-time	Çünkü müşterimiz bizim uzun vadeli müşterimiz, müşteri demeyeyim de iş ortağı gibi bir şey, hani sadece orada gözlemleyebiliyoruz. Şimdi ben bir rapor yazıyorum, uygulama raporu ve biraz ilham almak için eski rapora bakayım dedim. Ne yapmışız ve ne sunmuşuz. Mesela o raporda yazılan her şeyin bu uygulamada değiştiğini fark ettim. Ha, projede gerçekten uygulanmış. Ama onun dışında tek seferlik bir projeyse bunu gözlemleyemiyoruz. Bu korkunç bir şey.

	project, we cannot observe this. This is an awful thing. So, as I said, I don't know exactly where and how it affects the other side.	Yani dediğim gibi diğer tarafı tam olarak nereden ve nasıl etkilediğini bilmiyorum.
P4	Here [Firm A] I had to learn the process of persuasion. In the end, I want my work [outcomes of the UX research] to be useful and seeing that users are constantly suffering from the same issues [that the researcher found and reported in the previous research] becomes a huge problem for me. I think it is useful to involve stakeholders [project partners] in the interviews as a strategy for convincing project partners.	Ama burada birazcık o ikna sürecini öğrenmem gerekti. Çünkü sonuçta yaptığımız iş bir işe yarasın istiyorsunuz ve kullanıcıların da sürekli aynı noktalar acı çektiklerini görmek sizin için böyle bir probleme dönüşmeye başlıyor. İkna yöntemine gelecek olursak kendim yani şahsen bunun faydalı olduğunu düşünüyorum olabildiğince bu zaten bizim [önceki çalıştığı işyeri] da iken de yapmaya çalıştığımız bir şeydi işte paydaşların görüşmelere katılmasını sağlamak.
5.2.2 Stakeholders Management / 5.2.2.2 Managing Recruitment Process		
P18	If we are going to conduct a survey or anything similar, and it is not a survey with too many branches, we are content with a three-digit sample. Of course, if the results are very close to each other, you have the reflex of 'we need to increase this sample a little more,' but as I said, we are satisfied with three-digit samples, of course, we are satisfied after looking at the results of the surveys, or we always include these possible deviations [...] in our result reports. In other words, we try very hard not to claim, 'we performed a poll, and this result came out and it is real, it is written in stone'. Possible variations are always mentioned in such reports, and there may be other explanations for certain things.	: Anket vesaire gibi bir şey yapacaksak ve böyle çok fazla branche sahip bir anket kurgusu değilse o üç basamaklı bir örneklem olduğu zaman mutlu oluyoruz. Şeye de çok bağlı tabii sonuçlara da çok bağlı siz de bilirsiniz, birbirine çok yakın şeyler çıkarsa o zaman bu örnekleme biraz daha artırmak lazım refleksi geliyor insana ama dediğim gibi üç basamaklı örneklemlerle memnun oluyoruz anketlerde sonuçlarına da baktıktan sonra tabii memnun oluyoruz veya bu olası sapmalarla [...] her zaman sonuç raporlarımızda biz yer veriyoruz. Yani bir araştırma yaptık ve bu sonuç çıktı ve bu doğrudur, taşa yazılmıştır dememeye çok gayret ediyoruz. Olası sapmalar her zaman bahsettiğimiz şeyler oluyor bu tip raporlarda veya başka olası başka sebepleri olabiliyor bazı şeylerin onları da mutlaka.. onlara da atıf yapıyoruz.
P3	From my perspective, for example, the oddest thing to me at first was that, since I work quantitatively, the number of individuals, you know, 30 people, 40 people... You go as far as you possibly can. But, in any case, reaching so many individuals in the field of User Experience	Benim bakış açımdan mesela hani bana ilk başlarda en tuhaf gelen şey işte quantitative çalıştığım için ben kişi sayısı işte böyle hani 30 kişi 40 kişi... Daha da hani gidebildiğin kadar aslında gidersin. Ama zaten hani qualitative çalışırken işte User Experience alanında çalışırken o

	<p>while working qualitatively is quite challenging. When we have an interview, we send it to 150 individuals, and 15 of them respond. Then we may speak with seven of them. There is such a circumstance. That, for example, struck me as odd at first. We only interviewed seven people, so there was some concern about how much we could generalise, but after working in this industry for a year and a half, I learned... Okay, we're talking to seven people, but the topics they discuss frequently overlap. They address the same topics. This is the section where quantitative and qualitative information are divided. In quantitative research, you're ultimately attempting to figure out how frequently that behaviour occurs, which is why we constantly need so many people. When it comes to comprehending the cause behind such action, seven persons can genuinely provide an explanation</p>	<p>kadar kişiye ulaşabilmek gerçekten zorluyor. Interview yapılacağı zaman işte 150 kişiye yolluyoruz, oradan 15 kişi dönüyor. Sonrasında 7si ile konuşabiliyoruz. Böyle bir durum var. O mesela hani ilk başlarda benim tuhafıma gidiyordu. Sadece 7 kişi ile konuştuk hani ne kadar genellebiliriz ki gibi bir durum vardı ama aslında bir buçuk senedir bu alanın içinde oldukça da şunu fark ettim hani... Tamam yedi kişi ile konuşuyoruz ama yedi kişi de gerçekten bahsettikleri şeyler çok fazla birbirinin üstüne binerek gidiyor. Aynı şeylerden bahsediyorlar. Gerçekten aslında o qualitative ile quantitative'in ayrıldığı kısım buymuş hani. Quantitative 'de neticede şeyi bilmeye çalışıyorsun hani o davranışın ne kadar tekrarlandığını o yüzden hep bu kadar kişiye ihtiyacımız var. O davranışın nedenini anlamak olduğu zaman durum, gerçekten yedi kişi de bunun cevabını verebiliyor bize.</p>
P19	<p>Our sample size is very low in prototype testing. We tested with 8 people because really common problems start to recur after 5 people. We are ok with this, it depends on the context of experience [that is subject of the research].</p>	<p>Örneklerimiz çok düşük prototip testlerinde. 8 kişiyle test yaptık çünkü gerçekten de genel geçer problemler 5 kişiden sonra tekrarlamaya başlıyor. Bunda okeyiz artık deneyime bağlı.</p>
P2	<p>When I send out a user test, I never ask for an age limit. For example, [another researcher] would generally instruct his/her team to keep it between the ages of 20 and 60, but I don't. So, you can clearly see where the elderly are struggling. I believe that extremely basic usability flaws affect everyone. After all, you can never promise that you will never have a 60 or 70-year-old customer; you must also handle their difficulties</p>	<p>Şöyle sonuçlar da çıkıyor orda mesela, ben bi user test gönderdiğimde hiçbir zaman yaş sınırı girin demem, mesela normalde Baki işte kendi ekibine hep şey diyor, 20 yaşla 60 yaş arası yapın falan diyor, ben onu yapmıyorum mesela. Çok yaşlı insanların nerelerde bocaladıklarını, çok güzel görebiliyorsunuz orda yani. Çok temel usability sorunları bence herkes için geçerlidir. Sonuçta hiçbir zaman 60-70 yaşında bir kullanıcının olmayacağını garantileyemezsin yani, onlar için de o problemleri çözmek lazım.</p>
P16	<p>When we conduct research, we prioritize everything we find a little bit, for example, the majority, but we can also put one or two elderly people, even if they are not their exact target audience, for example, for someone who prioritises</p>	<p>Araştırma yaparken belirlediğimiz her şeyi birazcık yani mesela çoğunluğu önceliğe koyuyoruz ama araya bir iki tane de onların tam hedef kitlesi olmasa bile atıyorum önceliği gençlere vermiş biri için yaşlılardan da bir iki kişi</p>

	young people, we can put one or two elderly people, if we have such an option, we try to get their different opinions.	koyabiliyoruz, öyle bir oynama alanımız varsa onların da farklı görüşünü almaya çalışıyoruz.
P2	Ustertesting [Digital remote research tool] has a feature called 'Gene My Recruit' [the name of the feature that enables to invite participants], where the people you invite come and take the same test, and when I invite our own users, for example, they say 'well, we're very happy with [the product], it's a great feature'. They should be harsh in their criticism, yet that is exactly what happens there.	Ustertesting in gene my recruit diye bir özelliği var, işte davet ettiğimiz kişiler gelip aynı teste giriyor, ben mesela işte kendi kullanıcılarımızdan davet ettiğimde adamlar işte şey, çok memnunuz Firma A'dan harika müthiş özellik falan gibi, acımasızca eleştirmeleri lazım aslında tam tersine ama orda öyle bir şey oluyor.
P16	Well, there is an agency we work with, and we are not satisfied [...]. Because the incentive [incentive was the money in this context] given by that agency will be as low as the amount they want [cost of their service], the profile of the people who will do this job for that incentive [money] sometimes challenges us a lot, we are really stunned, even if they [recruitment agency] say they look and find [participants] what we call Digital Savvy, even if they use a lot of apps, when they [participants] really come here, we see that they're not that much [tech savvy]. I remember one of my friends conduct a test, he said that it took 15 minutes to make them just sharescreen.	Çünkü o ajansın verdiği ödül de kendi istedikleri tutar gibi düşük olacağı için o ödül için bu işi yapacak insan profili bizi çok bazen zorluyor yani gerçekten dumur oluyoruz böyle müşteride izliyor testler falan patlıyor, hiçbir şey yapamıyorlar falan Digital Savvy dediğimiz gibi görünseler bile bir sürü app kullansalar bile gerçekten buraya geldiğimizde görüyoruz ki o kadar da değilmiş Zoom'dan yönetmek. Bir tane arkadaşım var onun yaptığını hatırladım, ekran paylaşımını göstermek 15 dakika aldı falan demişti bana ben deneyimlemesem de zor oluyor kısacası.
P4	One of the most frustrating things about 'Ustertesting' is the user pool. No matter how large the user pool claims to be, I constantly encounter the same users in the user pool. Therefore, I cannot be sure of the cleanliness of the test I am doing [...] We are looking different platforms from time to time,[...] to renew the pool	One of the most frustrating things about 'Ustertesting' is the user pool. No matter how large the user pool claims to be, I constantly encounter the same users in the user pool. Therefore, I cannot be sure of the cleanliness of the test I am doing [...] We are looking different platforms from time to time,[...] to renew the pool
P13	For some reason, the data of the person who will come from that database makes me feel a little uneasy. I mean, I questioned that part a little bit. And of course, I still have that resistance because of that. The fact that the person who comes to the usability test may come millions of times if they have come to previous studies	Biraz tedirgin hissettiriyor bana. Niyeyse o database'den gelecek olan kişinin verisi. Yani biraz o kısmı sorguladım. Ya tabii ki şeyden dolayı da hala o direncim sürüyor. Kullanılabilirlik testine gelen kişinin daha önceki araştırmalara geldiye tekrardan milyonlarca kez geliyor olması.

P16	<p>Let's keep this between us. We arranged [the participants] [...] It's like this, in the third step of the chain, we now have people we know, it's not like I call my close friend anymore, I call my friend's friends from the university - there are young profiles, for example, among the people we will consider - I tell him, he calls his friends. We have a SME profile, for example, a middle-aged acquaintance who resides in Fatih [a neighbourhood in İstanbul]. He searches people from that neighbourhood and so eliminates a particular category [the group that cannot be readily connected with using internet technologies]. Of course, that's not very healthy, but a group that has never had any issues with Zoom or anything like that comes as a result of what we do. If some people from the other audience came, maybe we wouldn't be able to get that person's use or opinions more easily, but a little bit more [these people] are filtered</p>	<p>Biz ayarladık, aramızda kalsın. Şöyle zincirin artık 3. adımında tanıdığımız insanlar oluyor, ben artık kendi yakın arkadaşımı çağırıyorum gibi değil de arkadaşımın kardeşinin çağırıyorum, arkadaşımın kardeşinin arkadaşını üniversiteden arkadaşlarına genç profil var mesela alacağımız insanlar arasında, onu söylüyorum arkadaşlarından çağırıyor. Atıyorum KOBİ profili var bir tane orta yaşlarda Fatih'te oturan bir arkadaşımız var. O mahalleden birilerini buluyor ve böyle birazcık da belli bir kitle elimine olmuş oluyor. O çok sağlıklı değil tabii ki ama bu Zoom'da falan hiç problem yaşamayan bir kitle bir şekilde geliyor böyle yaptığımızdan ötürü. Öbür kitleden birtakım kişiler gelmiş olsa, belki o insanın kullanımını ya da görüşlerini daha rahat almayacağız hani ama birazcık daha filtrelenmiş oluyor gerçekten, o projede öyle yaptık.</p>
<p>5.2.3 Practices and Strategies regarding Data Collection</p>		
P17	<p>[As users don't feel competent with the online mediums], they feel like the prototype is kind of an alien environment for them. Of course, we put tricks like 'escape getaways' for the cases where they are stuck or extra interactions outside the scenarios to provide space for them to navigate more, to try out by themselves. All these for relaxing them a bit</p>	<p>Ama burada uzaktan olduğu için bir de genellikle herkes Zoom konusunda bazen kendilerini çok güvende hissetmiyorlar. Güvende derken "ben de çok anlamıyorum bundan" gibi bir yaklaşım içerisinde oldukları için prototip de onlara çok yabancı bir ortam gibi geliyor. Tabii ki tıkanıklıkları noktada her zaman bir kaçış noktası koymak prototipe gibi trickler yapıyoruz veya daha fazla gezebileceği bir alan yaratmak için normalde senaryonun dışına da çıkan etkileşimler koyabiliyoruz. Orada kendisi deneyip görsün diye. Onu biraz daha aslında rahatlatmak için prototip ortamında bazı şeyler yapıyoruz.</p>
P18	<p>There we generate an extra task for ourselves and conduct research [on a social service], just to test a remote testing tool.</p>	<p>Orada kendimiz için ekstra bir görev yarattık ve sadece uzaktan test aracını test etmek için [bir beledenin sosyal projesi için app] araştırması yaptık</p>
P4	<p>It is much easier to maintain a natural conversation with the users and sensitise them to the study when we are from the same culture. However, I experience</p>	<p>Yani kullanıcıyı o çalıştırmaya ısınmasını sağlamak birazcık da aynı kültürden olduğumuz için bir sohbet edebilmek işte ufak bir şey ile ilgili konuşabilmek daha</p>

	difficulty, indeed, in building such rapport with users from abroad, because I don't know anything about the person's context on the other side. I mean, it could be a terrible day in that country, it could be raining like hell or a disaster maybe... I have no clues."	doğal bir ortam sağlamak çok daha kolay. Ama yurt dışındaki kullanıcılarla görüşürken o aradaki işte o rapportu oluşturmakta çok güçlük çekiyorum aslında. Çünkü hani karşıdaki insanın context ini hiç bilmiyorum. Yani belki o gün berbat bir gün o ülkede. Çılgın gibi yağmur yağıyor ya da bir felaket geldi başlarına. Benim bundan haberim yok.
P9	[At the beginning of the pandemic], people seemed abstracted rather than focusing on the user test we've been conducting with them. Each person has a worry, let me say [...] If users have other things on their minds, I think user tests can be postponed for a while. Especially in times like this, when people are highly worried, I think the results can be affected to some extent."	Aslında kullanıcı testi yapılırken covidin başı ve sonundaki kullanıcılarda bir farklılık olduğunu gördüm. Başlangıçta insanlar konuşurken yaptığımız kullanıcı testine odaklanmaktan çok akılları başka yerdeydi öyle diyeyim. Her insanın bir tedirginliği vardı bu sürecin başında [...] Aynı şekilde kullanıcıların da kafalarında başka bir şey varsa özellikle gündem yoğunsa bence kullanıcı testi bir dönem ertelenebilir. Özellikle bu kaygının fazla olduğu dönemlerde sonuçların biraz da olsa etkileneceğini düşünüyorum.
P6	[Before the pandemic], we could do 6 to 7 tests per day. [Right now], I do 3 in a day, and I finish the day saying, 'Man! I'm exhausted'. Because you need to be extra alert, extra cautious [...] For the one who moderates the test, it is more tiring than the studies we normally do face-to-face.	Normalde günde 6 ila 7 test yapabiliyorduk. Günde 3 test yapıyorum ve günü 'Abii! Çok yoruldu' diyerek bitiriyorum. Çünkü ekstra uyanık, ekstra dikkatli olmanız gerekiyor [...] Testi yöneten kişi için, normalde yüz yüze yaptığımız çalışmalardan daha yorucu.
P12	At a basic level, we literally guide users, as in, we are preparing a manual on downloading the application, and so on. [In face-to-face sessions] if the guy had a problem downloading, you could take the phone and download and install it for him. There weren't any problems there.	Ya orada gerçekten çok basic bir şekilde karşı tarafa nasıl program indireceğini, hani sanki bir manuel hazırlanmış gibi hazırlıyoruz. Yine tekrar hani illa bu da adam indirmekte bir problemi varsa bir de adamın elinden telefonu alıp şey yapabiliyorsun, indirip kurabiliyorsun. Bir sıkıntı olmuyor.
P4	Rapport is also an essential issue in my studies, both remotely and in-person, to grasp the condition of the person on the other side and, to some extent, to establish a language of communication. This is the most significant aspect of the interview. Because it has a significant impact on the interview's quality.	Bu hem uzaktan hem de - rapport konusu hem uzaktan hem de yakından birebir yaptığım çalışmalarda da önemli bir konu karşı taraftaki insanın durumunu anlamak ve onun durumunun belli bir oranda bir iletişim dili geliştirmek. En önemli faktör bu aslında görüşmedeki. Çünkü görüşmenin kalitesini ciddi anlamda etkiliyor.
P19	I mean, I'm chatting more. You know, of course, I don't ask what you cooked today, but how are you, where do you live, what	Yani muhabbet ediyorum daha çok. Hani böyle tabii ki de işte bugün ne pişirdin diye sormuyorum ama nasılsınız, nerede

	do you do? We chat for 5 minutes, and I collect some clues, and when I say, "Oh, I think there was something like that," she/he actually feels that I understood her	yaşıyorsunuz, ne iş yapıyorsunuz? Oradan böyle küçük clue'lar alıp, ha öyle mi şöyle bir şey de vardı galiba dediğimde bile aslında onu anladığımı hissetti ya öyle bir 5 dakika bir muhabbet ediyoruz.
P15	In general, for example, in an interview, when talking about something personal, I can usually give an example about myself, in a way that shows that it is ok so that he/she can talk about it comfortably. Then slowly the other person starts to explain, 'Oh, something like this happened to me.' As I said, this may not usually be acceptable as an interview technique in the humanities [scientific studies]. Because the critical thing there is to get the data without creating any bias. However, in design research, it's more important to be able to get it done in order to develop ideas. [...] if that statement can tell us something interesting about her life that we can develop an idea about, that's ok for me as long as I'm not doing a master's degree or a PhD	Aynen, aynen. Ya genel olarak mesela bir interview kişisel bir şeyden bahsederken, rahat bahsedebilmesi için bunun hakikaten ok olduğunu gösteren bir şekilde ben mesela kendimle ilgili bir örnek verebiliyorum genellikle. Ondan sonra başlıyor yavaş yavaş karşıdaki açıklama. Ya benimde başımdan şöyle bir şey geçti. Dediğim gibi bu normalde interview, beşeri bilimlerdeki interview tekniklerinde kabul edilebilir bir şey olmayabilir. Çünkü orada önemli olan veriyi, hiç bias yaratmadan alabilmektir. Ama tasarım araştırmalarında fikir geliştirmeye yarayacak done alabilmek daha önemli bi şey. [...] Ama o demeç sonuçta bize onun hayatıyla ilgili bizim fikri geliştirebileceğimiz ilginç bir şey söyleyebiliyorsa bu master veya doktora yapmadığım sürece benim için ok.
P5	Facial expression is important in the method we apply now. Need to take facial expressions and so on... That's a bit of a thing. We cannot take it. But if you say, how much were you already analysing those facial expressions in your past studies? That was actually implicit for us. I mean, in terms of managing the process as a researcher, when you control the facial expressions, an experienced researcher can direct the process according to those facial expressions and body movements. Otherwise, we are not doing behavioural research. You know, we don't follow a 100% scientific method. Of course, ours is quick and dirty [in a quick and not high-quality way]. You know, we are doing face-to-face engineering as Nielson taught us, but this mimicry part, that social interaction part is missing.	Biz şimdi bizim kullandığımız yöntem de yüz ifadesi önemlidir. yüz ifadesini alın vesaire... O biraz şey oldu. Onu alamıyoruz. Ama dersin ki geçmişteki çalışmalarında zaten o yüz ifadelerini ne kadar analiz ediyordun? o biz de aslında implicit geliyordu. Yani Araştırmacı olarak süreci yönetmek açısından mimikleri vesaire kontrol ettiğin zaman karşıdakinin yani deneyimli bir Araştırmacı o mimiklere vesaire vücut hareketlerine göre şeyi yönlendirebilir süreci. yoksa işte biz bir davranış şeyi araştırması yapmıyoruz Hani bilimsel %100 bilimsel yöntem izlemiyoruz. Tabii bizimkiler Quick and Dirty. Hani Nielsonun bize öğrettiği yüz yüze engineering yapıyoruz sonuçta ama bu Mimik kısmı o Social interaction kısmı missing.
P18	I mean, it affects the observations a little bit at the observation stage, of course, you can see a little bit better the body language	Birazcık araştırma yani şey aşamasında gözlemleri biraz etkiliyordur tabii ki fiziksel olarak yanınızda olan birisinin

	<p>or gestures and facial expressions of someone who is physically next to you. Here you are a little bit more limited by the frame rate [the rate of picture frames per second]. You may not be able to make much better sense of a gesture and you may not be able to see it or something like that, but I guess there are rarely results that require that much detective work</p>	<p>biraz vücut diline veya jest ve mimiklerini daha iyi görebiliyorsunuz. Burada birazcık daha frame ratele kısıtlısınız. Çok daha iyi anlamlandıramabiliyorsunuz bir mimiğini ve göremeyebiliyorsunuz falan gibi durumlar ama hani o kadar dedektiflik yapmayı gerektirecek sonuçlar da nadiren çıkıyordur diye tahmin ediyorum.</p>
P18	<p>In the asynchronous test setup, you can't fix things on the road. The arrow is already released from the bow [when the data collection starts]. The flow needs to be excellent there. If there is a lack of guidance or a directing mistake that will alter the findings, or there may be some issues with the medium.</p>	<p>Orada akışın iyi olması demek alınacak sonuçları etkileyecek bir yönlendirme eksikliği veya bir yönlendirme hatası veya bu testin üzerinde yaşadığı mecraaya ilişkin bazı problemler olabiliyor.</p>
P3	<p>I really try to break down the tasks [the tasks to be given to the participant during the test] question by question as much as possible. When you expect them to do more than one thing in a question, they get very confused. Usertesting users. After writing both of them, he tries to do the second one, not the task you gave him, and what he read last time stays in his mind, and some of them can completely forget about what he read. Another thing, for example, in some parts of the script, sometimes it is necessary to give small retrospective reminders in some of the tasks, you know, 'look, you are doing something like this, so you need to do it like this'. Because it can happen, you know, they can be quite detached from what is happening and what is over. There is already the situation that when it goes to a wrong screen, you can sometimes lose it there. It may never come back</p>	<p>Olabildiğince taskları gerçekten soru soru ayırmaya çalışıyorum. Bir sorunun içinde birden fazla şey yapmasını beklediğin zaman çok fazla kafası karışıyor. User testing kullanıcılarının işte. O ikisini birden yazdıktan sonra verdiği taskı değil de diğer ikincisini yapmaya çalışıyor, en son ne okuduysa o kalıyor aklında bir kısmı okuduğunu tamamen silebiliyor. Bir başka şey mesela senaryonun bazı yerlerinde bazı taşkında geriye dönük küçük hatırlatmalar bazen vermek gerekiyor hani bak hani işte şöyle bir şeysin sen o yüzden bunu böyle böyle yapman gerekiyor diye iyicene senaryolaştırma...Çünkü şey olabiliyor hani baya bir kopabiliyorlar ne olduğundan ne bittiğinden zaten şey durumu var yanlış bir ekrana gittiği zaman onu orda bazen kaybedebiliyorsun. Asla geri dönmeyebiliyor.</p>
P1	<p>There is a point that we have noticed, especially in remote [asynchronous] user tests, one test does very well and the other does not do well at all. And there is no specific reason. We realised that some users might be very tired and take the test. Before that, they may have taken 20 other tests and taken that test again. 'How do you assess your energy level at that</p>	<p>Fark ettiğimiz bir nokta var, özellikle uzaktan kullanıcı testlerinde bir testi çok iyi yapıyor bir testi diğeri hiç ama hiç yapamıyor. Ortada belirli bir sebep de bulunamıyor. Bunu fark ettik ki bazı kullanıcılar çok yorgun olup yorgun olarak teste girmiş olabilirler. Ondan önce 20 tane daha teste girip ve tekrar o teste girmiş olabiliyor. Bunu fark etmek için o</p>

	moment to recognize this? How would you assess your current mood?' If he's recently been traumatised or distracted, that affects him too.	anki enerji seviyeniz nasıl değerlendirirsiniz gibi? Su anki modunuzu nasıl değerlendirirsiniz gibi? Yakında bir travma yaşadıysa veya dikkati dağınıksa sonuçta bu da onu etkiliyor.
5.2.4 UX Researchers' Approaches to Data Analysis		
P19	I believe that the first step in producing good analysis is to ask good research questions. And to do the analysis in accordance with the research questions. Because using research questions in the analysis section allows you to maintain objectivity. Because suddenly the user says something and you may feel like 'ah, that's what I was thinking'. But I think it is necessary to interpret what they say according to that research question.	Ya bence analizi iyi yapmanın ilk adımı araştırma sorularına iyi kurmak. Analizi de araştırma sorularına göre yapmak. Çünkü araştırma sorularının analiz kısmındaki faydası da şu, objektiviteyi koruyorsun aslında. Çünkü bir anda kullanıcı bir şey söyler ve sen A ben de böyle düşünüyordum zaten hissine kapılabilirsin. Ama senin ne söylediğini o araştırma sorusuna göre yorumlamak gerekiyor diye düşünüyorum.
P15	We actually code the interesting things that the interviewees say. We organise those codes and turn them into a structure. In a structure that will benefit us and that the customer can understand, for example, motivations of using [the service researched], motivations of using physical spaces related to [service]. Because there is an increasing interest in a digitalised world, we have a question of why a person would still use physical spaces. With that motivation, we come up with different codes. As a place for socialising [service]. [service] as a learning space. [...] If this would have been scientific research, for example, [the other researcher] would assign specific codes to these. First, we would generate codes together. Then when a code system was fixed, [another researcher] or someone else would code it with it. Then someone else would code it, and then we would look at the percentage of intercoder agreement. We would go to the jury and say, 'Look, this code system works, and we used it.' Here, unfortunately, it is not applied in that way. I cannot say 'unfortunately' because that is not the need; the need is a different need. Therefore, it is not used that way. Unfortunately, that is why 'unfortunately'	Hakikaten görüşmecilerin söylediği ilginç şeyleri kodluyoruz. O kodları düzenliyoruz ve bir structure haline getiriyoruz. Hem bize fayda sağlayacak hem de müşterinin anlayabileceği bir structure halinde atıyorum işte iddia oynama motivasyonları, [Servis] gitme motivasyonları. Çünkü giderek dijitalleşen bir dünya var, bir insan neden hala bayiye gitsin ki bir sorumuz var karşımızda. O motivasyonla farklı farklı kodlar çıkarıyor işte. Bir sosyalleşme mekânı olarak [Servis]. [Servis] öğrenme mekânı olarak alan.. Filan falan gibi farklı farklı konu başlıkları belirliyoruz. Onlarla ilgili quotationları buraya koyuyoruz ki müşteriye ikna edebilelim. Bakın bayinin şöyle bir fonksiyonu da var. [...9 Bu bir tez olsaydı mesela duygu bunlara spesifik kodlar atardı. İlk önce kod generate ederdik ikimiz de birlikte. Sonra bir kod sistemi fix olduğu zaman duygu yada başka biri o donelere onla kodlardı. Sonra başka biri kodlardı sonra interjudge agreement yüzdesine bakılırdı. Bakın bu kod sistemi çalışıyor biz de bunu kullandık deyip jüriye giderdik. Burada işte malesef kullanılmıyor. Maalesef de değil, çünkü ihtiyaç o da değil, ihtiyaç farklı bir ihtiyaç. Dolayısıyla öyle

	for example, at the beginning when I started working [in practice], I was getting destroyed when I tried to apply these academic methods here. Then I realised that the need here is a different need	gidilmiyor. Maalesef şu yüzden maalesef, ben mesela çalışmaya başladığım zamanların başında bu akademik yöntemleri burada uygulamaya çalışarak burada helak oluyordum. Sonra baktım hani buradaki ihtiyaç farklı bir ihtiyaç.
P11	Each and every point is essential in ethnography, and I try to write each and every one of them in the interview, etc. When the [client] firm does not require them, you can leave them as a remark. You can write that this means this, that dialogue, or I don't know, but you don't have to explain it that way. Sometimes [my manager] adds, "From project to project, it works extremely well in certain projects,"[...]. However, it becomes more specific [in certain projects]. It is important to look at more particular topics [in projects], but I will consider them comprehensively again. I'm not sure whether [my manager] thinks I'm wasting my time; we haven't discussed it. [My manager] may believe I'm wasting my time, but I don't think [I'm wasting]"	Hani etnografi de her bir nokta önemlidir ya ben her bir noktayı yazmaya çalışıyorum görüşmede falan. O da bazen 'markanın bunlara ihtiyacı yok sen bunları yorum olarak yazabilirsin'. Bu demek diye yazabilirsin o konuşmayı ya da ne bileyim onu öyle açıklaman a gerek yok Bazen dediği noktalar oluyor projeden projeye bazı projelerde çok işe yarıyor [...] Ama bazıları daha spesifik şeyler oluyor Daha spesifik noktalara bakmak gerekiyor ama ben onu da yine geniş ele alıyorum. Biraz belki zaman kaybettiğimi düşünüyor olabilir çok emin değilim bunun üzerine konuşmadık ama. Zaman kaybettiğim düşünebiliyor olabilir ama çok zaman kaybı olarak görmüyorum ben onu.
P12	In this period, we were a bit obsessed with automation. [...] We are trying to increase the interaction between the tools. For example, automatically transferring all the data from AirTable to Miro as post-it notes. There is this [classical] designer pose in front of a wall, grouping post-its; we are transferring data from AirTable to Miro to replicate the online version of this pose. We generated templates. I mean, there is a template for Journey Maps, there is one for Mental Models. You know, it's because the designer should spend less time with their outlook. Of course, things can change on a project basis. Needs can be different. But we are trying to make their lives easier with such templates	Aslında biz bu dönemlerde bunların otomasyonuna taktık gerçekten biraz. [...] Toolların arasındaki etkileşimi biraz daha artırmaya çalışıyoruz örneğin AirTable'dan Miro'ya otomatik Post-it olarak atılması bütün verilerin. AirTable'da işte aslında kişilerden veri toplayıp o verileri hani normalde duvar karşısında post-itler gruplayan tasarımcı pozunu vardır ya o pozun online versiyonunu yapabilmemiz için veriyi doğrudan AirTable'dan alıp Miro'ya atma tarafını şey yapıyoruz. Şablonlar oluşturduk. Yani Journey Map'in şablonu var. Mental modelin var. Hani tasarımcı şekle daha az şey yapsın, şekille daha az vakit harcasın diyerek. Tabii ki proje bazında proje özelinde şeyler değişebiliyor, hani ihtiyaçlar farklı olabiliyor. Ama biraz daha şablonlarla hayatlarını kolaylaştırmaya çalışıyoruz.
P13	I use AirTable especially for the analysis part. The reason for using it is this; beforehand, when I start analysing while	Özellikle AirTable kullanıyorum analiz kısmı için. Kullanım sebebi de şu; önceden şey hani ben yaparken bu şeyi

	<p>[...] I think about how outcomes can be. You know, I am preparing something accordingly in the report section, I am preparing a template. [...] you know, the output of this will be like this, let this part of the giver come here, here, here, I will get the following outputs from here. For example, I list the themes and I list the positive and negative emotions of these themes, and I assign a comment section at the end. For example, I operate a column in this table, then I enter the formulas in the AirTable. After that, I read and enter the labels, while I enter the labels, it starts calculating the calculations on the one hand and starts processing on the side[...]. In other words, if I use AirTable [...] the output will be something very close to the structure in my head.</p>	<p>analizi başlarken [...] hani bunun çıktısını nasıl olabileceğini düşünüyorum. Hani rapor kısmında ona uygun olarak da bir şey hazırlıyorum işte, şablon hazırlıyorum. [...] bunun çıktısı böyle olacak verenin şu kısmı burası buraya gelsin, işte şu çıktılar elde edeceğim ben buradan diye işte. Mesela temaları listede diyorum bu temaların işte olumlu olumsuz duygular durumlarını listeletiyorum yan tarafta en sona da bir tane yorum kısmı bırakıyorum. Yorum kısmını da alıyorum. Mesela bu tablonun içerisinde bir sütün işletiyorum sonra başlıyorum şey işte formülleri giriyorum şeyde AirTable üzerinden. Ondan sonra okuyup işte etiketleri giriyorum ben etiketlere girerken bir taraftan hesapları hesaplamaya ve yan tarafta işlemeye başlıyor [...]. Yani bunları yaparken bir taraftan işlen bildiği için eğer AirTable' kullanıyorum ve çıktısında da en sonunda mesela kafamdaki yapıya çok yakın bir şey çıkmış oluyor.</p>
P15	<p>[Effective use of data] is something related to experience. For example, when I look at an interview script [transcription]. From there, for example, [I can assume] this could mean this. I can also get such additional ideas out of it, like, if I can get five ideas, a friend [like P16 or P17] who is new to the area can get only one. So how can someone develop oneself in this subject? This is also something about the experience; I couldn't say too much about this.</p>	<p>Bu mesela deneyim ile alakalı bir şey. Ben mesela bir şeye bakıyorum. Bir görüşme scriptine bakıyorum. Oradan mesela bu şu demek de olabilir. Buradan şöyle bir fikir de çıkarabiliriz falan gibi böyle, atıyorum 5n tane şey çıkarabiliyorsam, daha yeni bir arkadaş n tane şey çıkartabiliyor. Anlatabiliyor muyum? Dolayısıyla orada bu nasıl gelişebilir? Bu da deneyimle ilgili bir şey ya çok fazla bir şey söyleyemedim.</p>
P16	<p>[From a research guide] I would expect something established [knowledge] about the analysis process, as I myself lacked it. Conducting [research] is already clear, I mean, there are millions of articles on conducting [research] it anywhere, there are already millions of articles, you do it once, you already understand it. There is no need to talk about them over and over again, there is no need to prepare such a format anyway. I think there could be a slightly more established system for the analysis and preparation processes. [...]</p>	<p>Ben kendim eksikliğini yaşadığım için analiz süreci ile ilgili de böyle oturmuş bir şey beklerdim, yürütme zaten belli yani yürütmeyi herhangi bir yerde de milyonlarca makale var zaten bir kere yapınca da anlıyorsun zaten. Onların üstünde defalarca konuşmaya gerek yok öyle bir format hazırlamaya da gerek yok zaten de bence analiz ve hazırlık süreçleri için birazcık daha oturmuş bir sistem olabilir. Analizde de hangi amaca uygun senin dediğin gibi neye hizmet edecekse nasıl bir yol izlemesi gerekiyorsa çünkü</p>

	Because the important part of the job is that there should be no loss of information. It is very open to human error because [...] Yes, it is a phase where I am not sure if I am doing it 100% right, especially in in-depth [analysis of in-depth interviews	işin önemli kısmı bilgi kaybı olmaması lazim. İnsan hatasına çok açık çünkü.[...] Evet biraz %100 doğru mu yapıyorum emin değil dediğim bir safha o in-depth de özellikle. Bunu daha ideal nasıl analiz edebilirdik, geliştirilebilir gördüğüm için herhalde bu konuda oturmuş bir şey beklerdim diyebilirim.
P15	We write these codes and common tasks in Figma [in data analysis]. We can work together. Both of us [the researcher with less experience and me] can make changes on the same thing. There are problems of who selected and who did not. On the one hand we open Zoom and on the other hand we are on Figma. The two of us connect from our Figma accounts and say, let's call it like this, let's split it into two codes. Following that,[we are asking] is there anything similar to this in this narrative. Let's add this code under this main heading and so on.	Genelde mesela bu projesinde figmayı kullandık. Figma bu kodları ve co-opları yazıyoruz. Birlikte çalışabiliyoruz. Aynı şey üzerinde ikimizde değişiklik yapabiliyoruz. Orada işte kim seçti kim seçmedi problemleri var. Bir yanda zoom açıyoruz bir yandan figmadayız. İkimiz kendi figma hesabımızdan bağlanıp bunu böyle diyelim, bunu ikiye ayıralım kodu. İşte ondan sonra şöyle bir şey de var bu hikâyeyeyle ilgili. Onla ilgili bu kodu şu ana başlığın altına ekleyelim filan gibi çalışmalar gerçekleştiriyoruz..
5.2.5 Practices related to Communication and Integration of UX Research Results		
P6	It is something that has always been on my mind, and I believe that part of what we do is provide the report, and it is done, and after that is lacking for me. Because I do not have the opportunity to observe what has and has not been passed and delivered to the other party, as well as what improvements have been made in apps and products	Bu benim hep aklımda olan bir şey de bence bizim yaptığımız işin şurada o raporu teslim ettik ve bitti kısmı benim için eksik. Çünkü ben karşı tarafa ne geçti ne geçmedi daha sonra uygulamada ne değişiklikler yapıldı ben bunları gözlemlene şansı bulamıyorum.
P14	I do not have any first-hand experience at present. I mean in [Firm E], but when I compare it to [previous workplace], I feel like I encountered more there. I believe that you conduct research, offer it to the corporate client, and the client continues to do work in the same way. In the position I am presently working in, I have not yet reached the point when I have felt it directly, as if my efforts have been in vain. I arrived to that stage a lot at [previous workplace]; that is, I came to the point of feeling futility and pointlessness of what I was doing.	Şu an birebirde örneğini yaşamadım. Firma E'de yani ama [önceki işyerim] ile karşılaştırırsam en azından daha ölçebileceğim yerde olabilir gibi geliyor.. Sen araştırma yapıyorsun, kurumsala bunu sunuyorsun kurumsal onu yine bildiği şekilde yapıyor diye düşünüyorum. Yani orada şu an benim birebir deneyimlediğim, emeklerim boşa gitti gibi bir kafaya henüz gelemedim şu anki çalıştığım pozisyonda. (önceki işyerim]'de o noktaya çok geldim yani yaptığım işin manasızlığı noktasında çok geldim.

P15	<p>We used to have a position called user experience researcher. Then we realised that it was not very efficient. All designers had to do a certain level of research. [...]. So we found that every single designer has at least a minimum of user research skills. So there is no such thing as a user research team. We aim to bring all user experience designers to a level where they can do user research. P16, for example, is a designer who began as a designer and increased her research abilities through participating in research activities. [...] However, UX designers become project owners that oversee the entire project from start to end. Even if others are participating from start to end, UX designers are in control of the project as an individual.</p>	<p>Bizde kullanıcı deneyimi arařtırmacısı diye bir pozisyon eskiden vardı. Daha sonra onun çok fazla verimli olmadığını gördük. Bütün tasarımcıları belirli bir düzeyde arařtırma yapması da gerekti. [...] Dolayısıyla her bir tasarımcının minimum da olsa kullanıcı arařtırması skiline sahip olduğunu gördük. Dolayısıyla kullanıcı arařtırması ekibi diye bir ekip yok. Kullanıcı deneyimi tasarımcılarının hepsinin kullanıcı arařtırması yapabilecek bir seviyeye çekilmesini hedefliyoruz. P16 da mesela aslında tasarımcı olarak iře başlamıř süreçlerde arařtırma süreçlerine dahil ola ola arařtırma skillerini geliřtirmiř bir tasarımcı.[...] UX tasarımcıları projenin bařından sonuna kadar tüm projeyi denetleyen proje sahipleri haline geliyorlar. Bařkaları katılsa da, projenin kontrolü UX tasarımcılarında oluyor.</p>
P10	<p>Going with metaphors added greater value in [brand X's] circumstance. In this example, we told participants a statement directly and asked them to express the first words that came to mind in reaction to that sentence. This [the process of how I select a research method], maybe a gut feeling, or maybe it's intuitive, like 'if we do this, we'll get the quickest and most value-added result'. It becomes a learned experience after a certain point</p>	<p>řimdi [Marka X] senaryosunda metaforlarla gitmek daha katma deđerliydi. Çünkü orada bir o tarz bir serbest çağrıřım yapsın istedik. Bu senaryodaysa direkt biz onlara bir cümle söylüyorduk o cümleye karřılık akıllarına gelen ilk kelimelerini söylemelerini istedik. Bunlar Hem biraz bilmiyorum gut feeling olabilir belki, hani ya řunu yapsak en hızlı bir řekilde en katma deđerli sonuca ulařabiliriz gibi artık bir noktadan sonra öğrenilmiř bir tecrübe oluyor.</p>
P2	<p>People learn about this field on their own. However, I recognise that there is an issue here. Doing a usability test with your downstairs neighbour could be a good start for a being UX researcher. However, it's not that simple; you need to know stuff, and you really need to know what you're testing before you begin. If you have a hypothesis, anything in your head that you can come up with based on your experience and knowledge, for example, you don't think this button, the download button, is simple to find. For example, you must prepare your test for it, reveal it, and expose your hypothesis in such a manner that you can test it appropriately.</p>	<p>İnsanlar böyle birazcık daha alaylı bir řekilde öğreniyorlar ya bu alanı, ama mesela bunun eksikliğini görüyorum ben yani iře alt komřunla bir usability testing yapıp hani evet kullanıcı arařtırmacısı olmak iyi bir bařlangıç olabilir ama o iře aslında öyle deđer, řeyleri biliyor olmak lazım, gerçekten bir teste bařlarken neyi test ettiğini iyi biliyor olman lazım iře bir hipotezin varsa, aklında bir ön bilgilerinden dolayı ortaya atabileceğin bir řey varsa, iře atıyorum bu düğme, download düğmesinin kolay bulunabilir olduğunu düşünmüyorsun mesela, testinin buna yönelik hazırlaman lazım, onu ortaya çıkarmak için, hipotezini dođru bir</p>

	Therefore, I believe it is critical to approach research from a scientific method standpoint. Making observations, gathering information, developing a theory, testing your hypothesis, and then iterating, [...] you know, one research generally leads to another, being able to comprehend them, and so on, so I believe it's necessary to be a bit more systematic.	şekilde test edeceğin şekilde ortaya çıkarman lazım, o yüzden bilimsel metod bakış açısına sahip olmak önemli bence araştırmacılıkta. İşte şey gözlem yapmak, işte bilgi toplamak, ona göre hipotez oluşturmak, hipotezini test etmek ve işte sonra iterationa girmek [...], onları anlayabilmek falan öyle yani biraz daha metodik gitmek önemli bence.
P2	Before I came, for example, growth hackers [the team that develops strategies for company growth] were doing this [A/B testing] very roughly, very very roughly, they were changing a landing page completely, comparing it with the old one and just looking at which one had the most people signing up and so on. I'm encouraging people to go a bit more methodical, let's change this first, let's evaluate it, not just to say yes, this is more successful, but what was successful there, to learn from it [...] In all my studies, I attempt to apply the scientific process.	Ben gelmeden önce mesela growth hackers bunu çok bodos yapıyormuş, çok bodoslama yani, bi landing sayfası komple değiştiriyorlar, eskisiyle kıyaslıyorlar onu ve sadece en çok hangisinde insan daha çok sign-up oluyor falan diye bakıyorlardı. Ben bunu hani biraz daha metodik gitmek için insanları zorluyorum, önce şunu değiştirelim bir evaluate edelim hani şey sadece evet bu daha başarılı demek değil de orda ne başarılı oldu, oradan bir ders çıkarmak için aslında.[...] Tüm çalışmalarında bilimsel süreci uygulamaya çalışıyorum.
P5	We were already familiar with several procedures at the start of each assignment because we had an academic background. I mean, we were familiar with the literature and so forth. We have already developed a toolkit [method set] out of these, and we have begun to market them as a package. In other words, we inform the consumer that our services are such and such, with such and such benefits, and they pick a method from them. That is how we decide on a method.	Ya şöyle biz akademik kökenli olduğumuz için zaten hani her İşin başında da pek çok metoda hakimdik. Yani literatürü vesairesinde biliyorduk biz zaten bunlardan bir toolkit oluşturduk veya bir süit bunları satmaya başladık yani biz müşteriye bizim hizmetlerimiz şunlar şunlardır bunların şöyle şöyle faydaları vardır gibi anlatıyoruz o içlerinden seçiyor. Yani metodu öyle seçiyoruz.
P4	In other words, rather than missing in design, I lacked in research methodology. So we were definitely doing research, interviews, surveys, etc. but we were doing it in a sufficient and predominantly non-methodical way. Thanks to [her previous workplace], I have learned what these research methodologies are, how to research user experience, how to interview individuals, and what are the distinctions between these studies? I began to discover specifics such as which studies get which findings.	Yani daha çok bu konuda tasarım değil de araştırma yönünde metod konusunda eksiğim vardı. Daha çok tasarım odaklı bir eğitim programımız var dolayısıyla araştırma konusunda mutlaka yapıyorduk görüşmeler anketler vs. ama yeterli ve ağırlıklı oranda çok metodik olmayan şekilde yapıyorduk. [Önceki işyeri] sayesinde aslında bu araştırma metodları nelerdir kullanıcı deneyimi nasıl araştırılır insanlarla nasıl görüşülür, bu çalışmaların farkları nelerdir? Hangi çalışmada hangi

		sonuçları alırsın gibi şeyleri detaylıca öğrenmeye başladım.
P6	If it is a report that only asks for findings or expert opinion, I can handle it on my own, but at the point where a design proposal is needed, I have to pass the ball to my friends a lot. I mean, of course, something comes to my mind, but I don't feel competent to present a full design proposal, so I pass the ball to my friends.”	Sadece bulgu ya da uzman görüşü isteyen bir raporsa ben kendi başıma da halledebilir yorum ama tasarım önerisi istenen noktada çok arkadaşlarımla paslaşmak durumunda kalıyorum. Yani hani o ilk başta bahsettiğim ufak böyle o gözüm oluştu aklıma bir şeyler Tabii ki de geliyor ama bir ful tasarım önerisi sunacak yetkide hissetmiyorum kendimi o yüzden arkadaşlarımla paslaşıyorum.

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PUBLICATIONS

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