SHAPING PRE-PURCHASE CUSTOMER EXPERIENCE IN THE METAVERSE WITH IMMERSIVENESS

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ABSTRACT

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Abstract
This thesis explores how immersiveness can shape pre-purchase customer experiences in the metaverse, a concept increasingly integrated into organizational actions and marketing strategies. Immersive metaverse environments have been shown to positively affect customer shopping experiences and engagement towards the brand. However, the specific effects of immersiveness on customer experience remain underexplored.

To address this research gap, we conducted a qualitative study with semi-structured interviews that included an experiential testing session in a virtual showroom designed for interior design exploration via a VR-headset. The study involved nine Generation Z participants, known for their technological adaptedness and being focal users of the metaverse. An abductive thematic analysis of the data identified nine Experience Factors that influence virtual environment experiences and immersion. Integrating these findings with existing literature, we suggest how immersiveness shapes customer experiences in the metaverse.

A key outcome of this study is a framework for the formation of Immersive Customer Experiences in the pre-purchase stage. This framework addresses the multidimensional nature of both immersiveness and customer experience, analyzing their interconnections. The findings provide practical guidelines for organizations to engage users in the metaverse during their customer journey and offer recommendations for future research in this area.

Key words
Metaverse, Immersion, Customer Experience, Immersive Experience, Immersive Customer Experience, Pre-purchase

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Tiivistelmä
Tässä tutkielmassa tutkitaan, miten immersiivisyydellä (ns. uppoutuminen virtuaalitodellisuuteen) voidaan muovata ostoa edeltävää asiakaskokemusta metaversumissa, joka konseptina yhä useammin sisällytetään organisaation toimintaan ja markkinointistrategioihin. Immersiivisten metaversumi-ympäristöjen on osoitettu vaikuttavan myönteisesti asiakkaiden osto-kokemuksiin ja sitoutumiseen brändiä kohtaan. Immersiivisyyden erityisiä vaikutuksia asiakaskokemukseen ei kuitenkaan ole vielä juurikaan tutkittu.

Tätä tutkimusvajetta täyttääksemme toteutimme laadullisen puoli-strukturoidoidun haastattelututkimuksen, johon sisältyi kokemuksellinen osuus, jossa osallistujat suunnittelivat VR-lasien avulla sisustusta virtuaalisessa näyttelytilassa. Tutkimukseen osallistui yhdeksän Z-sukupolveen kuuluvaa osallistujaa, jotka sukupolvensa edustajina omaavat tunnetusti kykyä sopeutua teknisiin asioihin ja ovat metaversumin keskeisiä käyttäjiä. Aineiston abduktiivisessa temaattisessa analyysissä tunnistettiin yhdeksän kokemustekijää, jotka vaikuttavat immersiivisyyteen ja kokemuksiin virtuaalisissa ympäristöissä. Yhdistämällä nämä tulokset olemassa olevaan kirjallisuuteen ehdotamme, miten immersiivisyys muovaa asiakaskokemuksia metaversumissa.

Tutkimuksen keskeisenä tuloksena on malli, joka kuvaa immersiivisen asiakaskokemuksen muodostamista ostoa edeltävässä vaiheessa. Tämä malli ottaa huomioon sekä immersiivisyyden että asiakaskokemuksen moniulotteisen luonteen ja analysoi niiden keskinäisiä yhteyksiä. Tulokset tarjoavat käytännön ohjeita organisaatioille käyttäjien sitouttamiseksi metaversumissa heidän asiakaspolkunsa aikana. Tarjoamme myös jatkotutkimusehdotuksia aiheen tulevaa tutkimusta varten.

Asiasanat
metaversumi, immersiivisyys, asiakaskokemus, immersiivinen kokemus, immersiivinen asiakaskokemus, ostoa edeltävä vaihe

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1 INTRODUCTION

The so-called digital revolution has transformed customer experience for the last 20 years. Especially since new forms of communication, interaction, and transaction have taken place through the internet, also new ways of commercial use opportunities for technologies have appeared. (Hoyer, Kroschke, Schmitt, Kraume & Shankar, 2020, p. 58) The use of mobile devices and social media are starting to be a norm, but the next step of the digital revolution has been suggested to be happening (Schmitt, 2019, p. 825). In this next phase, digital information will be used to enhance the physical world, and various technologies are going to bring new elements into consumers' lives (Schmitt, 2019, p. 825) and add value into their customer experiences (Flavián, Ibáñez-Sánchez & Orús, 2019, p. 10). This is happening through, among others, the concept of metaverse.

When thinking of the metaverse one might first think only of gaming platforms like Fortnite, Roblox, or Second Life, but the metaverse is also much more. Overall, the concept is continuously getting more and more known among people as well as a part of companies' operations across various industries, not only gaming (Ravenscraft, 2023). One of the most known launches regarding the metaverse occurred when, in October 2021, Facebook announced their rebranding to Meta, whose primary mission is to make the metaverse a reality while helping people connect, find communities, and help businesses grow (Meta, 2021). This raised awareness of the metaverse and more attention was focused on it at the time. The CEO of Meta, Mark Zuckerberg, has future visions like the digital world really blending into the world around us, as well as the metaverse enabling the building of real human connections regardless of physical locations (Krietzberg, 2023; Martins, 2023), which is in line with academic research's anticipations (e.g. Kim, 2021; Hadi, Melumad & Park, 2023; Dionisio, III, Gilbert, 2013; Giang Barrera & Shah, 2023). In fact, the number of users of the metaverse is predicted to reach 2,633.0 million users by 2030. Also, the metaverse market is estimated to reach a value of US$74.4 billion in 2024. (Statistica, 2024.)

Even if the metaverse has drawn a lot of attention, it still remains academically rather unexplored in many parts, and there still doesn't exist an established definition for the metaverse (Dwivedi, Hughes, Baabdullah, Ribeiro-Navarrete, Giannakis, Al-Debei, . . . Wamba, 2022, p. 2). There are many different visions of what the metaverse will look like in the future, and how the metaverse is structured. This is why, in this thesis, we will look at recent literature of the metaverse in order to come up with a base for the study of customer experience in metaversal environments. However, even if the metaverse research is still in its initial phase, it has already been suggested that the immersive environments within the metaverse have the potential to affect a customer's shopping experience and the probability to conduct a purchase (Dogadkina, 2022). The

metaverse can offer a platform to create virtual communities, and more immersive, personalized, engaging, and interactive experiences (Kumar, Shankar, Behl, Gupta & Mavuri, 2023, p. 2; Mladenović, Ismagilova, Filieri & Dwivedi, 2023, p. 4-5; Sun, Wang, Yan & Han, 2023, p. 1128). Immersiveness has been described as a users' ability to "immerse" themselves into the actions on the virtual platform rather than paying attention to the world around them (Han, Bergs & Moohause, 2022, p. 1448). It has also been noted to lead to more persistent mental and emotional effects by strengthening engagement on mental, physical, and emotional levels (Han, Melissen & Haggis-Burridge, 2024, p. 14), which highlights the possibilities of immersiveness to provide better experiences. It can also create new types of engaging experiences (Richter and Richter, 2023, p. 7), that provide new kinds of opportunities for organizations to engage their target audiences. These notions shed light to the potential impact of immersiveness on the customer experience in the metaverse.

Even if immersion is an element that occurs in the majority of literature regarding the metaverse and experiences in virtual worlds, very little research has been focusing on the role of immersion on customer experience during the customer journey. In order to gain better understanding about the role of immersion in the field of customer experience, this thesis focuses on finding out how immersiveness can shape the customer experience in the pre-purchase stage, focusing especially on the metaverse. Due to the engaging nature of immersion, the pre-purchase stage is optimal to find out how immersiveness affects the customer experience, as it is the stage where providing customers with valuable and interesting information is central (Lassila, Heikka & Nätti, 2023, p. 69) and which has been suggested to cover every part of the customer's interaction with the brand (Lemon & Verhoef, 2016, p. 76). In addition, we aim to explain how an Immersive Customer Experience is formed, in order to better showcase the influence of immersiveness on customer experience in metaversal environments. Our research questions for our study are the following:

RQ1: How is an Immersive Customer Experience formed in the pre-purchase stage?

RQ2: In what ways can immersiveness shape the customer experience in the metaverse during the pre-purchase stage?

To study customer experience in the pre-purchase stage in metaversal environments, we will be conducting qualitative research with semi-structured interviews including an experiential test use of a virtual showroom as our study methods. The study will be conducted for representatives of Generation Z, people born between 1995 and 2010 (Zhang, Quoquab & Mohammad, 2024, p. 305). As this generation is very comfortable with technology (Ayuni, 2019, p. 167), willing to adopt new platforms, and able to get the hang of complicated virtual environments (Han et al., 2024, p. 14), comprehending their actions is valuable

for understanding consumer behavior, preferences, and expectations in shaping the metaverse (Kaur et al., p. 5). Gen Z is even seen to be the ones to determine the future of the metaverse (Kaur, Mogaji, Paliwal, Jha, Agarwal & Mogaji, 2023, p. 5) due to their advanced touch to technology and virtual platforms (Ayuni, 2019, p. 167; Han et al., 2024, p. 14; Park & Kim, 2022, p. 4212; Kaur et al., 2023, p. 5). Eventually, we conducted nine interviews. The collected data was analyzed utilizing thematic analysis methods. From the data, nine themes were identified and further formed into nine different Experience Factors that have an impact on the formation of the user's experience in a virtual environment either positively or negatively. By combining these factors with theory, we were able to discover how an Immersive Customer Experience is formed in a virtual environment. Understanding how this experience is formed, we offer guidelines that can help organizations in providing such experience for users. The findings of the study also result in various future research recommendations that would broaden the understanding of the concept.

This master's thesis is structured as follows. In chapter 2 we will be diving into the concept of the metaverse as a whole by studying the metaverse definitions, analyzing its core dimensions, main applications and providing other necessary information for understanding the topic. This is followed by the presentation of the concept of customer experience and immersive experience framework in chapter 3. The methods for studying the research question are provided in chapter 4. While chapter 5 will present the results and analysis, chapter 6 will reflect these. Finally, chapter 7 includes the conclusions, implications, limitations, and further research opportunities of the study.

Artificial Intelligence has been used in the making of this thesis. We have utilized ChatGPT to gather ideas of how to phrase some of our ideas in a more academic way, but the text has always been modified totally to fit the whole of our thesis. Also, ChatGPT has been used to gain thoughts of how to construct some chapters in a coherent way and provide more advanced interpretations.

2 THE METAVERSE

First, to build a base for understanding the area and environment of this study, the concept of metaverse will be explained and explored. The chapter starts from the general idea of the metaverse and then presents the key characteristics by an analysis of different dimensions and definitions presented by literature. Next, the chapter focuses on identifying the key technologies central for the metaverse. Finally, the chapter presents the use cases of the metaverse that are the most relevant for this study.

2.1 The Concept of the Metaverse

While trying to understand the meaning of the metaverse or the future role of it, one may encounter divergent definitions and prospects across literature and industry reports. Although a comprehensive and commonly accepted definition of the metaverse does not yet exist (Dwivedi, Hughes, Baabdullah, Ribeiro-Navarrete, Giannakis, Al-Debei, . . . Wamba, 2022, p. 2), do scholars and practitioners agree on some fundamental points.

The metaverse was first coined in Neal Stephenson's (1992) science fiction novel *Snow Crash* as a parallel virtual reality universe that can be accessed through goggles and earphones (Mystakidis, 2022, p. 7). Although the metaverse didn't exist at that time (Dwivedi, Hughes, Wang, Alalwan, Ahn, Balakrishnan, . . . Wirtz, 2023, p. 751), this presentation is quite similar to how the concept is known today. Since the publication of *Snow Crash*, the metaverse and overall the concept of virtual reality worlds have been studied continuously more in different fields. The word *metaverse* is a blend of the words "meta", which means "beyond", and the suffix "verse", that comes from "universe". This being said, the word metaverse itself states for a universe beyond the physical world. (Dionisio & Gilbert, 2013, p. 6-7) This can be viewed as a simplified version of the metaverse's definition, which is conducted forward in definitions provided by literature.

In an Encyclopedia, Mystakidis (2022, p. 1) explained the metaverse as a post-reality universe that merges physical and digital realities while creating a web of social and immersive environments. It enables real-time, immersive interactions with other users, but also with virtual environments and digital objects, by the use of different technologies such as virtual reality (VR) and augmented reality (AR). (Mystakidis, 2022, p. 1) Also others have suggested that 3D technologies such as VR and AR are a crucial part of interacting in the metaverse (Duan, Li, Fan & Lin, 2021, p. 156; Ahn, Kim & Kim, 2022, p. 593). Other commonly accepted components are for example avatars (digital

representations of the users), particular financial systems (cryptocurrencies), and objects located in the metaverse (Ahn et al., 2022, p. 593; Yoo, Welden, Hewett & Haenlein, 2023, p. 178). These are further presented and discussed in the following sub chapters 2.3.1-2.3.8.

Some of the fundamental differences within research occur already at the base level of definitions and conceptualizations, as some scholars define the metaverse as a structure, while some as a concept (Ahn et al., 2022, p. 593). There is also ambiguity whether the metaverse is a single virtual world/environment, or if it consists of multiple virtual worlds/environments (Kim, 2021, p. 142). Lately the academic consensus of the metaverse has shifted from a narrow perspective to a broader one (Giang Barrera & Shah, 2023, p. 15), as the metaverse is nowadays usually seen as an interoperable network of virtual and mixed reality entities (Kim, 2021, p. 142; Hadi et al., 2023, p. 29; Dionisio et al., 2013, p. 2; Giang Barrera & Shah, 2023, p. 6, 15). In order to understand the current stage of the metaverse better, Yoo et al. (2023, p. 179) proposed the concept of transitory metaverse. This concept aims to answer the ongoing challenges related to some elements that still need improvement for a generalized concept of the metaverse. It also recognizes the potential obstacle of expensive equipment needed to access the metaverse. Practically, transitory metaverses help users get familiar with the interaction methods specific to the metaverse, while some technological developments are still made to the aspects of the metaverse such as blockchain and virtual reality. (Yoo et al., 2023, p. 179.)

Despite varying scholarly perspectives, a shift towards viewing the metaverse as an interoperable network of virtual entities is noted. All in all, different characteristics and technologies have an important role in shaping the immersive and social environments within the metaverse. While some metaversal experiences can be very realistic (such as metaverses based on digital twins), in others, only the imagination of creators and users are the limit to the experience's nature (Hadi et al., 2023, p. 3). Thus, it is important to note what kind of metaverse is being explored, as the main elements related to it can vary based on its nature and purpose. Next, we will focus on identifying the key characteristics that are central to the metaverse, which will aid in understanding the overall environment of the metaverse.

2.2 Key Characteristics

In order to understand the key characteristics of the metaverse, we analyzed different dimensions and definitions presented by literature. As the metaverse hasn't yet obtained an overall agreed definition, we chose to look at four recently published articles that contained a different division of the metaverse's dimensions and a definition of the term. The four different definitions of the

metaverse and the dimension-divisions presented by the articles in question are presented in Table 1.

TABLE 1 Definitions of the metaverse

Authors	Dimensions	Article's definition of the metaverse
Giang Barrera & Shah, 2023	1. Immersive 2. Environmental fidelity 3. Sociability	"We formally define the metaverse as a technology-mediated network of scalable and potentially interoperable extended reality environments merging the physical and virtual realities to provide experiences characterized by their level of immersiveness, environmental fidelity, and sociability." (p. 6)
Hadi, Melumad & Park, 2023	1. Digitally mediated 2. Spatial 3. Immersive 4. Shared 5. Real-time.	"We define the Metaverse as a network of digitally mediated spaces that immerse users in shared, real-time experiences." (p. 2)
Richter & Richter, 2023	1. Immersiveness 2. Social networking 3. Persistence 4. Interoperability.	"An incremental innovation of multiple technologies maturing simultaneously to create an immersive and engaging user experience." (p. 2)
Yoo, Welden, Hewett & Haenlein, 2023	1. Online collaboration 2. High consumer immersion 3. Unique digital assets 4. Digital personas.	"We define the metaverse as an online collaborative shared space built of 3D environments that leverage high consumer immersion techniques to reduce the perception of technological mediation alongside transferrable and unique digital assets while allowing user-generated digital personas to interact with each other." (p. 174, 177)

The main characteristics relevant to explain the multidimensionality of the metaverse regarding our study are immersiveness, interactivity, digitally mediated nature, interoperability, and environmental fidelity. The relevance of dimensions may depend on the type of the metaverse, which supports our choice of central characteristics.

Immersiveness

According to Han and others (2022, p. 1448), immersiveness describes the state to which the user is able to "immerse" themselves into the actions on the virtual platform rather than paying attention to the world around them. Hadi and others (2023) suggest that immersiveness can be built with visual, auditory, and haptic properties that support the impression of being present in the metaversal space. They also propose that the use of avatars supports the user's ability to immerse

themselves into the digitized space, as avatars symbolize the person's presence in the metaverse (Hadi et al., 2023, p. 3-4.). The level of immersion has also been connected to the technological choices of the virtual environment, as the technological matters can either support or challenge the feeling of authenticity of the environment (Han et al., 2022, p. 1448; Giang Barrera & Shah, 2023, p.9). Immersiveness was noted as a dimension in all of the analyzed divisions (Giang Barrera & Shah, 2023; Hadi et al., 2023; Richter & Richter, 2023; Yoo et al., 2023) and can thus be seen as a central characteristic of the metaverse.

Interactivity

Interaction arises in definitions and dimension-divisions in various ways, but it for sure is a pivotal characteristic of the metaverse. The main differences between the various approaches of interactivity within the metaverse depend on it being rather only interaction between users (Yoo et al., 2023, p. 180) or also interaction with the technology and through it (Hadi et al., 2023, p. 2.). For instance, Yoo et al. (2023) specifically highlight the role of digital personas (so called avatars) in interaction. They state that the immersive nature and online collaboration go hand in hand: in the metaverse, people with similar interests are able to group together easily for joined actions, which further intensifies the interaction and shared experiences on the platform, leading to higher level of immersion (Yoo et al., 2023, p. 180). Similarly, Giang Barrera & Shah (2023) identified sociability as a central dimension of the metaverse, which refers to the environment's ability to promote and improve social presence on the platform (Giang Barrera & Shah, 2023, p.10). Sociability is also connected to the ability to facilitate collaborative interaction among users (Kim, Lee, & Chung, 2023, p. 1-2), which may further support sharing and co-creating on the platform (Giang Barrera & Shah, 2023, p. 9). These align with the concept of social networking identified by Richter and Richter (2023, p. 7), which stands for the level of social engagement and forming reachable communities within the digital space in question. Social networking emphasizes immersive and meaningful interactions, and there are multiple different ways to conduct social experiences in the metaverse and virtual environments. (Richter & Richter, 2023, p. 7) Such experiences can be for example multiplayer games or virtual social events.

Hadi et al. (2023) didn't specifically raise interaction as a dimension, but they did raise interaction through the dimension of being digitally mediated, as they explained mediation through the context of consumer experiences as follows: "Mediation in this context implies that consumers interact both through the technology (i.e., utilizing the platform as a channel to interact with other users) and with the technology (i.e., interacting with the digitally created content itself; Hoffman & Novak, 1996).". (Hadi et al., 2023, p. 2)

This being said, when users are using the metaverse, the technology is in the center of the interaction. Similarly, Huang, Qiao, Wang, Su, Dustdar, & Zhang (2022, p. 2) explained interactivity in the metaverse as interaction that happens

through the avatar but can be either with other avatars or with the metaverse environments themselves (for example through giving feedback or conducting interaction tasks).

Digitally mediated nature

The central role of technologies was noted among the definitions or dim of all of the articles in some ways. In the definition by Giang Barrera & Shah (2023) the metaverse was described clearly as a technology-mediated network. The dimension of being digitally mediated arose in the article by Hadi et al. (2023, p. 2). According to Hadi et al. (2023, p. 2) the mediation refers to users interacting through and with different technologies in the metaverse. They noted that digital technology stands in an important place in producing and channelling metaversal experiences. (Hadi et al., 2023, p. 2-3) Richter & Richter (2023) in fact stated the metaverse to consist of multiple technologies that are creating the customer experience (Richter & Richter, 2023, p. 2). Yoo et al. (2023, p. 174, 177) referred to the metaverse as an online collaborative shared space, which states that interaction is conducted by creating homogenous communities by the help of various technologies. In their definition, they also state that the immersion techniques used in the metaverse aim to reduce the perception of technological mediation. This states that they also view the metaverse as a technologically mediated network. (Yoo et al., 2023, p. 177) This same note is also generally agreed among metaverse researchers and practitioners (Giang Barrera & Shah, 2023, 6). Richter and Richter (2023, p. 3) even highlight that the advanced technology used in the metaverse is the key component in enabling the highly immersive and engaging user experience. All in all, it is clear that the role of technologies and the digital nature are at the core of the metaverse, which is why we note being digitally mediated as one main characteristic of the metaverse.

Interoperability

Richter and Richter (2023) presented that a notable difference between traditional virtual platforms and the metaverse is the interoperability: the level to which a virtual environment allows users to enter and experience itself across different virtual worlds and platforms. They also point out that the creations, social interactions and relationships originated in the metaverse are persistent: they can be saved and returned to even after leaving the virtual environment. (Richter & Richter, 2023, p. 4-6.) Even if interoperability was noted as a dimension only by Richter & Richter (2023), Giang Barrera and Shah (2023) also discussed the metaverse as "... potentially interoperable extended reality environments merging the physical and virtual realities …". All in all, interoperability aims to make the user experience more immersive, accessible and seamless between different virtual worlds (Huynh-The, Gadekallu, Wang, Yenduri, Ranaweera, Pham ... & Liyanage, 2023, p. 409). However, as stated before, there still exist

some differences among literature of what the metaverse is and how it is formed (Kim, 2021, p. 142). Therefore, as interoperability refers to the metaverse more as a single virtual environment that allows users to enter different virtual worlds (Richter & Richter, 2023, p. 4-6.), it can't be straightforwardly seen as a part of the metaverse. Still interoperability does provide some relevant information on how the technological aspects of the metaverse could one day be formed.

Environmental fidelity

While the metaverse is seen to merge physical and digital realities (Mystakidis, 2022, p. 1), the dimension of environmental fidelity by Giang Barrera and Shah (2023, p. 11) refers to the degree of how well the digital experience in the metaverse resembles experiences in real life (Han et al., 2022, p. 1448), both physically and functionally. According to Giang Barrera and Shah (2023, p. 11), environmental fidelity may reflect both individuals and/or their surroundings' contextual factors. They also suggested (2023, p. 11) that especially regarding the marketing actions in the metaverse, it is important to understand the user's goals in order to provide them with the right type of metaverse experience, such as either a real-life-like experience or an experimental fantasy world. (Giang Barrera & Shah, 2023, p. 11.)

2.3 Key Enabling Technologies

By laying focus on the enabling technologies and critical concepts, it is possible to build a more comprehensive picture of the metaverse's dimensions and its implications. Metaverse utilizes multiple supporting technologies that can either act as enabling technological aspects or as tools that make it possible to enter the metaverse. For example, Giang Barrera and Shah (2023, p. 9) have identified the next building blocks as critical parts of the metaverse: networks, computing, 3D modeling, Internet of Things, Artificial intelligence, blockchains, extended reality and interface devices. In this subchapter the most relevant parts in the scope of this study are explained. These enabling technologies can be seen as relevant conductors to the formation of immersive virtual experiences in the metaverse.

2.3.1 Extended Reality

To form an understanding of how the metaverse exists, it is vital to understand the concept of extended reality (XR). Extended reality has a crucial role in defining the Metaverse environment (Giang Barrera & Shah, p. 5), as it acts as a bridge between virtual objects and environments and the physical world (Lee, Braud, Zhou, Wang, Xu, Lin, . . . Pan, 2021, p. 6). In short, extended reality is used to describe ways of combining and connecting virtual and physical realities

together in a way that enables interaction between them (Dwivedi et al., 2022, p. 34). Extended reality includes the use of virtual reality (VR), mixed reality (MR) and augmented reality (AR) as a way to access and locate in the virtual environment through various technologies (Lee et al., 2021, p. 45). These technologies support high user interaction and immersion (Dwivedi et al., 2022, p. 2). At the moment the most used ways to access the metaverse are internet browsers, smartphones and VR sets (Mladenović et al., 2023, p. 2).

As stated before, VR sets act as a gateway to virtual worlds, as virtual reality makes it possible for users to be and interact with other objects in fully virtual environments (Lee et al., 2021, p. 6). The most typical applications of VR are VR-glasses or headsets, that are used to replace users' own and realistic visual cues with a virtual alternative, which leads to an immersive experience (Dwivedi et. al, 2022, p. 4). In addition, the VR tools can be used to collect user data, such as information about eye movement and gestures (Hadi et al., 2023, p. 17).

According to Lee and others (2021, p. 7), on the contrary to virtual reality, augmented reality (AR) focuses on enhancing the users' physical environment rather than creating an alternative option for it in a virtual sense. Currently the AR systems offer visual improvements or overlays into the actual physical surroundings, forming alternated experiences (Lee et al., 2021, p. 7). The technique can for example utilize the user's camera and through that capture details of one's surroundings (Hadi et al., 2023, p. 17). An example of AR's widely recognized, and arguably most successful implementations has been Pokemon Go, which utilized the technology and gained a wide popularity among the world (Tolani, 2023). Lee and others (2021, p. 7) propose that AR technology will be a vital element when combining the physical environment to virtual counterparts originating from and in the metaverse.

In between AR and VR, stands the concept of mixed reality (MR). Mixed reality has been seen as the starting point for the metaverse, as it allows users to interact with virtual particles in physical surroundings. MR applications have been suggested to work in both, real and virtual environments combining them seamlessly. (Lee et al., 2021, p.7.) This being said, Lee and others (2021, p. 6, 46) suggest that in the future, with the help of these immersive technologies, the physical world will be closely integrated with the metaverse.

2.3.2 Artificial Intelligence

Artificial intelligence (AI) is an extensive concept that has gained attention during the last years. According to Lee and others (2021, p. 14) its implications include representation, reasoning, and data mining. One of the most common AI technologies is machine learning, which gives machines the ability to learn and improve their performance based on knowledge gained from experience (Lee et al., 2021, p. 14). In the metaverse, AI is used especially in creating digital twins for existing entities (Giang Barrera & Shah, 2023, p. 5; Lee et al., 2021, p. 14) and

in creating AI-based avatars for different purposes (Hadi et al., 2023, p. 9-10; Lee et al., 2021, p. 14-15). In the metaverse, users may interact with objects and characters powered by AI. However, differences between how humans perceive AI in the metaverse compared to the real world have been noted. In the metaverse, users are less likely to expect the environment to look like reality and are therefore more open to communicating with AI entities. Whereas in the real world, AI is more detectable and feels more synthetic. (Hadi et al., 2023, p. 10.) Thus, in the metaverse, AI can be seen as a more easily approachable concept which can therefore act for example as an effective and personalized way to communicate with users.

2.3.3 Digital Twins

The term digital twin is used to describe the virtual copies of their physically existing counterparts (Lee et al., 2021, p.13; Dwivedi et al., 2022, p. 22), such as manufactures, stores or vehicles. Digital twins are argued to become a fundamental part of the metaverse, as they include a bond between the virtual and physical world through the versions (Ahn et al., 2022, p. 599). Thus, digital twins can also exist only in the virtual environment as copies (Lee et al, 2021, p. 2). The creation process of digital twins is highly powered by AI, as it has the ability to replicate real word's actions into the virtual counterpart (Giang Barrera & Shah., 2023, p. 5). At the moment, digital twins are utilized especially in the manufacturing sector with the aim to simulate and explore production procedures (Giang Barrera & Shah, 2023, p. 5). Digital twins also have the potential to be used in mapping consumer behavior, as users' actions in the virtual versions can be used to encourage certain actions in the physical world (Ahn et al., 2022, p. 600). The logic also applies to risk management purposes: digital twins can be used to collect information of risks in the metaverse and further utilized to predict, avoid and manage possible risks in the physical world (Huang et al., 2022, p. 2). Counterwise, digital twins can also be used as a tool to map physical counterparts' actions: for example, Tesla creates a digital twin for each of their vehicles, which allows them to map the driver's preferences and thus offer better and personalized service (Ahn et al., 2022, p. 599).

2.3.4 Avatars

The role of digital personas, so called avatars, is seen as a central part of the metaverse by various literature (Park & Kim, 2023, p. 2-3; Hennig-Thurau, Aliman, Herting, Cziehso, Linder & Kübler, 2023, p. 890; Yoo et al., 2023) as interaction in the metaverse is usually conducted through them. Avatars are digitized representations of self (Yoo et al., 2023) that are used to interact with other users (Park & Kim, 2023, p.2) and express themselves. The process of avatar creation is quite unlimited, which means that the digital personas are highly

customizable and may either be realistic or fantasized versions of the users (Yoo et al., 2023, p. 178; Park & Kim, 2023, p. 4). Zhang, Deldari, Lu, Yao and Zhao (2022, p.2) propose that customization of the avatars enables users to create and continuously use any of their preferred characters in a virtual environment. Park and Kim (2023, p. 11) found that users experience deeper connection to their avatars, when they are designed to portray their ideal selves, instead of their real selves. Furthermore, they propose that this feeling of similarity between the user and their avatar further increases the user's immersion. (Park & Kim, 2023, p. 11.) The use of avatars has also been connected to deeper experience of immersion while in the metaverse (Park & Kim, 2023, p.2; Zhang et al., 2022, p.2). It should be noted that avatars are not only outlets to convey human behavior, as they can be created and used by AI-technologies for example for customer service purposes (Yoo et al., 2023, p. 178).

Yoo et al. (2023) was the only article analyzed that stated digital personas or so-called avatars as a dimension and as a part of their definition. However, the use of avatars in the metaverse has been highly noted by other literature. For example, Kim (2021, p. 142) provided the following working definition for the metaverse that constructed of the commonly appeared attributes in various metaverse definitions, describing the metaverse as "*an interoperated persistent network of shared virtual environments where people can interact synchronously through their avatars with other agents and objects*." The use of avatars is also highly noted in more recent literature (Park & Kim, 2023, p. 2-3; Hennig-Thurau et al., 2023, p. 890; Yoo et al., p. 2023). Park & Kim (2023, p. 2-3) indeed presented that the key element of the metaverse remaining throughout different definitions is interaction among users that is conducted through extended selves, avatars. Thus, we can note that even if avatars aren't included in the dimension divisions of other articles than Yoo et al. (2023), they are still an important part of the metaverse. Even so, literature has remarked that the use of avatars supports the user's ability to immerse themselves into the digital experience (Hadi et al., 2023, p. 3-4; Cheng, Wu, Varvello, Chen & Han, 2022, p. 505), as they can be seen as symbolizing the person's presence in the metaverse (Hadi et al., 2023, p. 3-4). However, this may not be the case for all kinds of metaverses, as for example in the industrial metaverse, avatars may have a little to no role due to the nature of the environment.

2.3.5 Blockchain and NFT's

In the metaverse everything is digitized, which creates a challenge for data storing. The answer for connecting all the data and information in the metaverse is expected to be the blockchain technology (Lee et al., 2021, p. 16). In short, a blockchain serves as a secure, decentralized digital ledger for recording

transactions within a sharing economy (Yoo et al., 2023, p. 178). The safety of the technology rises from the specific structure: in the system new data always creates a block, which is then connected to previous blocks that are linked in chronological order. In the system each user locally holds synchronized data and records of the chained blockchain, which enables spotting mistakes and errors if they occur. (Lee et al., 2021, p 16). This validative consensus history works as a network that confirms new transactions, which increases the safety and accuracy of transactions (Yoo et al., 2023, p. 178). In the metaverse, ownership is assigned and recorded through the blockchain technology (Hadi et al., 2023, p. 10).

Blockchains have the ability to hold information of both fungible (the value is transferable) and non-fungible (=stores unique information) tokens (Hadi et al., 2023, p. 10). Perhaps the best-known application of blockchain technology is cryptocurrencies, such as Bitcoin. Cryptocurrencies are an example of fungible tokens. In the metaverse, products are commonly represented as non-fungible tokens (NFTs), each bearing a unique identification code that sets them apart from duplicates, which ensures the safe and distinct representation of digital assets (Yoo et al., 2023, p. 178; Hadi et al., 2023, p. 10). In practice, NFT's can be seen as certificates of important and unique data and ownership of a specific digital good (Hadi et al., 2023, p. 10). Yoo et al. (2023) also see that the unique digital assets enable consumers to form connections with the goods and services on emotional and cognitive levels, which occasionally leads to higher value and allure over time. This can happen through better self-expression: users can purchase digital assets and use them to express their personal style and character. (Yoo et al. 2023, p. 178-180.) These types of NFT's are a notable part of for example gaming platforms (Yang, Zhao, Huang, Xiong, Kang & Zheng, 2022, p. 3-4), but perhaps not for example for the issues of industrial metaverse (defined in more detail in chapter 2.4.1), where the main focus is on replicating industrial elements and providing simulations of the real world (Kumar et al., 2023).

2.3.6 Immersive Communications

These earlier discussed enabling and advanced technologies are crucial for the metaverse, as creating realistic user experiences and providing rich activities would not be possible without them (Zhao, Jiang, Chen, Liu, Yang, Xue & Chen, 2022, p. 56). One practical example of the use of these technologies is immersive communication, which can be described as a collection of ways to utilize XR and other technologies in order to create immersive experiences (Zhao et al., 2022, p. 56; Punpeng and Yodnane 2023, p.5; Shen, Gao, Li, Zhou, Hu, He & Zhuang, 2023, p. 2) and shape media functions within the metaverse (Punpeng and Yodnane 2023, p.5 ; Shen et al., 2023, p. 2). Current research suggests that immersive communications will shape people's everyday lives (Punpeng and

Yodnane, 2023, p. 5) by affecting how people communicate, work, study and entertain themselves in the future (Shen et al., 2023, p. 2).

Shen and others (2023, p. 5) describe immersive communications as a communication model ("paradigm") that offer users lifelike experiences in physical and virtual environments, through 3D audio visually and/or haptically mediated information exchange. Punpeng and Yodnane (2023, p. 5) propose that from the perspective of immersive communication, a user's sense of immersion is connected to "the disappearance of boundaries and subsequent freedom to move between or exist simultaneously in two or more environments." This can happen by offering the user an alternative perspective on space, time and participants, within the environment they exist in (Punpeng and Yodnane, 2023, p. 5). The most typical forms of immersive communication are XR, haptic communication and holographics (Shen et al., 2023, p. 5-6). Zhao et al. (2022, p. 56) also note that when reviewed from a visual perspective, immersive communication can be studied from the scopes of 3D construction of environments, non-player characters (NPC's) and avatars (player characters). Thus, immersive communications can be seen as a way to support interoperability, and to help bridging the physical and virtual realities (Shen et al., 2023, p.1).

As explained before, XR offers ways to combine and connect virtual and physical realities together in a way that enables interaction between them (Dwivedi et al., 2022, p. 34). According to Punpend and Yodnane (2023, p. 5) and Shen and others. (2023, p. 6), this happens through merging sensory information with virtual elements created with AR or VR technologies. By using either headsets or portable display devices, users can interact with avatars and virtual content in these artificially created sceneries (Punpeng and Yodnane, 2023, p. 5.), which enables immersive experiences (Shen et al., 2023, p. 6).

According to Steinbach, Hirche, Ernst, Brandi, Chaudhari, Kammerl and Vittorias (2012, p. 937), haptic communication supports achieving a truly immersive level of communication, by offering a supplementary element for telepresence. Haptic information conveys the sense of touch in interactions (Shen et al., 2023, p. 9), which further connects the environment with human haptic perception (Steinbach et al., 2012, p. 940). The sensations can be conveyed for example through offering the feel of materials, temperatures, shapes and the experience of surface's elements: stickiness, smoothness and friction (Zhao et al., 2022, p. 61). Most often the haptic feedback is transmitted through the users' fingertips either as sensations or with vibration (Zhao et al. 2022, p. 63). As a practical example, XR devices, such as gloves equipped with haptic sensors, may use haptic feedback to mimic motions of a virtual game to players' sensations or to enable in-person interactions, such as handshakes (Shen et al., 2023, p. 3, 5).

According to Shen and others (2023, p. 12) the third subpart of immersive communication, meaning holographic communication, consists of content made visible by an autostereoscopic 3D display and which can be seen without any

additional wearables. Holography enables showing real time or recorded 3D images in three-dimensional form for the receiver (Shen et al., 2023, p. 12). One practical example of the use of holographics is teleconferencing, which enables participants to join the event from different locations. (Shen ym., 2023, p. 13). Conveying information through holographic technology requires capability to transmit large data amounts effectively (Shen ym., 2023, p. 19), which still sets challenges for wider use of this technology.

2.4 Metaverse Applications

As Dwivedi and others (2023, p. 753) noted, the metaverse has already been studied in multiple disciplines such as Information Technology, Marketing, Tourism and Hospitality, and Education. In fact, the metaverse already has many practical implementations in various fields, and it has been said that the metaverse can transform the way we live, interact, and work (Raad & Rashid, 2023, p. 2) by incorporating technologies more and more into our activities. A review of metaverse applications by Raad and Rashid (2023, p. 3-4) stated that even if gaming and social networking sites are the most commonly mentioned applications of the metaverse, there already exist many other promising use cases that can bring out the metaverse's potential. They mentioned for example utilizing metaverse at the workplace, shopping, entertainment, tourism, healthcare, military, real estate, education, intimate relationships, and manufacturing, training and occupational safety. (Raad & Rashid, 2023, p. 3-7.) Also, Dwivedi and others (2022, p. 7) agreed with most of these applications, but had divided them into two classes based on their nature. If the metaverse application could help in conducting some tasks they were divided into the group of "metaverse as a tool" and if the application was considered as a tool that reflects the real world it was grouped as "metaverse as a target". Offices, education, healthcare, and social life were considered as tools, whereas games, role playing, real estate, and business as targets. (Dwivedi et al., 2022, p. 6-7.) The metaverse has also been classified into three categories by its different applications: the consumer metaverse, the enterprise metaverse, and the industrial metaverse. Different concrete applications are grouped under these categories by for example their focus, use cases, and goals. (Kshetri, 2023, p. 84; Kshetri & Dwivedi, 2023, p. 2; Kumar et al., 2023, p. 2) Next, we will focus on explaining the metaverse applications through these three categories and providing more in-depth analysis on a few applications relevant to our study.

2.4.1 Industrial Metaverse

The industrial metaverse is seen to focus on replicating, among others, real machines, factories, urban areas, transportation systems, supply chains, and other processes in virtual worlds to help with issues of the real world. These replicas are used to find, analyze and fix real world problems within a shorter time than would be possible otherwise. (Kshetri, 2023, p. 84; Kshetri & Dwivedi, 2023, p. 2.) The industrial metaverse utilizes metaverse-related technologies especially XR, 3D-modeling (digital twins), and data perception technology in the IoT (Lyu & Fridenfalk, 2023, p. 1-2). The metaverse holds much potential, and in the light of statistics, it is seen that organizations hold a positive attitude towards the growing market of the industrial metaverse (Kumar ym., 2023, p. 2). Also, the global technology intelligence firm ABI Research's estimated that the size of the industrial metaverse market will be $100 billion by 2023. This is bigger than the enterprise metaverse ($30 billion) or consumer metaverse ($50 billion) combined. (Lawton, 2022) Other estimates have rated the industrial metaverse's market even higher (Kshetri, 2023, p. 85).

Regardless of the potential (Lyu & Fridenfalk, 2023, p. 1-2), the industrial metaverse hasn't yet been highly examined by literature (Kumar et al., 2023, p. 4). However, there already exist many promising applications of the industrial metaverse. The applications that involve digital twins and simulations are usually considered as parts of the industrial metaverse (Kshetri & Dwivedi, 2023, p. 2). For example, the industry, infrastructure, transport, and healthcare focused technology company Siemens has created a digital twin of a factory, which helped optimize the building of the factory, and detect and reduce problems early in the process. With the help of the digital twin, they were able to save a significant number of resources and time. (Siemens, 2024.)

2.4.2 Enterprise Metaverse

The enterprise metaverse is focused on the key aspects of an organization, aiming to revolutionize working in virtual environments by for example optimizing experiences and decision-making (Kshetri & Dwivedi, 2023, p. 2; Kumar et al., 2023, p. 2). It can be focused in either internal processes (such as human resources) or external processes (such as product development or marketing) by the use of metaverse tools and techniques. The enterprise metaverse within external processes can help reduce the gap between the real-world and virtual experiences and thus help the organization reach a global audience. (Kshetri & Dwivedi, 2023, p. 2) Even if the enterprise metaverse contains great benefits, its adaptation still remains relatively low (Kumar et al., 2023, p. 2). However, some companies have already applied the enterprise metaverse to their actions. For example, the global professional services company Accenture has released the

"Nth floor" metaverse, which contains virtual environments for employees to meet, collaborate, and learn in. The Nth floor aims to help people participate, contribute, and feel belonging regardless of their location. (Accenture, 2022.)

2.4.3 Consumer Metaverse

According to Kshetri (2023, p. 84) consumer metaverse platforms focus on information, entertainment, and socialization. Unlike for example the industrial metaverse, these kinds of metaverse environments remain disconnected from reality and are not populated or replicated using existing real-world data, like specific designs or materials (Kshetri, 2023, p. 84). Some noted applications of the consumer metaverse are for example immersive games, shopping experiences, and experiences using VR goggles (Lawton, 2022).

As stated by Yoo et al. (2023, p. 174), the metaverse is expected to alter how consumers interact with the digital world. The immersive experience offered by the metaverse not only enhances consumer interaction but also sets the scene for a multitude of future opportunities for companies to leverage. It is believed that in the future, the metaverse will offer even more potentially beneficial opportunities for companies to for example market their products or communicate with their customers (Dwivedi et al., 2023, p. 754-755; Hadi et al., 2023, p. 14). Some marketers have already seen the potential of the metaverse and started to experiment with its different tools and features, such as digital billboards, NFT collections, digital events, showrooms (Dwivedi et al., 2023, p. 754-755), and especially by collaborating with video game developers (Yoo et al., 2023, p. 174). The virtual environment helps companies interact with more customers while simultaneously providing them with a higher level of immersion. Shopping through the metaverse can even be seen more as a special and personalized experience due to its interactive and immersive nature. (Dwivedi et al., 2023, p. 754-755). Dwivedi et al. (2022, p. 21) proposed that it is likely that paid advertising will change its nature in the metaverse and appear for example as digital billboards that will present personalized content for each user or avatar.

While the potential benefits of the metaverse are endless, it is essential to acknowledge the challenges that accompany its integration into marketing and retail activities. Potential challenges could include for example adapting new technologies (Yoo et al., 2023, p. 174), changing infrastructures, creating brand-awareness, or strategic challenges. (Dwivedi et al., 2023, p. 755) In addition to this, Dwivedi et al. (2023, p. 755) raise the customers' perspective on the issue: companies should think out whether their customers are ready to join the metaverse regarding for example their skills, technologies, or capabilities.

Next, we will dive deeper into explaining multiplayer games and virtual showrooms. Multiplayer games are seen as one of the most common applications

of the metaverse, and especially the consumer metaverse. Virtual showrooms, on the other hand, are a central part of our study.

Multiplayer Games

The first versions of the metaverse were based on interactive multiplayer games that create experiences through cutting-edge technologies like digital twins, AI, and pervasive computing (Huang et al., 2022, p. 3). Dwivedi and others (2022, p. 6) even stated games as the most popular application of the metaverse. While the metaverse was first coined in Neal Stephenson's (1992) science fiction novel (Mystakidis, 2022, p. 7; Raad & Rashid, 2023, p. 1), it has since been developed for over two decades through especially multiplayer games (Dwivedi et al., 2022, p. 19). Some commonly known metaversal multiplayer games are Second Life (launched in 2003), Roblox (2006), Fortnite (2017), and Decentraland (2020) (Dwivedi et al., 2022, p. 19). In these multiplayer games, the user can usually design their own avatar, and even create items or whole worlds based on their visions (Huang et al., 2022, p. 3; Dwivedi et al., 2022, p. 19). Gamification is in fact seen as one of the most natural ways for user engagement within the metaverse (Dwivedi et al., 2022, p. 39). However, even if multiplayer games are an important application of the metaverse, other significant applications are developed continuously (Raad & Rashid, 2023, p. 3-4).

Virtual Showrooms

Companies have started to develop virtual showrooms, also known as digital showrooms or web showrooms, into their sales activities (Hennig-Thurau & Ognibeni, 2022, p. 47). Omar, Hooi and Sulaiman (2008, p. 1) defined virtual showrooms as "*the use of virtual environment technology on the World Wide Web for visualization and 3-dimensional (3D) interaction with the products.*" Without having to travel anywhere (Hennig-Thurau & Ognibeni, 2022, p. 47; Raad & Rashid, 2023, p. 4; Olivas Martinez, Orso & Gamberini 2023, p. 439-440), virtual showrooms aim to reduce the customer's uncertainty before purchase (Sun et al., 2023, p. 1128; Gao ja Su, 2017, p. 3), increase the feel of dimension, and provide customers with a realistic and interactive experience (Olivas Martinez et al., 2023, p. 439-440), and more insights of the product (Hennig-Thurau & Ognibeni, 2022, p. 47). In addition, virtual showrooms have been used by retailers to imitate the customer's usual shopping experience in an online environment (Olivas Martinez et al., 2023, p. 439).

Virtual showrooms can be used by consumers to familiarize themselves with the product online before buying it offline (Sun et al., 2023, p. 1128) by for example browsing different products, comparing prices (Olivas Martinez et al., 2023, p. 439-440) or even by performing actions that wouldn't be possible in the real world such as looking inside of the machinery (Hennig-Thurau & Ognibeni, 2022, p. 47). The use of virtual showrooms for such purposes is conducted

especially by the type of consumers, so called dual-channel consumers, who want to consider all available channels before purchasing. Whereas store-only consumers prefer to purchase in only physical stores the old-fashioned way. (Sun et al., 2023, p. 1116) Even if virtual showrooms might act as a great way to reduce consumer's uncertainty and eliminate the consumers that don't like the product already in the pre-purchase stage (Gao & Su, 2017, p. 3), the inability to touch and feel the product might still leave customers with some uncertainty (Sun et al., 2023, p. 1128-1129).

Since the metaverse and immersive communications have developed, the use of advanced technologies such as VR and AR have made virtual showrooms to be an important tool for online retailers to reduce customer's valuation uncertainty and improve their customer experience (Sun et al., 2023, p. 1110). For example, the sports brand Nike created a virtual showroom NIKELAND on Roblox aiming to market their product and increase brand-awareness (Dwivedi ym., 2022, p. 45). Here the users' avatars could enter the showroom to look at products and interact with them by dressing them to their avatar (Hollensen, Kotler & Opresnik, 2022, p. 124). Virtual showrooms have also been used to for example display vehicles and automobiles (Raad & Rashid, 2023, p. 4)

3 CUSTOMER EXPERIENCE IN THE METAVERSE

In this chapter, the concept of customer experience will be discussed and explored. At first, the chapter presents the concept and definitions of customer experience. Then, the chapter moves on to review customer experience in metaversal environments. In the third sub chapter, customer experience will be discussed and reviewed with focus on immersive experience. Lastly, the chapter discusses Gen Z as our chosen target group for the study.

3.1 The Concept of Customer Experience

Customer experience is a phenomenon that has gained an increasing amount of interest among academics, consultants and practitioners (Palmer, 2008, p. 196; Klaus, Gorgoglione, Buonamassa, Panniello and Nguyen, 2013, p. 508; Lemon & Verhoef, 2016, p. 69), especially during the last two decades. The reason for growing interest is likely powered by changes in business environments (Hoyer et al., 2020, p. 58) and the constant evolution of interaction and media channels (Lemon & Verhoef, 2016, p. 69), which have influenced the landscape of customer experience. Despite the concept's popularity, marketers and academics have dissenting opinions on the definition and essence of customer experience. According to Lemon and Verhoef (2016, p. 70), business practitioners have previously defined customer experience to form out of the combination of company's qualities and offering: customer service, advertising, product features, user experience and experience of reliability. As a multidimensional construct, customer experience can be seen to combine and describe a collection of other related concepts, such as customer satisfaction, service quality, relationship marketing and customer management (Lemon and Verhoef, 2016, p. 89; Klaus and Maklan, 2013, p. 238). Klaus and others (2013, p. 520) also suggest that customer experience itself further impacts customer satisfaction, loyalty and word-of-mouth practice. Thus, on a broader take, customer experience can be seen as an umbrella term, which includes and is formed of multiple encounters with the company. Nevertheless, the fields of research and business practitioners both recognize customer experience's importance for a company's success (Klaus et al., 2013, p. 507, 517).

Even though the concept of customer experience is still not unified, it has long roots in the research of consumer behavior. Perhaps the best known early take on customer experience in academic literature was presented when Abbott (1955, p. 40, as cited in Lemon and Verhoef 2016, p. 70) noted that "what people

really desire are not products but satisfying experiences". In Abbott's conceptualization, experience represented the outcome of consuming a product, resulting in the perceived value for the customer (Palmer, 2008, p. 204). Later on, customer experience was studied from a more phenomenological point of view with a focus on subjective experiences, which raised questions on the nature of customer experience. Adapting an experiential approach, Hirschman and Holbrook (1982, p. 93) suggested that customer experience should also acknowledge the consumer's emotions and individual aspects in addition to semantic learning. They further presented an idea on how an individual's fantasies, feelings (Hirschman and Holbrook, 1982, p. 92) and perceived fun are essential elements in a consumption experience (Holbrook and Hirschman, 1982, p. 139.). Ever since the definitions have mainly shifted to focus on experiences as individual events with the notion that a consumer's response (cognitive, affective, or behavioral) is likely just faintly affected by previous experiences (Palmer, 2008, p. 197).

Research on customer experience is still divided, as some conceptualize it through customer journey thinking, and others by differentiating subjective responses from internal ones (Hoyer et al., 2020, p. 60). For example, Brakus, Schmitt and Zarontonello (2009, p. 54, 65) described brand experiences as individuals' emotional (feelings, sensations), behavioral, intellectual, and cognitive responses that occur as a response to brand-related stimuli. However, customer experience is more often described as a customer journey, which describes customer experience to form out of touchpoints that a customer experiences during the purchase process (pre-transaction, transaction and post-transaction) with the company (Hoyer et al., 2020, p. 58 ; Lemon and Verhoef, 2016, p. 74; Klaus et al., 2013, p. 506, 510). Noting the broadness of the concept, researchers have proposed different definitions and conceptualizations within the school of thought.

Klaus and Maklan (2012, p. 10) suggested that customer experience is formed of concrete attributes, such as technical aspects of the experience and perceptual attributes, including e.g. experienced quality of the service experience, which lead to their dimensions of customer experience. They (2012, p. 21) proposed that these perceptual attributes further create four dimensions: outcome focus, product experience, moments of truth and peace of mind, that affect and form customer experience. Building on Klaus's and Maklan's research, Klaus and others (2013, p. 506) noted that customer experience should be evaluated in three categories based on the customer's phase in the purchase process: brand experience in pre-purchase stage, service experience during the purchase and then eventually the post-purchase experience. Eventually Klaus and others (2013, p. 518) defined customer experience as "*the customers' dynamic continuous evaluation process of their perceptions and responses to direct and indirect interactions with providers and their social environment pre-, during and post-purchase and/or consumption of the offering at any given point in time*". Quite similarly, Lemon

and Verhoef (2016, p. 74, 76) emphasized that customer experience is a repetitive and dynamic process, which flows from the pre-purchase stage to purchase to post-purchase, including multiple touchpoints with the company. According to Lemon and Verhoef (2016, p. 76) every stage of the purchase process includes behaviors that are typical for each phase. In the pre-purchase stage these are traditionally characterized as need recognition, consideration, and search. They also noted that the process of customer experience includes past experiences and external factors, in addition to the ones happening in interaction with the company (Lemon and Verhoef, 2016, p. 76). Their (2016, p. 71) conclusion is that customer experience is *"a multidimensional construct focusing on a customer's cognitive, emotional, behavioral, sensorial, and social responses to a firm's offerings during the customer's entire purchase journey."*

Furthermore, Lemon and Verhoef (2016, p 77) proposed that there are four types of customer experience touchpoints: brand-owned, partner-owned, customer-owned, and social/external/independent, each of which a customer may encounter in every part of their buying process and experience. It is important to notice that along this conceptualization, the majority of the touchpoints are not under the power of the company: some of them are purely external (other customers, peer influence, environments), some of them are partner-owned (such as acts of marketing agencies, distribution partners, the performance of communication channels and service providers) and/or occur as personal aspects of the customer (Lemon and Verhoef, 2016, p. 76-77). The company-controlled touchpoints may include e.g. the product and its design (including logos, product name, packaging, and other visual stimuli), communications, and the overall service experience (Lemon and Verhoef, 2016, p. 76-77; Hoyer et al., 2020, p. 69). The whole customer journey by Lemon and Verhoef (2016, p. 77) is presented below in Figure 1.

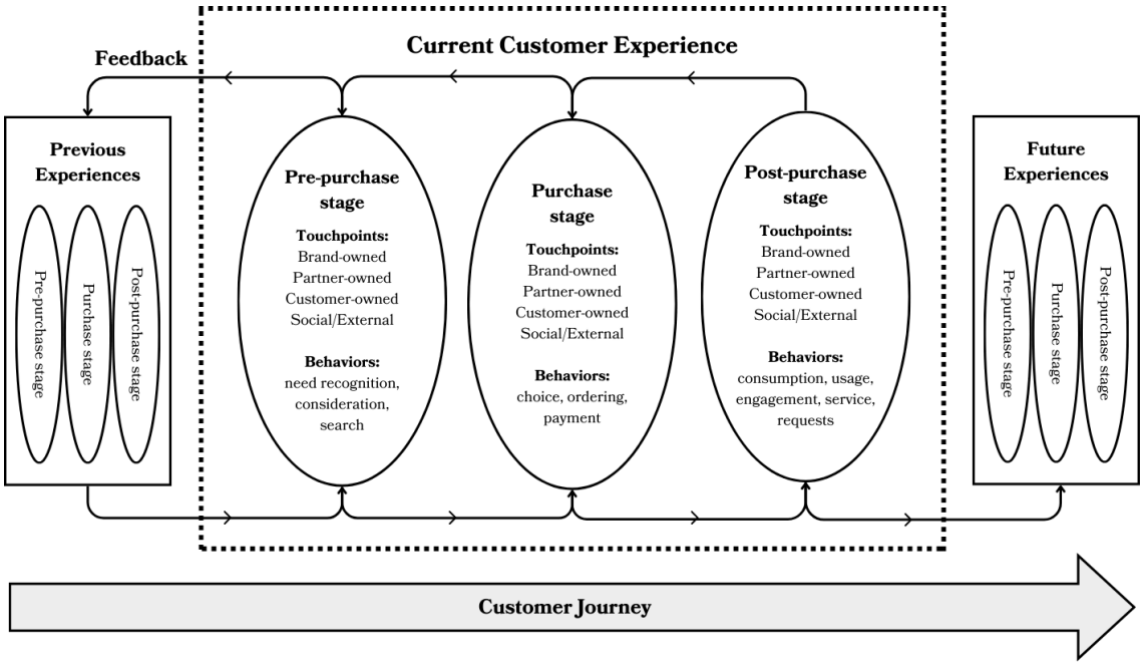


FIGURE 1 Customer journey and experience (Adapted from Lemon & Verhoef, 2016)

In addition to customer experience's complexity originating from multiple sources, the dynamism continues to increase as new touchpoints arise and existing ones develop constantly (Hoyer et al., 2020, p. 58). Lemon and Verhoef (2016, p. 69) present that along with the rise of modern interaction and media channels, the amount of customer journey touchpoints has increased and diversified, leading to more complicated customer journeys (Lemon and Verhoef, 2016, p. 69). The complexity also affects marketing actions. For example, due to its immersive and multi-dimensional nature, the metaverse contains more touchpoints than more traditional digital marketing channels (such as sending emails to target audiences or using mobile applications for marketing). Thus, it has great opportunities to act as a successful digital marketing platform and create more effective customer engagement. (Dwivedi et al., 2022, p. 19-20.) Another characteristic influencing the development of customer experience touchpoints is people's continuously evolving way of socializing. The sociability of customer experience has increased already through the use of social media, leading to peer customers influencing experiences of others (Lemon and Verhoef, 2016, p. 69). As the metaverse is a highly interactive and engaging environment, the sociability of customer experience can be expected to continue changing in metaversal environments. There already exist many opportunities for customer engagement and connecting within the metaverse through for example XR or other metaverse concepts, such as branded virtual world experiences or using NFTs as products (Dwivedi et al., 2022, p. 18).

To better address the multidimensional and omnichannel nature of today's customer experience, Gahler, Klein and Paul (2023, p. 194) propose a construct that is alleged to work in every context and part of a customer's journey,

defining customer experience as a "*customer's subjective, directed, and multidimensional mental responses to an interaction with an experience partner at a touchpoint in a customer journey stage.*" They suggest that customer experience should be measurable in every channel, regardless of the interaction context or partner in it (brand, employee, other customers), the nature of the channel (offline, online) or the stage of their purchase process (Gahler et al., 2023, p. 191). Figure 2 presents a visualization adapted from Gahler and others (2023) to better introduce their view of customer experience in the omnichannel environment.

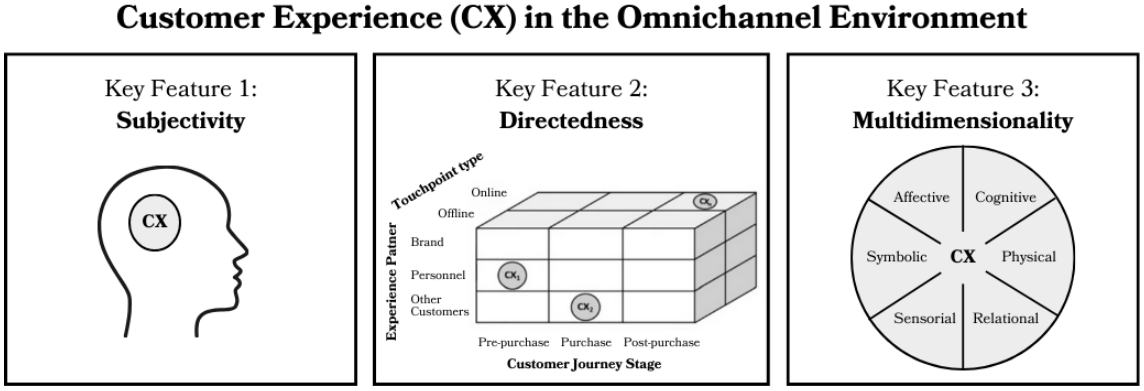


FIGURE 2 Customer Experience in the Omnichannel Environment (Adapted from Gahler et al., 2023)

The subjective nature of customer experience highlights that customer experience is fully understandable only through the perspective of the individual experiencing it. Additionally, the directed nature of customer experience explains the effect that specific touchpoints, interactions with experience partners, and stages of the customer journey have on the experience. (Gahler et al., 2023, p. 193.) Furthermore, they (2023, p. 194) identify six dimensions of customer experience (cognitive, affective, physical, sensorial, relational and symbolic), that affect the perceived customer experience. According to Gahler and others (2023, p. 194), the cognitive dimension refers to intellectual stimulation and gaining and reviewing new information, whereas affective dimension focuses on describing the feelings that occur during the experience. The physical dimension refers to the customer's perceptions of their bodily movements and positions during the experience (Gahler et al., 2023, p. 194), while the sensory dimension includes information transmitted through senses, such as vision, hearing and touch (Gahler et al., 2023, p. 195). Taking into account the bifold nature of interaction, the relational dimension of customer experience refers to the customer's perception of the interaction with a specific partner (personnel, brand, other customers). Finally, the symbolic dimension refers to the customer's own self and the values they convey and try to preserve in the interaction. (Gahler et al., 2023, p. 195.)

3.2 Measuring Customer Experience

Measuring customer experience has been challenging researchers and practitioners over time. Palmer (2008, p. 202-203) suggested that the challenges for measuring customer experience rise from three aspects: contextuality, non-linearity and the idea of optimal level of experience. The context specific variables occur due to the individuality of users: their emotional state, situation specific characters and overall differences between individuals. Continuing from the individual differences, non-linearity describes the difference in reactions to different stimuli: individuals react differently to stimuli and their individual fluctuation may be affected by situational factors, making customer experience non-linear. The third challenge questions the optimal level of experience: it is not simple to determine what amount of experience is enough or on the other hand too much. (Palmer, 2008, p. 202-203.)

For measuring customer experience, researchers and practitioners have proposed different perspectives and approaches. As a part of their conceptualization, Brakus and others (2009, p. 65) formed a 12-item scale which can be used to measure consumer's experience towards a brand along their four aspects of brand experience (sensory, affective, intellectual, and behavioral). This scale can be used for measuring customer's experience towards the brand, but it lacks the ability to describe the quality of the experience (positive/negative) and the customer experience's dynamism over time (Brakus et al., 2009, p. 65-66). Supporting the customer journey thinking, Klaus and Maklan (2012, p. 5; 2013, p. 240) created a customer experience scale (EQX), which describes customer experience's attributes and connects them to valuable marketing outcomes, such as word-of-mouth, loyalty and satisfaction. On the other hand, Lemon and Verhoef (2016, p. 71) proposed that customer experience management and measurement should include monitoring customer attitudes, opinions and their reactions to company's products over time. Even though multiple researchers have proposed measurement scales, marketing practice still tends to focus on measuring specific features of customer experience, rather than describing the whole entity of the concept. These practices may include e.g. measuring customer experience of a single transaction, as general impression or their personal perception at a specific time. (Lemon and Verhoef 2016, p. 81.)

To counter the fragmentation, Gahler and others (2023, p. 195) formed an 18-item scale, which aims to describe how positively a customer experiences a certain customer experience dimension. The Likert scale-based measurement scale measures customer experience via six dimensions (cognitive, affective, physical, sensorial, relational and symbolic), with three measurable claims. Gahler and others suggest that the higher score a customer gets for their experience on the scale, has their experience likely been a more positive one. (Gahler et al., 2023, p. 195.) For now, this model has been the broadest one offering a view for omnichannel customer experience.

As customer experience is a constantly evolving phenomenon that can be viewed and measured from different angles, in the next chapters of this thesis, we will delve deeper into the characteristics and nature of customer experience specifically in metaversal environments.

3.3 Customer Experience in the Metaverse

As digitization is constantly transforming the customer experience (Hoyer et al., 2020, p. 58), the importance of involving emerging technologies into the customer path is growing simultaneously. Technologies such as the Internet of Things (IoT), augmented reality (AR), virtual reality (VR), artificial intelligence (AI), robots, blockchain technology, and 3D printing are going to bring new elements into consumer's lives (Schmitt, 2019, p. 825). Flavián and others (2019, p. 10) even stated that VR, AR, and PMR-based (pure mixed reality) technologies can significantly add value to the customer experience. Immersive technologies such as the metaverse are seen to be able to help in delivering more personalized, immersive, and interactive experiences to customers (Kumar et al., 2023, p. 2).

As stated earlier, digital mediation is one central characteristic of the metaverse. Consequently, consumer experiences within the metaverse are digitally mediated, implying that all interactions with consumers occur through and with technology (Hadi et al., 2023, p. 2). When examining the formation of customer experience in digitally enhanced experiences, the way in which technologies provide value and improve the experience becomes pivotal (Flavián et al., 2019, p. 10). Understanding how different technologies are affecting the customer experience is essential in optimizing their quality. While some research has been conducted on customer experience in new virtual environments, a comprehensive overview hasn't yet arisen. Nonetheless, it has been noted that the metaverse can help enhance the interaction with consumers by combining the physical and virtual worlds through immersive virtual experiences (Dwivedi et al., 2022, p. 19) Hence, just like once the internet shaped the interaction between organizations and their publics by offering a new medium for dialogic (two-way) communication (Kent & Taylor, 1998, p. 331), the metaverse offers organizations a platform on which they may listen to their audiences. Active listening to consumers' needs has been connected to enhanced relationship between the brand and its consumers (Pina, Loureiro, Rita, Sarmento, Bilro & Guerreiro, 2019, p. 310), which further suggest that in metaversal environments organizations have a true chance to interact with their customers and thus build stronger relationships.

Moreover, modern technologies (such as AR/VR/MR) have been recognized for their ability to drive customers to take action in their customer journey (Hoyer et al., 2020, p. 58, 63). Despite the potential benefits, widespread

adoption of the metaverse may require time for people to become accustomed to it. Hadi and others (2023, p. 12-14) note that the reasons why consumers engage in or avoid metaversal experiences may differ from the reasons that can be applied to other more traditional online environments (such as social media or online games). Due to the immersive nature of the metaverse, consumers are usually less distracted, more cognitively energized, and require more focus while using metaversal applications than while browsing through other online contexts. (Hadi et al., 2023, p. 12-14.) If metaversal environments are used, ensuring a seamless experience across channels is noted to be crucial to prevent the multichannel nature from affecting the experience negatively (Lemon and Verhoef, 2016, p. 83). Some studies have even suggested that if a customer is satisfied offline, they are less likely to explore new online channels, which makes the new channel lose value. Still, it is also noted that new channels can bring positive outcomes to both satisfied and unsatisfied customers. (e.g., Falk, Schepers, Hammerschmidt & Bauer, 2007, p. 156).

Predicting how different metaverse-related technologies will affect the customer experience is challenging, but some insights have already been made. For instance, Hoyer and others (2020, p. 58) anticipate that IoT, AR/VR/MR, and AI-based virtual assistants/chatbots/robots will have the greatest impact on future customer experiences. Due to their cognitive value, especially AR, VR, and MR have the potential to ease consumer's imagination, extend beyond the physical realm, and enhance their consumption. (Hoyer et al., 2020, p. 58, 63.)

As stated earlier, customer experience in the metaverse potentially has more touchpoints than in more traditional platforms (Dwivedi et al., 2022, p. 19-20). Whereas some of the consumer touchpoints are controllable by the service provider (for example elements within experience itself), some touchpoints are not (Palmer, 2010, p. 199). Thus, it should be noted that for example the user's own network connection or environment where they are using metaversal technologies might affect the customer experience.

Overall, the use of digital technologies undoubtedly comes with risks and challenges for the customer experience. Bashar, Singh and Pathak (2021, p. 8-9) stated in their paper, that the challenges for technologies in the retail industry will be the following: digital connectivity, unavailability of IT skills, routine automation and upgradation cost, risk of failure, concentration on operational improvement, cybersecurity risks, and data privacy. (Bashar et al., 2021, p. 8-9.) Whereas the risks and ethical concerns of VR consumer experiences for consumers have been noted by for example Han and others (2022, p. 1455). They highlight especially the risks regarding the psychological well-being of consumers while using highly immersive VR experiences and suggested further research to be concluded among this topic. (Han et al., 2022, p. 1449, 1455) Also (Dwivedi et al., 2023, p. 768) note the ethical issues of using the metaverse as a marketplace, as well as the possibly insufficient computing infrastructure of companies and the metaverse's accessibility issues. They note that various areas

(such as data privacy, cybersecurity, equity, diversity, and inclusion) require more profound guidelines in order to be able to provide consumers an ethical experience in the metaverse. (Dwivedi et al., 2023, p. 768.) Metaverse's impact on equity and inclusion was also analyzed for example by Hadi and others (2023, p. 17-18), who noted that the metaverse can either have a positive or negative effect on societal challenges of inequity, exclusion or discrimination. For instance, the use of avatars can give the opportunity to mask certain demographic features, the highly sensorial nature of metaversal experiences can be overstimulating for some individuals, and the metaverse can provide possibilities to perform physical activities virtually also for individuals that are usually unable to. (Hadi et al., 2023, p. 17-18) Overall when designing a customer experience in the metaverse, it is important to take into account various backgrounds and abilities that users might have, as well as considering the ethical side of the experience.

3.4 Customer Experience in the Pre-Purchase Stage

In this thesis, the main focus of interest lies in the pre-purchase stage of the customer's buying process and experience. The pre-purchase stage is the stage of the customer journey that includes all interaction concluded with the brand, category, and environment before concluding the purchase. Traditionally, pre-purchase has been seen as behaviors such as consideration or need recognition. (Lemon & Verhoef, 2016, p. 76.) During this stage, consumers are seeking information about the product or service, and the role of technology is to aid their imagination and decision-making. (Hoyer et al., 2020, p. 65.)

There are still different views on what technologies affect the customer experience most in the pre-purchase stage and the issue requires more study (Flavián et al., 2019, p. 10), but some insights have already been offered. For instance, Hoyer and others (2020, p. 65) stated that when wanting to optimize a positive customer experience in a technology-mediated environment, it is important to focus on *satisfaction with the decision-making process, satisfaction with the outcome of the transaction, and customer engagement*. Satisfaction with the decision-making process is especially essential in the pre-purchase stage. (Hoyer et al., 2020, p. 65) If too much information is available, there is a risk for information overload which can lead to a poorer customer experience (Lee & Lee, 2004, p. 176-177). Thus, the key for an optimal customer experience in the pre-purchase stage is to find what amount of information is right for consumers, and how the information should be provided (Hoyer et al., 2020, p. 65). A potential way to succeed in this is by the use of emerging technologies, such as the metaverse.

Various emerging technologies can have a great impact on forming the customer experience through their versatile abilities of for example

personalization (Kumar et al., 2023, p. 2; Flavián et al., 2019, p. 10), immersiveness (Kumar et al., 2023, p. 2), enhanced interaction (Dwivedi et al., 2022, p. 19), or providing detailed information (Flavián et al., 2019, p. 10). In practice, using metaversal technologies such as AR or VR in the pre-purchase stage can for example enable consumers to see how objects would look in real life before purchasing them (Flavián et al., 2019, p. 2). Using AR/VR/MR technologies in the pre-transaction stage can add value to the customer experience by providing consumers with more detailed and personalized information that will aid them in the decision-making process (Flavián et al., 2019, p. 10). However, Hoyer and others (2020, p. 64-65) also significantly noted the impact of IoT, AI based technologies, and virtual assistants and chatbots within the pre-transaction stage, while AR/VR/MR were stated to offer the most value during transaction (Hoyer et al., 2020, p. 64-65). It has also been noted that different industries might benefit from different technologies in the pre-transaction stage. Whereas for example customer experiences in hospitality or retail may profit from VR/AR/MR, the healthcare industry might gain significant value from AI-based services (Hoyer et al., 2020, p. 62).

In order to optimize the customer experience in the pre-purchase stage, the potential of emerging technologies, such as the metaverse, as a tool in providing information should be examin ed more.

3.5 Immersive Customer Experience

When diving into immersive customer experiences, it's crucial to explore what effects immersiveness could have on customer experiences. As immersive environments overall have the potential to convey impactful messages and highly engage consumers (Violante, Vezzetti, Piazzolla, 2019, p. 257), we can already note that immersiveness can affect the customer experience in different ways. Moreover, as presented earlier, it must be noted that also the virtual environment's technological choices can affect the user's level of immersion (Han et al., 2022, p. 1448; Giang Barrera & Shah, 2023, p.9; Shin, 2019, p. 1223). The technologies may either strengthen or weaken immersion depending on the users' perceptions of quality, interaction possibilities with the service, and the type and functionality of the technological aspects (Shin, 2019, p. 1223).

However, as immersion is an individual concept, various of an individual's own characteristics (such as their opinions) can affect the individual's tendency to experience immersion. Immersion in fact describes a user's individual level of consciousness and indicates how deeply a user is connected to the content and the technological platform in question - cognitively, emotionally, and sensorily (Shin, 2019, p. 1223, 1226). Thus, the user's opinion on for example usability, intentions, and their hedonic values are positively

connected to their perception of immersion, proven at least in the gaming context (Shin, 2019, p. 1225). Also obtaining consumer's attention and absorption have been seen as central in supporting immersive customer experiences (Violante et al., 2019, p. 248; Han et al., 2022, p. 1448). To shed more light on the formation of immersive experiences, we will present the immersive experience framework by Haggis-Burridge (2020) in the next sub-chapter. Then, we will proceed to analyze possible outcomes of immersiveness in the context of customer experience.

3.5.1 Immersive Experience Framework

Due to the broadness of the phenomenon of immersive experience, its definition remains controversial, and a coherent approach has not yet been found (Han et al., 2024, p. 1). They (2024, p. 14) define immersive experiences as "*the acceptance of one's involvement in the moment that is conceived through multiple senses, creating fluent and uninterrupted physical, mental, and/or emotional engagements with a present experience, with the ability to attain a lasting mental and emotional effect on the user post-experience*." In order to conceptualize immersive experiences, Haggis-Burridge (2020) presented four immersion categories (systems immersion, spatial immersion, empathic/social immersion, and narrative immersion) that are recognizable in the gaming context and build the overall experience of immersion for the player (Haggis-Burridge, 2020, p. 5–9, 11; Han et al., 2024, p. 3). These categories can be reviewed and handled individually and in relation to others, but they do not share an established relationship (Haggis-Burridge, 2020, p. 8–9). It is also notable that in the same experience, individuals may experience different types of immersion (Haggis-Burridge, 2020, p. 9). Han and others (2024, p. 5, 7) reassured the relevance of the immersive experience categories by conducting a study of them with a Delphi approach. Their study resulted in the formation of multiple design criteria for each category, which act as measurable principles for these categories. They suggest that by integrating these design criteria, an immersive experience can be reached. However, they note that an immersive experience does not require all of the criteria to be met, but they overall contribute to the immersiveness of an experience.

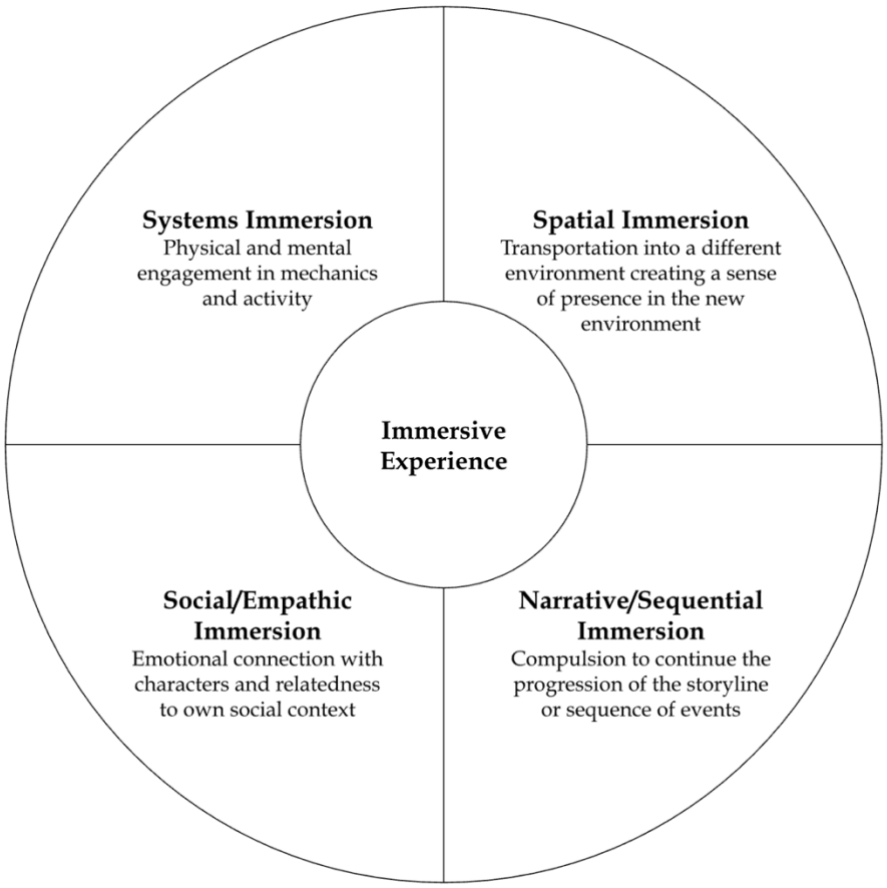


FIGURE 3 Conceptual framework for immersive experiences (Adapted from Han et al., 2024)

In the gaming context, Haggis-Burridge (2020, p. 5) described systems immersion as a state when "*a player is highly engaged with the decision-making activities and rules of the game*". In a broader sense, systems immersion describes users "*physical and mental engagement in mechanics and activity in the experience*" (Han et al., 2024, p. 8). As a result from the Delphi method, Han and others (2024, p. 8) found 15 design criterias that contribute to the user's systems immersion, including e.g. sense of influence, increasing complexity of the activities and offering clarity of purpose and tasks (Han et al., 2024, p. 8; Punpeng ja Yodnane, 2023, p. 7).

Spatial immersion describes a user's sense of presence in the virtual environment, which creates a feeling of being located somewhere and experiencing being somewhere (Haggis-Burridge, 2020, p. 6). Spatial immersion includes nine design criterias originating from the results of the Delphi method done by Han and others (2024, p. 8), including e.g. coherency between the environments and smoothness in the interactivity (Han et al., 2024, p. 8; Punpeng ja Yodnane, 2023, p. 7). One of the main technologies applying to spatial immersion is VR (noted e.g. by Han et al., 2024, p. 14). Han and others (2024, p. 10) suggest that in order for the user to accomplish the highest level of immersion,

spatial immersion is not required to be complete, but the level of interaction needs to be consistent and fitting to the experience.

By empathic/social immersion, Haggis-Burridge describes the player's relationship to the game in personal and social context (Haggis-Burridge, 2020, p. 7). Interestingly, in experiences that don't essentially hold a social aspect to them, users may form their individual empathic/social links (Haggis-Burridge, 2020, p. 9). Han et al (2024, p. 4) described this category as "*emotional connection with characters and relatedness to own social context.*" These characters can be other users or social creatures, but also for example virtual objects. Han and others (2024, p. 8) found that this category can be supported by eight design criterias, such as "*Insight into backgrounds of individuals*", "*Meaningful interactions*" and "*Relatability of individuals to user's context*".

Narrative/sequential immersion describes the user's aspiration to see the progression of events in the sequence (Haggis-Burridge, 2020, p. 8; Han et al., 2024, p.4). This compulsion is typically driven by the desire to see how the story evolves among the experience: e.g. how a conflict is resolved or what is the next area to be discovered (Haggis-Burridge, 2020, p. 8). Han and others (2024, p. 8) suggest that narrative immersion is supported by designing experiences that include "*Individuals that are worth learning about*", utilizing "*user involving storyline development*" and using a style of narration that matches the user's preferences. Overall, they found nine design criterias that contribute to narrative/sequential immersion (Han et al., 2024, p. 8).

A revised version of the immersive experience framework was proposed by Punpeng and Yodnane (2023, p. 6), where bodily immersion was added to the earlier versions of the framework. Bodily immersion is defined as *"Sensation of bodily transference, generating illusory ownership over virtual bodies, and activating praesence"*(Punpeng ja Yodnane, 2023, p. 6). Bodily immersion was added to the framework by relying on the categories of immersion by Machon (2013), which is focused on analyzing specifically immersive theater (Norros, 2015, p. 131-132). While in theater, the ability to imagine living the situation through a body that is not yours is central, the same cannot be seen to apply directly to customer experience. As noted earlier, customer experience is very individual and focuses on the individual's own perceptions. Thus, bodily immersion wasn't seen as a focal element in studying the immersive customer experience.

3.5.2 Benefits of Immersiveness for Customer Experience

Immersiveness has been noted to have positive effects on users and their customer experience. Han and others (2024, p. 14) suggest that immersiveness strengthens user's engagement during the experience on mental, physical and emotional levels, leading to persistent mental and emotional effect after the experience. Immersive experiences' interactivity provides more enjoyment (Violante et al., 2019, p. 257), and immersiveness overall enables to create new

types of engaging experiences for customers (Richter and Richter, 2023, p. 7). Immersive virtual environments have also been connected to increased feeling of being present, which may lead to feelings of euphoria or addiction towards the content (Han et al., 2022, p. 1455). Overall, immersion may make users more focused in what they are doing, extending their perception of time. Immersion has also been connected to the concept of flow, which describes a desirable state of mind, in which a person is completely involved in a task (Csikszentmihalyi, 1975, as presented in Dwivedi et al., 2023, p. 760). Experiences of flow can affect user experience of the virtual world, as it consists of multi-dimensional components (emotional, cognitive, sensory, behavioral, and social components) (Dwivedi et al., 2023, p. 760).

Immersive technologies, such as AR, VR and MR help consumers to imagine things, which may further support engagement (Hoyer ym., 2020, p. 63), leading to better customer experience (Han et al., 2024, p. 14). Punpeng and Yodnane (2023, p. 7) even suggested that integrating VR technology into experience is a significant factor supporting the user's total sense of immersion. Also the type of visual animations can affect the formation of the experience. Considering 3D product visualization, Wodehouse and Abba (2016, p. 462) found that the context of the product displayed in an online environment could be important in increasing the level of immersion of the consumer. For example, if a user is viewing furniture in a virtual showroom, the virtual location and environment of the furniture might have a difference in the level of immersion. Viewing it for example in a virtual replica of a house could create a more realistic and immersive experience than if the furniture were displayed in a totally blank space, which may further support the customer experience.

Violante et al (2019, p. 257) especially stressed the importance of interactivity for customer's experience in a virtual environment, as it supports customer's experience of being in control, adds motivational factors and helps to obtain and offer right-timed product information and feedback as they prefer. Thus, when pursuing immersive customer experiences in technological environments, interactivity and the dynamic nature of immersion should be considered and the customer seen as an active participant in the process (Shin, 2019, p. 1225). Overall, in order to be immersed in the experience, users need to be engaged in it on a physical, emotional and mental levels (Han et al., 2024, p. 9).

3.6 Generation Z as Customers

Younger generations are seen to understand technology better and thus are more likely to explore metaverse environments (Koohang, Nord, Ooi, Tan, Al-Emran, Aw, . . . Wong, 2023, p. 9; Zhang et al., 2023, p. 306). According to Dwivedi et al.

(2023, p. 754) the primary users of the metaverse will be representatives of Generation Alpha (born since 2010), Generation Z (born between 1995 and 2010), and Generation Y (born between 1980 and 1994) (Dwivedi et al., 2023, p. 754). Park and Kim (2022, p. 4242) stated that Gen Z is the most familiar with the metaverse. They are even seen likely to be ones to determine the future of the metaverse, as they are the first generation that has grown up entirely surrounded by digital technologies and online environments and have a specific way to see virtual interactions (Kaur et al., 2023, p. 5). Gen Z considers the social meaning of the virtual world as important as the real world, and their identity blends within these two worlds (Park & Kim, 2022, p. 4212, 4242). They are commonly defined as digital natives that are, from an early age on, highly influenced by online interaction and internet access (Ayuni, 2019, p. 167). Han and others (2024, p. 14) stated that for Gen Z, the gap between the digital and physical worlds is smaller than for previous generations, and they perceive digital platforms as an integral aspect of reality. (Han et al., 2024, p. 14). This makes them also more prone to use metaversal applications.

In addition to the differences in internet usage and way of seeing the digital world among generations, Gen Z has different shopping habits and expectations as consumers (Priporas ym., 2017, p. 374). As they are a highly educated generation, they are greatly aware of the price of the product they will purchase (Ayuni, 2019, p. 167). According to Ayuni (2019, p. 176), Gen Z prefers to save time and money in their shopping, and thus prefers instant online shopping over offline. They state that companies should improve their websites in order to make the online shopping experiences easy, informative, comfortable and safe for Gen Z. (Ayuni, 2019, p. 168, 176.) These in fact are elements that Gen Z consumers are seen to require from consumer experience. Also, the level of digital features used in the retail environment has been seen to shape Gen Z consumers' purchase experiences, thus competitive advantage could be gained by investing in smart technologies. (Priporas et al., 2017, p. 379.)

4 DATA AND METHODOLOGY

Even if customer experience has been studied widely in various fields, there still remains uncertainty on what factors influence the customer experience in the pre-purchase stage within metaverse environments. The objective of this study was to examine the role of immersion in shaping the pre-purchase stage customer experience. As noted before, virtual showrooms can reduce the product value uncertainty (Gao & Su, 2017, p. 3) and increase consumer's confidence to conclude a purchase (Sun et al., 2023, p. 1128-1129). Thus, virtual showrooms were seen to act as an ideal environment to study the impacts of immersion especially in the pre-purchase stage. The study was conducted within generation Z representatives due to their advanced technological understanding and them being a central user group of the metaverse.

Overall, this chapter provides an overview on the methodology used in order to answer our research questions: RQ1: *How is an Immersive Customer Experience formed in the pre-purchase stage?* and RQ2: *In what ways can immersiveness shape the customer experience in the metaverse during the pre-purchase stage?* First, the chapter briefly determines what qualitative research is and why it is seen as a suitable approach for this study. Next, the used study methods are presented. To collect data, semi-structured interviews and an experiential study for people of our target group, representatives of the Generation Z, were conducted. The participants, the experiential study setup, and the questionnaire will be discussed in more detail. Lastly, the chapter presents the used data analyzing methods. The collected data was analyzed by a thematic analysis in order to find answers to the research questions.

4.1 Research Method and Design

Research methods can be divided into two categories: quantitative and qualitative. Whereas quantitative research tends to focus on numbers and testing predetermined hypotheses, existing theories or previous findings (Hirsjärvi, Remes Sajavaara and Sinivuori, 2009, p. 139-140), qualitative research aims to describe real life situations and study the subject holistically, seeking to discover new facts (Hirsjärvi et al., 2009, p. 161). Moreover, the focus in qualitative research is on exploring social relations and describing reality from a respondent's point of view (Adams, Khan, Raeside, 2014, p. 6). Thus, qualitative research was seen as a suitable method to study a phenomenon that has not allegedly been previously studied. It has even been previously argued that due to the difficulty of measuring customer experience, qualitative methods are the

proper way to truly understand the experience from the customer's perspective (Palmer, 2010, p. 203).

4.1.1 Semi-structured Interviews

As the research topic is quite unexplored, we wanted to conduct an experiential study, which aimed to explore the role of immersion for customer experience in the pre-purchase stage. In order to gather user's opinions and thoughts about the experience, we chose interviews as our data collection method, as they allow participants to describe their feelings freely and are often used to explore new topics (Hirsjärvi et al., 2009, p. 205). More specifically, we chose semi-structured interviews as the interview type, as they offer a flexible and informal way to gather detailed information, while still maintaining a systematic approach (Eriksson & Kovalainen, 2008, p. 82). In semi-structured interviews researchers typically have a set of predetermined questions, but still have the freedom to broaden the interview with new questions that relate to the answer from the interviewee (Adams, Khan & Raeside, 2014, p. 144; Hirsjärvi et al., 2009, p. 205). This is a great way to support participants to provide their own opinions and views about a more complex topic. By the flexibility that a semi-structured interview offers, the situation can be kept natural and not too formal, providing participants an environment to express their opinions freely. Thirdly, semi-structured interviews are usually used to answer questions "what" and "how" (Eriksson & Kovalainen, 2008, p. 82), which is in line with our research's objectives.

In order to ensure a systematic approach, a set of questions was prepared to guide the interviews. Interviews were conducted at two phases: before the experiment and after it. During the first part, the participants were asked about their interior design background, furniture shopping behavior, background related to using interior planning applications, and their expectations about the experience. In addition, they were asked about their potential previous experience with VR-glasses and their overall experience and understanding of the metaverse. In the second part of the interview, the participants were asked about their pre-purchase customer experience and the immersiveness of the experience.

Regarding the measuring of customer experience, we came up with some overall questions to measure the participants' experience when using the virtual showroom. As customer experience is a phenomenon that does not have a commonly accepted measurement scale, we chose to map out the participant's pre-purchase customer experience through themes derived from the literature. At first, we asked the participants about the experience itself. They were asked to describe their actions and feelings during the experience. Then we proceeded

to ask about the product information they gained and their views on whether the experience could help them make a purchase decision. Then, we moved on to questions related to the immersive experience. The questions were based on the immersive experience framework created by Haggis-Burridge (2020) and its operationalized version created by Han and others (2024). During the formation of the questions, each immersion category (Systematic, Spatial, Social/Empathic, and Narrative/Sequential) and their design criteria were considered. As a result, ten questions were formed. As the last step of the interviews, participants were asked about their overall experience, satisfaction, and opinion about the service and its usefulness. They were also asked about loyalty and recommendation intentions. The formation of the questionnaire and the complete structure of the interview questionnaire can be found as the appendixes 1 and 2 of this thesis.

4.1.2 Case Selection and Study Setup

In the experiential part of the interviews, the participants used a virtual showroom application, which can be entered with a VR-headset. The main idea of the showroom application is to compare and test furniture options, as a service to help interior design. The designing can be conducted either in a totally virtual environment provided by the platform with a choice of different types of houses and rooms, or in an MR environment where the user can see the real-world environment through the VR-headset. In the showroom, there are multiple brands represented, which allows the user to choose different furniture pieces from different brands whilst designing. If a user would find furniture they would like to buy, the app redirects them to the online store of the brand. The products available on the application are 3D visualizations (digital twins) of physical products that can be purchased for physical locations. We decided to guide the participants to choose the MR environment in order to better mimic a situation where they would design the interior design of their own homes, as this is more likely to be the choice they would make to aid their decision-making process during their customer journey.

The study was conducted with a Meta (Oculus) Quest 2 VR-headset which was connected to a WiFi network. The headset includes VR-glasses, two controllers equipped with haptic feedback opportunities, integrated headphones and an integrated microphone (Meta, 2024). In the showroom application, all of these features were included. However, the haptic feedback only included some minor trembling when placing the products or clicking on a navigation button. Also, the microphone wasn't used during the experience, as the users were designing alone, without a need to communicate with others. Noteworthy, during the experience, the surrounding room appeared as grayscale through the VR-glasses, which potentially had an influence on the visuality during the experience.

The environment where the study was conducted was an empty privately-owned studio apartment located in Jyväskylä, Finland. The room where the study took place was empty and did not have any furniture. The size of the room was approximately 4 by 3,5 meters. The room had a large window on one wall, and doors on two other walls. One of the walls was whole, without any elements. A safety area of approximately 2 meters by 2 meters was set up to the VR-headset in the middle of the room. During the study, participants received instructions and attended a short user tutorial in the app before continuing to design the interior for the room in the MR environment as they preferred. A total of 20 minutes was reserved for participants to explore the virtual showroom with the VR-headset. One entire study session lasted approximately one hour, including the interview and the experiential part of the study. The more specific duration of the interviews is presented in Table 2 below.

TABLE 2 Duration of Interviews

Interview	1	2	3	4	5	6	7	8	9
Duration	1 h 6 min	1 h 2 min	1 h 9 min	1 h 23 min	1 h 3 min	1 h 14 min	1 h 1 min	55 min	1 h 17 min

4.1.3 Participants

In addition to the relevance of studying Gen Z representatives as stated before, conducting the practical study within this target group helped minimize possible external factors affecting the experience, such as practical use challenges with technologies. We believed that by studying only one generation with presumably similar skills and ways of understanding the digital world, we would be able to collect data that is better comparable with each other, and thus be able to answer our research question the best way possible. Other criteria for the participants were a minimum age of 18, being generally healthy to use the VR headset and explore the virtual showroom, and that they have normal or corrected-to-normal vision and hearing. The target group of the study included students of University of Jyväskylä School of Business and Economics, as they are expected to understand the nature of virtual shopping possibilities and have adequate technological capabilities.

To receive participants for our study, a Webropol survey for expressing interest to participate in the study was published on the email list of the students of the University of Jyväskylä School of Business and Economics. The email can be found as the Attachment 3 of this thesis. Besides the link to the survey, the email provided brief information about the study, encouraging recipients to read more information from the survey. The survey explained the aim of the study in

more depth and provided basic information about how the study would be conducted. It also reassured that respondents understood the requirements for participating (suitable age, good basic health, and normal or corrected-to-normal vision and hearing). The respondents were asked to fill in their contact information for the purpose of arranging a time slot for the conduction of the study. A suitable time was arranged by contacting the respondents privately by the contact information provided.

Eventually, we had a sample size of nine participants. The sample consisted of five males and four females, all born between the years 1995–2000. Participant demographics are described in Table 3. In qualitative research, it is typical to analyze a smaller group of participants. Hence, the criteria for the data's scientificity is not traditionally the quantity of data, but the quality of it (Eskola & Suoranta, 1998, p. 18). According to Eskola and Suoranta (1998, p. 62–63), a sufficient amount of data is the amount that is necessary for the scope of the topic. As the topic of this research is rather new, we believe that already the sample size of nine participants offers an interesting viewpoint to the relation of immersiveness and customer experience. Already at this extent we were able to recognize repetition of factors affecting the experience, which further supported the decision of nice participants being a sufficient amount for the scope of this study.

TABLE 3 Participant Demographics

Gender	Female	4
	Male	5
Birth year	1995	1
	1997	1
	1998	4
	1999	2
	2000	1

4.1.4 Procedure

At the start of the interview, each participant was informed about the objectives and aims of the study. To back this up, the research notification and privacy notice were presented to them. The research notification provided some detailed information about the study, while the privacy notice contained information

about how the participants' data is used and handled in the study. It was underlined to participants that the study is anonymous, and their responses cannot be linked to them. Once possible questions were answered, the voluntarity of the study was highlighted and the participants' consent to participate in the study was confirmed.

First, after agreeing to participate in the study, participants were asked to fill in a demographic questionnaire. Then background questions related to interior design and the metaverse were asked. After this, instructions were offered to the participant regarding the functioning logic of the VR-headset and controllers. Also required adjustments to them based on the individual's requirements were made. Once the participant was ready to start the experience, they were instructed to start by going through the tutorial offered in the showroom, after which they could proceed to designing the interior design of the room they were in. After 20 minutes had passed, the participant was informed verbally about the time ending and they were asked to remove the headset and controllers.

Once the participant was ready, the rest of the interview was conducted. First, they were asked to describe their experience and how they felt during it. Next, questions regarding their 'customer experience' and immersiveness were presented. However, the participants weren't informed about what category each question represented. If the answers were short or didn't provide new information, the participants were sometimes asked to elaborate their answers more by asking secondary questions such as 'Can you tell more about that?' or 'What do you mean by that?' (Eriksson & Kovalainen, 2008, p. 84-85). Also, additional questions already displayed in the interview structure (Appendix 2) were asked from some participants. Once all the questions were asked, the participant was thanked for their time, and offered a possibility to ask any questions that might have raised during the study, as recommended by Adams et al. (2014, p. 147).

The interviews were recorded using Microsoft Teams and its transcription feature. After completing the study session, each interview transcription was reviewed and compared to the original recording. Once ready, the anonymous transcriptions were uploaded to OneDrive provided by the University of Jyväskylä for further analysis.

4.2 Qualitative Data Analysis

In qualitative research, researchers do not have predetermined hypotheses that they are testing. However, it is notable that previous experiences and knowledge inevitably shape the researcher's thinking. For qualitative research, it is typical to focus on a smaller number of subjects and strive to analyze them as thoroughly

as possible. (Eskola & Suoranta, 1998, p. 18-19). Due to the descriptive nature of qualitative research, it typically utilizes inductive analysis (data-driven analysis) and progresses from the individual to the general angle (Hirsjärvi et al., 2009, p. 164; Eskola & Suoranta, 1998, p. 83). Inductive reasoning typically looks for information deriving from the data, whereas deductive (theory-driven) reasoning aims for explaining the phenomena on hand with pre-existing theory (Eriksson & Kovalainen, 2016). It has been stated that conducting purely inductive reasoning may be hard, as often some type of theoretical background is used as a base for thought-processes and questioning (Eskola & Suoranta, 1998, p. 81-82). Thus, often the inductive and deductive approaches are combined, resulting in an abductive approach. This thesis utilizes the abductive approach, which includes parts of both inductive and deductive (theory-driven) approaches, and which aims to form an explanation for the phenomenon in question (Eriksson & Kovalainen, 2016). Overall, in qualitative research analysis, the aim is to create clarity and thus provide new information about the topic at hand. This may happen for example through finding differences, diversity, and commonalities from the data. (Eskola & Suoranta, 1998, p. 137, 139.) Thus, with our analysis we aim to provide new information about the relation of immersion and customer experience.

In this study, the data was analyzed with qualitative methods, utilizing thematic analysis. Although the researchers were already familiar with the data due to attending the interview sessions, the analysis process started with reading through the transcriptions of the interview sessions. Then, the data set was read through multiple times while marking all interesting notions that were able to be raised from the text. As suggested by Eskola & Suoranta (1998, p. 155–156), in qualitative research, the coding scheme typically is formed as a part of the process, when interesting notions are looked for, organized, and grouped in new ways. In this research, the collected data was coded without restrictions or pre-existing models of any theoretical frameworks, focusing on finding connections, contradictions and differences. However, during the coding process we were also looking for the design criterias of the immersion categories.

Afterwards, in line with the process of thematic analysis, the codes were organized in meaningful categories that described individuals' experiences and the possible experienced immersion. As suggested in methodological literature, often successful thematizing includes combining theoretical and empiria-based notions. (Eskola & Suoranta, 1998, p. 174–175.) Thus, during thematising, earlier theoretical knowledge was taken into account, but not followed in a way that would have limited the effect of the notions derived from the data. Overall, we found 14 initial themes that occurred in the data set. After reviewing the themes, some of them were combined, resulting in nine themes raised from the data. In the following chapter 5, the themes are further presented and analyzed.

5 ANALYSIS OF DATA

This chapter aims to present the data obtained from the interviews. First, we will provide relevant background information about the participants, their information needs regarding purchasing furniture, and their expectations about the experience. In the second part, we will explore their overall experience with using the platform, diving deeper into issues like satisfaction with the service and information provided, and their willingness to recommend the service to others. Lastly, we will provide an analysis of the nine themes that arose from the thematic analysis of the data.

5.1 The Participants' Background Information

This chapter presents the participants' background information regarding interior design and technology. Participant characteristics have also been collected into the following Table 4 to conclude the information. Further analysis of the features and partial comparison between participants is provided in the following chapters.

TABLE 4 Background Information of Participants

Participant	**Likes to do interior design**	**Buys furniture**	**Has used a VR-headset before**
1	Neutral, would like to	Brick-and-mortar, limited resources	Yes, to see how it looks
2	Seems to	Second-hand, online	No
3	Yes	Second hand, physical locations	No
4	Yes	For need. Mostly from brick-and-mortar stores	Yes
5	Neutral	Prefers brick-and-mortar. Secondhand purchases online	No
6	Yes	Mostly second hand, usually online platforms	Yes
7	Seems to	Smaller things online, bigger things from brick-and-mortar stores	Yes, once

8	Seems to	When necessary. From online and brick-and-mortar stores	Yes, many times
9	Very much	Brick-and-mortar	Yes, once

5.1.1 Interior Design Background

As presented before, the study started with identifying the participants' thoughts on interior design. All participants either described themselves liking to do interior designing or being neutral about it. A few participants (P4, P5) noted that they are not that good at interior designing.

When asked about their typical way to plan the interior, every participant told that they plan in their head. Two participants (P5, P8) described that they have used drawing as a tool to plan room maps or furniture placements. None of the participants had used an interior design application (e.g. something similar to the application used in the experiential study) before. The only digital tools mentioned were AR-enhanced visualizations (P4) and iPhone measurement application (P2). Five participants (P1, P3, P4, P6, P8) noted that their interior design process typically starts with reviewing the space and thinking what fits in there. From these, three participants (P3, P4, P6) also noted that their interior design choices are defined by existing furniture. The low budget was named as an important factor affecting interior planning by four (P1, P3, P6, P8) participants.

Among participants, buying from brick-and-mortar stores was more popular than using online stores. Six participants (P2, P4, P5, P6, P7, P8) had bought furniture online. However, five participants (P1, P3, P4, P5, P9) described that they prefer buying furniture from physical locations. Three participants (P6, P7, P8) said that they utilize both online and physical stores. Only one participant (P2) noted that they prefer and mostly buy their furniture online. Five participants (P2, P3, P5, P6, P7) noted that when looking for new furniture, they try to find what they need from secondhand options.

While describing how they look for inspiration, participants noted that they utilize videos (P2, P7), pictures (P2, P4) and Google (P4, P9). Participant 4 also described that they look for inspiration in online stores and Ikea. Some participants (P2, P6, P8) said that they discuss and plan the interior choices with their partners.

5.1.2 Technological Background

Six out of nine participants (P1, P4, P6, P7, P8, P9) had previous experience with a VR-headset, whereas three participants (P2, P3, P5) had no previous experience with any VR-technology. Four of these participants (P4, P6, P7, P9) had used the

VR-headset for the purpose of playing games or other entertainment purposes. Participants 4 and 6 stated to have used it multiple times for those purposes. Whereas participant 7 had used a VR-headset in an experience offered by a museum. Similarly, participant 9 had used one as a part of an experiment offered by an organization. Participant 1 on the other hand had only looked through a VR-headset, without actually using one. As an exception, participant 8 had used the technology multiple times before for various purposes and stated to be very familiar with it.

5.1.3 Information Needs and Expectations

As a part of the interview, participants were asked about the information they need when buying furniture. The most common factors were size/measurements (P3, P4, P5, P6, P7) and material (P2, P3, P4, P5, P7). Participant 6 also noted material as an important factor, but only in later stages of the buying process. Three participants (P3, P4, P7) named longevity/quality as an important factor. Also, sustainability was named by participants 2, 4, and 7. Three participants (P3, P4, P6) named the looks of the product as important information. Some other factors were named as well: participant 8 noted comfort as an important factor, participant 9 was interested in the duration of warranty and participant 2 about the brand of a secondhand purchase. To be noted, participant 1 was not asked about their information needs as a part of a buying process.

When asked about their expectations before the showroom experience, most of the participants seemed to be excited and interested to see what was coming. The experience was expected to be eye-opening (P3), interesting (P4), exciting (P1, P9) and new (P5, P6). Participant 5 expected the interior design experience to be really concrete:

> *P5: "and you can really see how they [the furniture] go or like you can.. That enables so much, that you can really see it nicely. And that it feels like kind of real, that you can really see those things in proportion."*

Participant 9 and participant 6 were interested in the designing process, and P6 thought that designing would be like drawing but in virtual form. Participant 7 expected the application to aid in visualizing the interior. Only participant 8 did not express any specific expectations:

> *P8: "Feels like that's a pretty everyday thing though. I have used VR glasses that much. So nothing, very neutral feelings."*

When asked about their concerns regarding the upcoming experience, participants 5 and 7 were concerned if they could use the VR-headset. Considering utilization, participants 1 and 6 were afraid that they would hit the walls of the room while using the VR-headset. Participants 2 and 5 acknowledged the fact that some people get nauseous while using VR-technology.

5.2 The Participants' Experience Using the Platform

As a part of the interviews, participants were asked about their customer experience by various questions. From these answers, we will next conclude how satisfied they were with the information gained about the products in the showroom, how satisfied they were with the overall service, and how they feel about recommending the service to others.

5.2.1 Satisfaction with the Information

When asked about the product information the participants gained during the showroom experience, every participant reported that they gained information about the looks and/or general visual information of the products. This included for example how the product would fit to the environment and overall information about the appearance of products. Among participants, five of them (P5, P6, P7, P8, P9) noted that they gained especially information about the color. Some other named factors were the type of product, its shape and the material description.

> *P8: "Well, it gives some kind of indication of the size, though it might be hard to grasp how much something like that actually deceives in terms of size. Of course, it doesn't fit perfectly into anything. But also about what color the products are, what material they were."*

Regarding the material information, three participants (P2, P7, P8) said that they gained information about the material of the product. From these, participants 7 and 8 specified that they gained the information via the product descriptions written in text.

> *P2: "Yes, I remember that I saw at least, when I was choosing a sofa, that it said that it's a leather sofa and stuff like that."*

> *P7: "And then I think the curtains said something like 'linen', so I think it was good that it was described a bit like what material the curtains are made of or like where they are made from, so that was good."*

> *P8: "But also about what color the products are, what material they were."*

Whereas on the contrary, participants P3, P4, P5 and P6 stated that they did not gain material information while using the service. According to these participants, the service did not provide them with sufficient material information. Participants P1 and P9 did not comment whether or not they gained information regarding the material of the product.

P4: "But no, I had no idea what the material was based on that."

P6: "For example, if I would buy a sofa or bed, it would be important to know what it feels like to sit or lie on it. Or in general, how the materials feel even with your hand and how it is."

Overall, the participants stated that the service helped them to visualize the product and aided in perceiving the size of the product in the room. However, participants P3, P5, P6, P7 and P9 critiqued the lack of exact measurements in the service. For example, participant 9 felt that they would want to have the exact measurements in addition to the visual information, so that they would be sure about the furnitures fitting into the room. In conclusion, participants were partly content with the information provided by the service, but every one of them still had information needs that were not met.

5.2.2 Satisfaction with the Service

When asking the participants about their opinion of the service's usefulness, six participants (P2, P3, P5, P7, P9) described the service as useful. Participants 1, 4, and 6 described the service as kind of useful.

P1: "Well kind of yes, because then it saves both the buyer's and seller's time and effort, and like the process is very quick in a way that you could probably get that room ready in an hour, and you don't have to carry the items yourself. So in a way, this just shows the benefits of virtual reality, how much easier and more efficient it can be, and you can do it from there."

P2: "Much easier to perceive objects like that in the space because it is quite difficult to grasp just by imagination."

P3: "Well, I think that's useful, like, it gives, in my opinion, added value that you can't really achieve otherwise."

P7: "People, especially those who find it helpful to see things visually or like to see things in 3D and thus understand and perceive, will definitely find it very useful."

P6: "Well yeah, I don't feel like there's any harm in it. Of course, always having such an option available can be beneficial. So, it probably depends quite a lot on the usage situation."

Only participant 8 thought that the service was unuseful for consumers. While participant 5 described the service as useful, they weren't completely sold by it. Even though, they stated that the experience exceeded their expectations.

P8: "Overall no. I don't feel that an ordinary consumer needs something like this for anything really."

P5: "Yeah, I would say it's quite useful, better than not useful, but like not super useful, and I'm still quite traditional. Like, the thing works just fine in the old way too. So, but.. It's more useful than a game, so it's quite good." … "That maybe I've had a bit of an expectation that it's not my thing or I don't need something like this, but then like especially something practical like this, I could use it, so it was a good experience of this other reality."

All the participants who considered the service even partly useful stated that they would use the service again. In their answers, multiple participants recognized a chance for businesses to offer this virtual showroom opportunity as a part of their services. For example, participant 6 didn't see themselves owning VR-glasses, but if a chance was presented, they could use the service to help in choosing between two options. Every participant thought that this kind of service could help them to make a purchase decision. Even participant 8, who didn't consider the service useful, stated that the experience was nice and helpful in some situations.

P3: "Yeah, I imagine it could help me make the purchase decision, that it would make it a lot easier. --- then you could try it in your home to see how it actually fits in your home, so I feel it would be very helpful."

P8: "Well, first of all, it provides a nice experience. Of course, it requires a bit more effort, but when you get to arrange and see the products in place yourself. And then presumably, if you could build a suitable environment from your own home where the things could then be arranged, I would find that helpful."

P9: "Yeah, I feel that it will definitely help my purchase decision because when I can actually experience it for real then it's more easier to buy anything. For those who actually want to purchase, for them I think it's a good strategy."

When asked about their feelings of the duration of the experience, eight participants stated that the time went by fast. Participant 8 was the only one who stated that time went by like normal. However, they noted that usually time goes by fast when using a VR-headset. Four participants (P1, P6, P7, P9) mentioned that they experienced feelings similar to flow. They especially stated that they would have wanted more time, as they wanted to finish the task they were doing.

P6: "Somehow it kind of took me with it or like, drew me in, that I just got excited about it, that well, this kind of furniture could fit here and

that kind of furniture could fit there. And in a way, I wanted to keep continuing my own project all the time."

P7: "But then towards the end, I got a hunch about how this is going, and then it was a bit of a shame that the time was up. I would have liked to furnish that apartment."

P9: "... and I think that when you get started into like enjoying it then it's, as I told you previously, it's kind of addiction. Like I wanted to more experience, like see more, but I can take like I think whole day."

5.2.3 Recommending the Service to Others

Six participants (P1, P2, P3, P5, P6, P7) stated that they would recommend the service to others. The reasoning behind the recommendations included for example the service helping to make a good purchase, that it's fun and useful, it helps to plan interior and a sense of space, saves effort, time, and money.

P3: "Well, just because I think it helps in that way, that in designing the interior and that it kind of reinforces the purchase decision in a way that it's easier for you to spend your money when you've kind of tried out that it actually fits there."

Even though they would recommend the service, participant 5 noted the technological requirements as a limiting factor. Similarly, participants 4 and 7 stated that they would want to see improvement in order to recommend the service to others. Only participant 8 didn't see themselves recommending the service, as they thought that the service would not bring value for their close ones.

P4: "As it is, no, I feel that I would just recommend wasting time, from which you don't really get any benefit."

P5: "But then maybe the realism, that how many people can use this, like, how many people would have the opportunity, it's still in my opinion quite narrow."

P7: "Yeah, I could [recommend it]. And at least like that, when those kinds of things develop a bit and like that, then I believe it will become even more user-friendly."

P8: "I don't feel that there's so much added value that I would see any of my acquaintances or friends really getting so much out of it that I would feel it's worth it."

When asked about the type or a person the participants would recommend the service for, multiple answers arose. In the broadest sense, six participants (P1, P2, P3, P4, P5, P9) told that they would recommend the service

for everyone, without specific demographic requirements or limitations. However, participant 5 thought that older people might have more challenges in using the service. Participants 3 and 7 noted that they would recommend the service for young people. However, participant 3 noted that they still see the service useful for older people as well.

> *P5: "Yeah, and I think people of all ages, but maybe for older people it might go a bit over their heads. They might get frustrated. So maybe it requires a certain kind of interest and willingness to learn something new."*

> *P3: "Of course, young people are more likely to get involved in something like that and might be willing to pay for such a service, and maybe some older people who don't understand that opportunity as well. But like, if they tried it, they might get quite excited too."*

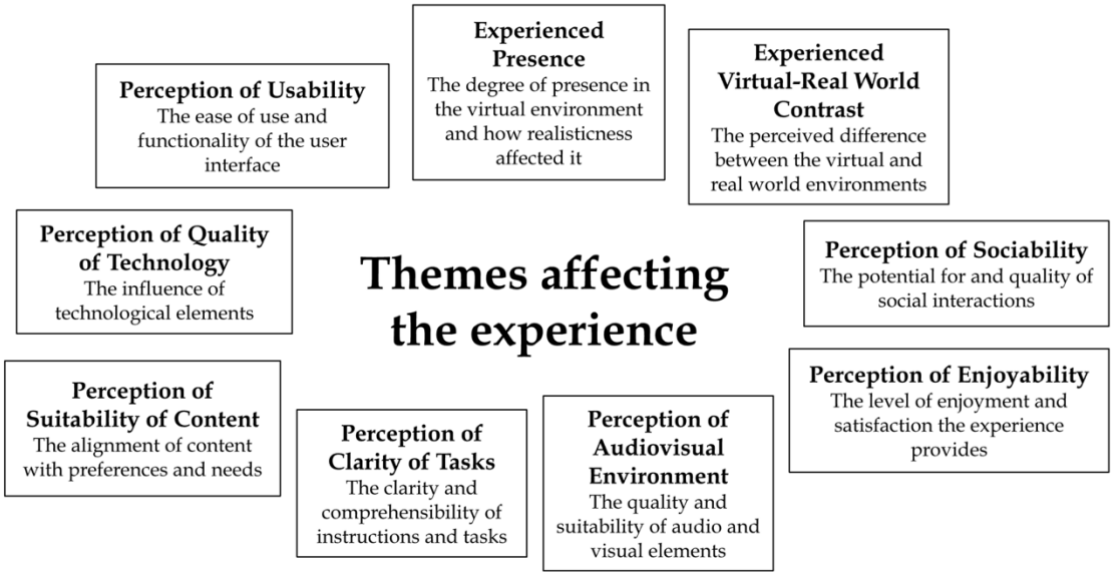
Multiple participants (P1, P3, P5, P6, P9) told that they would recommend the service for anyone buying furniture. Participants 2, 4 and 7 noted that the service would be useful specifically for people interested in interior designing or even for interior designers as a tool. Participant 6 noted that the potential user would need to have access to a VR-headset and overall to be even slightly familiar with technology. They also noted that they would specifically recommend the service for someone having difficulties in making decisions. Participant 8 could not think of anyone they would recommend the service to.

> *P6: "Someone who has those VR glasses or has the possibility to use them. And who is bad at making decisions and wants answers. So if there's difficulty in choosing between different pieces of furniture. But on the other hand, anyone could use it, it's not limited. Of course, if someone is really bad with any technology, then maybe I wouldn't recommend using it, cause it does requires a bit of understanding of how such devices work."*

5.3 Identified Themes Affecting the Experience

From the thematic analysis, we identified 9 themes (Figure 4) that affected the experience in various ways. The themes were identified to have either positive, negative, or neutral influences on how the participants felt about the experience. To clarify this nature, they are named as 'perceptions' or 'experienced' things. The themes are Perception of Quality of Technology, Perception of Usability, Experienced Presence, Experienced Virtual-Real World Contrast, Perception of Suitability of Content, Perception of Clarity of Tasks, Perception of Audiovisual Environment, Perception of Sociability, and Perception of Enjoyability.

FIGURE 4 Identified themes that affected the experience



These themes will be discussed in more detail next, by analyzing the participants' anonymized answers. Most valuable comments by participants are presented as quotations to give more insights about their own perceptions and opinions regarding each theme.

5.3.1 Perception of Quality of Technology

Every participant noted that the quality of the technology affected their experience either positively, negatively, or in both ways. The quality of technology refers especially to the functionality of the VR-headset and the controls.

Four participants (P2, P4, P5, P8) noted that the quality of the camera of the VR-headset was poor and influenced their experience negatively. However, even if participants 2 and 5 noticed the bad quality of the camera, they still thought that the overall quality of the technology was fine. Participant 2 stated that they felt immersion once the technology worked nicely.

> *P2: "I experienced [immersion]. I experienced it like occasionally. When it worked well and maybe when browsing all those options, it felt a bit like... Maybe it felt the same as browsing a phone, not thinking too much about it."*

While participant 5 thought that otherwise the technology worked fine, they did feel like the VR-headset was heavy and noticeable, and they were hoping for more improved technology regarding the camera. As an extreme, participants 4 and 8 felt like the quality of the technology needs a lot of improvement. They

even noted that they wouldn't use the service again due to the bad technology. Participant 4 also stated that the quality of the camera built a more noticeable difference between the virtual world and the real world.

> *P5: "I was still noticeable that it felt a bit like looking at a screen, so if there were just like eyeglasses where you could just look through and everything would be crystal clear."*
>
> *P4: "That technology is nowhere near a usable level yet."*
>
> *P4: "If the technology was better, with a better camera and so on, so that the implementation would actually look like the real environment, it would somehow... The difference wouldn't be so big, but now it felt like there was quite a big difference between reality and the virtual world."*

On the other hand, three participants (P3, P6, P9) had nothing negative to say about the technology. However, while participant 9 was content with the technology, they also came up with an idea of being able to press the buttons directly with their hands, not by pointing with the controllers. According to participant 9, this would be easier and more time efficient. They justified their idea by the human nature as follows:

> *P9: "Because we humans like that, we aren't happy with little things. Like we want more and more!"*

Additionally, two participants (P5, P9) even stated to have felt technological embodiment, as the technology felt like it was 'a part of them'. In the middle of the two extremes, participants 1 and 7 felt like at first the technology was a bit difficult to use, but once they got the hang of it, it was rather easy and worked fine. For example, participant 7 stated: "*Then [when there were no more technical difficulties] it felt clearer, and then I started to immerse myself in it better.*"

> *P5: "And that, when you really looked, it wasn't that you had to use some buttons to spin it around to see, but just turning your head and you could see."*
>
> *P9: "the set and the hands specially, it's like your hands, yeah. So it feels like I'm doing with my hands everything myself. It doesn't feel like it's the technology, I feel like me doing it, because I can see through my eyes like I'm doing it. Really real, like I feel that presence."*

5.3.2 Perception of Usability

All participants found the platform overall easy to use, however, many suggestions also arose to make it better. Also, using the platform wasn't easy from the start for everyone. Five participants (P1, P3, P5, P7, P9) had some issues first, but once they got familiar with the controls, using the platform was easy. For example, the usability was described this way by participant 9:

> *P9: "So, at the beginning, it was a little haphazard, but then later when I got to understand everything, and it's becoming easier, yeah. At the end I found it like super easy."*

Even if participant 7 had some issues in the beginning, they noted that if they were more familiar with the system, they would be able to focus more on the virtual environment itself:

> *P7: "Yeah, I feel that you could really get more into that reality, that when you're more confident in your actions. Then you can focus a bit better on the space itself rather than on navigation."*

On the other hand, some participants (P2, P4, P6, P8) found navigating with the controls easy from the start. Even if they found it easy, for example participant 4 stated that it was easy and difficult at the same time. In fact, participants 4 and 8 became frustrated by the poor usability, especially related to the placing of products. So while participant 8 found navigating easy, they still perceived the usability as poor.

> *P8: "Well, [navigating/operating in the virtual space felt] very normal, it was all so familiar to me. I know how all those buttons work."*

> *P4: "Okay, it's really annoying that this doesn't go where I want it to or the way I want it to. Then it's like, ahh okay, now I have to go back through the menu to navigate this direction, this object's direction, but yeah. Like, it's easy to use but difficult to use at the same time."*

> *P8: "But also, people don't like clumsy interfaces. So that brought a bit of frustration too."*

A note regarding an individual's personal abilities affecting the perceptions of usability was presented by participant 6. They noted that using the platform might be more difficult for someone who is not very familiar with using technology overall:

> *P6: "It was convenient or like, simple enough at least for me. I feel like I'm pretty good with those kinds of things and using technology, so it was easy for me, but I can imagine it might be much harder for someone else."*

Negative thoughts regarding the interaction with the products arose from most participants (7/9). According to them, the platform had issues in demonstrating the distance while placing products (P1, P2, P4, P5), in the overall method of placing the products (P1, P5, P7, P8), in smoothly rotating the products (P2, P4, P7, P8), and in the realistic perception of the size of products (P4, P6). Participants 3 and 9 were the only ones who didn't directly imply any lack of usability regarding these issues. Here are some examples of comments related to the issues with interacting with the products:

> *P1: "Well, it worked quite well in itself but then when the items started overlapping it was a bit difficult to move them around. And it was always a bit of a challenge, when they went inside each other it was especially difficult..."*
>
> *P2: "It felt a bit like it [the application] didn't have a very precise idea of how far the floor was, for example, but the furniture felt like they weren't really on the floor."*
>
> *P8: "And there was a really big sensitivity at the moment, which made it harder to use the different sliders when turning the furniture, for example, there wasn't a single option between 95 and 105 that you could hit no matter how much you tried."*
>
> *P6: "I felt it was quite clumsy how you placed things or the depth in that world - - - So it actually kind of broke the illusion of being in a virtual world when suddenly the bed was really small in the corner."*

In addition to the issues with placing products, some participants (P2, P4, P6) found navigating, especially in the tutorial space, difficult. Also, participant 7 found the overall tutorial to be difficult, and they also questioned the relevance of the VR-headset in the experience.

> *P7: "So, in that sense, something visible on a computer screen, something that you could design with a computer and so on, I feel like it could be maybe even a bit more practical still."*

Regardless of the issues with usability, also positive details were noted. Browsing through products and the process of choosing products for the room felt easy and intuitive to most participants (P1, P2, P4, P5, P7, P9). However, some of them experienced difficulties first, but later found it intuitive. The environment also reminded some participants (P1, P7) about usual online stores, which was perceived positively by them. Also, the placement of menus was noted as a feature that created immersion by two participants (P2, P6).

P2: "It [the virtual environment] was easy to use, like really intuitive. All the menus were quite intuitive, and like everything about how you selected things and so on."

P4: "Or intuitive, yes, because it [designing in the virtual environment] was like, it was easy."

P5: "Well, the actual process and like, choosing the product, placing it there, and then being able to remove it, being able to rotate it, it was predictable."

P7: "Navigation was easy, or it felt quite similar to browsing an online store, like scrolling through items."

P6: "Well, I liked how the menus were in front and you could, or they stayed in place. And how they looked and how you could use them, they were really easy."

5.3.3 Experienced Presence

The participants' presence in the virtual environment varied between participants. Still, every participant felt overall very present in the experience and the virtual environment. For example, some participants described it in this way:

P1: "I do feel like it was a real situation, and like, I got quite deeply immersed in it, and I felt like I was really doing this, decorating this apartment."

P5: "I did get the feeling that I was present there. Like kind of in the real world, but with something extra in it."

P6: "Of course, you're aware all the time that it's just a virtual world, but at the same time, there were no signs that I was somewhere else, so it worked really well in that sense."

P8: "It's quite easy to get dive in and enjoy the experience. It's much easier with the glasses on than just looking at a screen, yes."

However, some of them did note some things that affected their presence in the virtual environment or the act they were performing, in both negative and positive ways. For instance, many participants (P3, P4, P6, P9) highlighted that as they were highly focused on what they were doing, they felt more immersed in the virtual environment.

P4: "The fact that you are focusing on, it increases the immersion. Or like, It added to my feeling that... or yeah... I kind of forgot about the real world quite quickly."

P6: "I was able to focus very well on what I was doing and where I was."

Even if the whole experience was done with a VR-headset, some participants noted some things from the world around them that influenced their experience (P8) or could have influenced (P6). As a contrary, for example participant 3 noted that the environment was calm and helped to focus and feel present in the virtual environment. Some participants were asked whether the presence of the interviewers in the next room affected their experience, and below are examples of answers by participants 4 and 5.

P6: "Of course, if there had been some light leaking in from outside the glasses, it would have probably broken the illusion. And if there had been a lot of noise in the background, it would have created a feeling that I was just here with these glasses on."

P8: "... there are no headphones, so you hear everything else, and it doesn't block out much [voices from the real world]."

P3: "Well, maybe it [supported the feeling of being present in the virtual space] because it was a calm situation, like there were no other distractions around."

P5: "I was aware [of the researchers' presence], but I didn't think about it. Like, you were in a different room anyway."

P4: "No, I didn't [think about the researchers' presence]. Maybe at first, but then I kind of forgot about it as I focused on the experience."

5.3.4 Experienced Virtual-Real World Contrast

Among participants, there were differences in how the virtual environment felt and how present they were in it between different stages of the experience. For example, some participants (P2, P3, P4, P7) noted that when they were in the MR designing space, they felt more present in the real world than while they were in the training mode. Especially seeing the real world through the glasses affected this feeling. Participant 7 even felt confused about where they were during the tutorial phase, but once they got to the designing mode, they felt more comfortable. Similarly, participant 5 felt more comfortable in the designing space compared to the tutorial space.

P2: "Then when I came there, so that I saw the space, maybe it felt more like in the real world than the virtual world."

P7: "I was really confused, I felt like I wasn't sure where I was [when in the tutorial space]. Or that I might hit a wall soon. So I wasn't sure

which space I was in."- - - "... and then when you see the room that is around you, it kind of is like a reality too, that it is not just the virtual world, I think it's interesting to have like a combination of the two."

P5: "And then, when I was in the intro, I was in that imaginary environment, and I thought I would be doing it there, but then I got to this realistic environment, which was the best part of it."

As noted earlier regarding the Perception of Quality of Technology, participant 4 stated, that a significant difference between the real world and the virtual world came due to the quality of technology. In the contrary, participant 6 didn't even remember if the environment looked different through the VR-headset than normally.

P6: "Now that I think about it, I don't actually remember if the colors of the surfaces looked different through the glasses, but yeah. It [the virtual environment] didn't feel that special, it just was."

There were also differences in how the participants viewed the virtual environment overall, compared to the real world. Four participants (P1, P2, P5, P7) viewed it as a new kind of space that was hard to describe to them. Participant 7 thought that their earlier experiences might affect how they felt about the environment. Whereas participant 6 described it as a kind of parallel reality.

P2: "I don't really know [whether I was present in the virtual space or the real world], it's hard to say. Maybe it was some kind of new space or something."

P5: "At first, it felt a bit strange to be in such a different [world], like all of it."

P7: "So it feels a bit strange, maybe if I had played computer games and spent time in like virtual worlds, it wouldn't feel so strange, but since I haven't, it feels very new because it's new."

P6: "I can't really describe it in any way, but it was just its own world. Kind of alongside this world."- - - "Of course, you are aware all the time that it's just a virtual world, but at the same time, there were no signs that I was somewhere else, so it worked really well in that sense."

Regardless of different perceptions about the role of the virtual environment, overall, most participants (P1, P2, P3, P5, P6, P7, P9) described that the virtual environment as an experience felt realistic to them. For instance, participant 1 even felt confused after the experience due to the reality of the experience.

P1: "It was a bit scary how it feels like we are living in like the future. And how like, everything like, I don't know… It was a confusing and

eye-opening experience, seeing what can be done in this time."- - - "... [after removing the VR-headset] suddenly being in an empty apartment when it was full of stuff just a moment ago. It felt like very real and confusing."

P1: "I do feel like it was a real situation. And I got quite deeply immersed in it, feeling like I was really doing this, decorating this apartment."

P5: "It was really so life-sized, and it was like, I felt like I fit into the space very well, it was maybe even more realistic than I thought."

P7: "It was like well done, or like, it felt like I was really decorating a real room, not just something that felt very cartoonish or virtual or like that."

From the answers of the rest of the participants (P4, P8) it couldn't be straightforwardly noted that the experience felt realistic to them. However, these two participants did note that they were immersed in the experience in other similar ways. Participant 8, for instance, stated that they were immersed because they were already familiar with the technology and trusted it. Whereas participant 4 stated that while it was immersive, they still felt more like they were in the real world and didn't lose touch with reality.

P8: "So, even though I mentioned there are some distractions because there are no headphones to help immerse in the experience, it still felt easy to forget about the surrounding world. Because also here, the room is very big, and I know the boundaries are set to it. You can only walk or move within a 2 by 2-meter area, so you don't worry about hitting furniture or anything else, and you can focus more on it. I think that's also something that comes more through experience."

P4: "But like it [the virtual environment] felt good, yes. Like, it was immersive, but not in a way that you lose reality. Or yeah..." - - - "There is this room around me, so yeah there just a bit more stuff in front of my eyes. So yeah, it does feel like I'm in this room."

5.3.5 Perception of Suitability of Content

How participants viewed the objects and content of the virtual showroom to suit their preferences differed a bit between them. When talking about the content of the virtual showroom, we are referring especially to the furniture that participants could place in the design mode. Also, the environment of the tutorial was highlighted by some participants. Four participants (P1, P3, P5, P9) noted that they were especially happy with the amount and variety of options that were available.

P3: "There were a lot of options, so it wasn't like you had just three to choose from, but you had many pages of those options."

P9: "I think all kind of furniture were there. Like, like aesthetic and as well as colorful and classy, and comfortable - there were like sofas and there were like, armchairs and also formal office tables and chairs also. I think products available were perfect."

Five participants (P1, P4, P5, P7, P9) stated that the products fitted their preferences (especially regarding their looks), and they were able to find products that suited their social context. To note, the suitability of content wasn't commented on in the answers of participants 2, 6 and 8. However, some suggestions were made to enhance the elements and environments. Participant 1 would have wanted to place also other kinds of elements (e.g. a television or computer) into the design space to make it more realistic.

P5: "the selection was really good, so that was very nice, and there were modern, like really nice ones that I could actually buy, so all the products were good."

P7: "But also they were nice-looking, and as mentioned, like for example a wooden bed, it looked nice."

P1: "But there weren't for example any TVs or computers, which you might plan where they would go. It feels like this could work well for a company like JYSK. But like, you can't get your home ready with this alone."

5.3.6 Perception of Clarity of Tasks

Regarding the clarity of tasks, participants raised issues especially related to the proceeding of events and the instructions provided. Almost all participants (8/9) thought that the proceeding of the events was logical and supported their experience. Participant 1 was the only one to suggest another type of approach for the proceeding of events. They suggested that the tutorial could be shorter, or even combined to the design phase.

P1: "It could be done in a way, that there were just an empty room, and it tells you to press that to get the products and press that to move them. They don't necessarily need to be in two separate phases. It could instruct you while you're already in the room."

P2: "The [sequence of events] was good, and the tutorial was of appropriate length, that it wasn't like too long."

P7: "I think it was in a good order - - - it's good that first it teaches you and then it moves on to the actual doing, so I think it was logical."

P8: "[The sequence of events] felt quite logical. I didn't feel like I needed anything more."

Regarding the instructions provided, different opinions were stated. Most participants (P2, P3, P4, P5, P6, P8) thought that the instructions and the tutorial were clear overall, and they knew what they had to do during the experience. Participants 1 on the other hand would have wanted to have clearer or simpler instructions regarding the controls. Similarly, even if participant 5 did find the instructions clear overall, they noted that they could have benefited from more instructions related to placing the products.

P3: "So I think it [the tutorial] was what you needed in it, because when you started doing it yourself, then you found all the different products. I don't think the tutorial like needed more."

P5: "The intro was really good and necessary because I wouldn't have managed without it. But, yeah, I think it was logical, well explained, and yeah."

P6: "Yes I always felt like I knew what I was doing."

P1: "At first it [operating in the showroom] was a bit difficult and confusing because I didn't know where everything happened, so to make it easier, there could be like... You only actually needed two different buttons, so maybe they could always be visible, like press this to move items and press this to open menus."

P5: "Maybe it could be somehow explained how to get things to the right level. In the intro, I was left with one of the tables just floating in the air, and it wasn't really explained how to move it down. There was rotate and some other things, but how to get it to the right spot, that could be taught."

Participant 9 felt like the experience was mostly clear, but the sufficiency or quality of instructions wasn't specifically discussed in their interview. However, they did have different kinds of problems in the tutorial for some time, so we can assume that the instructions could have been better. While participant 7 had some difficulties with remembering instructions and tasks, they noted that once they listened better to the instructions, they were able to navigate better in the environment. Regardless of the potential influence of their own focus, they stated that having clearer instructions or the audio instructions at a slower pace could help in operating in the environment.

P7: "Maybe [I would have wanted] more instructions. But I feel that it might also be because I missed something at the beginning when I was just looking around, and I kind of missed the audio, and I didn't hear something specific. Then I was like, what am I doing, but maybe it was said in the audio. Maybe slowing it down even more. - - - So maybe clearer instructions would have been enough, or maybe just my own focus."

Some other detailed suggestions were also made to the service regarding clarity. For instance, participant 5 suggested that a smoother transfer between the tutorial and design phases would be nice. Whereas participant 3 who felt like the instructions were clear, felt like the tutorial was a bit unclear and it was easier to learn in the design phase.

P3: "It was a bit unclear, like, I feel that I learned as I started doing it, then I immediately understood, like oh, this is how it goes. Or like there were useful things [in the tutorial], but it was kind of hard to grasp."

5.3.7 Perception of Audiovisual Environment

The audiovisual environment was commented on by participants negatively, positively, and neutrally. More critics were related to the visual aspects of the experience than audio. However, participants 6 and 7 even noted that the combination of the audio and visuality deepened their immersion or made their experience better.

P6: "I think they fit well together, the audio and the visuals, so that there wasn't like a big contrast between them."

P7: "But when you have both the sound and the picture together, I feel like they take you even more into that specific world."

Regarding visuality, participants noted different kinds of things. Three participants (P1, P3, P9) thought that visuals were good and didn't need any adjustments. Whereas some participants (P2, P6, P7, P8) thought the visuals were overall good, but could be made better by adjustments. While participants 4 and 5 weren't impressed by the visuality of the service for different reasons, they did also note positive things about it.

Regarding the adjustments that would make visuals better, different things were noted. Participant 2 had concrete suggestions to enhance various visual details to make the experience better and more immersive (for example how lights and shadows are displayed on the products). On the other hand, usability issues affected the visual experience of participant 6, as already noted referring to the Perception of Usability. They noted that even if the visuals were overall nice, the immersion was sometimes broken as the products didn't appear

true to their size due to usability issues. The thing that frustrated participant 7 was that some of the products didn't appear in 3D similarly as they looked in the images in the catalog. Also, participants 4 and 5 noted the same thing.

> *P2: "Then when these models are brought into this space, it doesn't take into account the light that is in this space. So they don't react to the light the same way, but it's always the same. So that kind of breaks the immersion a bit. They look like 3D models and not like they are really there."*

> *P4: "Like, they were nice-looking, and like, the sofa too, it was the same thing [as the curtains, whose color looked different than in the picture]; it was supposed to be black and look like a leather sofa, but then it turned out to be like a gray fabric sofa."*

> *P7: "So when I tried to find beige curtains, and then I selected some curtains, they looked gray when they appeared, which was a bit disappointing."*

As stated, participants 4 and 5 weren't impressed by the visuals. For instance, participant 5 noted that they would probably benefit from traditional stores more regarding visuality. Still they (P4, P5), as also other participants (P1, P7), highlighted especially the spatial visuality in a positive way. They said that the furniture in the design phase looked realistic (P1, P7) and were true-to-size (P4, P5).

> *P5: "And additionally, the visuals were a bit too blurry, that I wanted something more realistic, because I can still go to the store myself to see what the product looks like, so maybe it wasn't the best for that because they looked like digital products and not real ones."*

> *P1: "Maybe that the furniture corresponded as quite realistic ones, like they felt real. And I was able to fit them quite well on those walls and even in that space as small as that, so it worked well."*

> *P4: "now that you mention three-dimensionality, that was actually good. It did gave like a sense of space somehow. That deserves praise."*

> *P5: "Yeah, it [the three-dimensionality of the products] worked quite well, they were realistically sized, for example."*

> *P7: "they were quite real-looking, or like realistic, the furniture"*

The thing that bothered participant 4 regarding visuals, was also the poor quality of the VR-headset's cameras. Still, however, they noted that they felt immersed due to the constant visual stimuli provided by the experience. Similarly to participant 4, participants 5, 6, and 8 noted the quality of the cameras of the VR-

headset to affect the visuality of their experience negatively. Otherwise, participant 8 was content with the visuality of the experience and said that viewing the products with the VR headset provides richer information about them than an online store would.

> *P4: "you have like a visual stimulus around you all the time. So you kind of have to focus then, and that was interesting, so I just... The fact that you are focusing on it increases the immersion. Or like it added to my feeling that, or yeah… I just kind of forgot about the real world quite quickly."*

> *P8: "The showroom was well built [visually] and it worked well. Yeah, no complaints about that."- - - "You do get more out of it versus just looking at them in an online store because you can rotate them yourself in your hand."*

All participants thought that the audio during the experience was either good or neutral. Multiple participants (P1, P4, P6) noted that the voices they heard made their experience better. The role of the audio wasn't seen as very notable by some participants. For instance, while participant 3 didn't remember there being audio in the design phase, participant 5 saw audio as a minor thing. On the other hand, participant 9 liked the audio but could have liked to hear some music while designing.

> *P1: "Maybe they [the sounds and visual elements] made it a bit more pleasant in the end, if it had been just a silent situation, it might have been a bit dull or like that. But they added like some king of vibe of decorating and really doing something to it."*

> *P4: "Well yeah, I think the sounds corresponding to different things were good. They felt somehow like natural, like I always understood what the sound meant."*

> *P6: "When you select a piece of furniture, there's a nice sound, but it was very pleasant, so it wasn't a disturbing soundscape."*

> *P3: "Well, was there any soundscape when I was doing my decorating? At least I can't particularly remind myself of any soundscape. Of course, there was sound in the video."*

> *P5: "Well, there weren't any sounds except some small ones when you selected a product, then there was some kind of a 'pling.'"*

Regarding audio, some comments were stated about the lack of headphones in the VR headset, which affected the participants' experience either in positive (P4, P7), neutral (P8), or negative (P2) ways. Even if participant 8 stated that the lack of headphones was a neutral thing related to the audiovisual

environment, they did state it as a factor that affected their ability to immerse themselves in the experience.

> *P2: "well the sounds were good enough, but they weren't maybe the kind that, when you heard the sound, you were very aware that it was coming from the VR-headset and not actually there. So the sound quality could have perhaps been better. Or maybe it didn't even need those sounds at all."*
>
> *P4: "now there are no headphones, but you didn't really need them for that, so it was just nice that it like... When you're not playing but designing, it still maintains some kind of reality or shared reality through that as well."*
>
> *P7: "It was funny when it [the sound] came from here [points to area near ears], it added a bit of authenticity in it."*
>
> *P8: "Well, the soundscape wasn't particularly special in that. You notice the lack of headphones in it, so the amount of sound becomes a bit secondary maybe. Of course, it's secondary in this context. But I don't really have anything to say about that."*
>
> *P8: "Headphones [lack of headphones affects the ability to immerse in the experience], there are no headphones, so you hear everything else and it doesn't block out much."*

5.3.8 Perception of Sociability

In this study, participants didn't try out the service online with other users, but they were asked how they would feel about that option. Almost all participants (8/9) stated that it would be more fun or better to use with someone, especially if they lived or would live with someone. Some of the participants referred directly to their partners while some talked overall about partners or roommates.

> *P1: "Well, it would be kind of fun to see, if for example, well, if you were living with someone, it would be fun to see kind of... If it was a bigger apartment, it would be nice to see how others behave there and if others have the same visions, it could be a fun experience."*
>
> *P3: "I think it would be nice, like if my boyfriend and I were designing our home together, we could both move things around and think together... Then we would both see what we're doing and could immediately give opinions like, do you think this is good or should it go this way or should it be a different color."*
>
> *P5: "Well, it sounds fun, for example like it would be even nicer to do it with someone else than alone... But it would be a nice possibility, or*

like if thinking of a real decorating situation, being together with a partner or a roommate."

P7: "but probably as with all this kind of technology, if you can make it interactive with others, that's for sure a good thing - - - maybe if like, I had a friend or boyfriend I was moving in with and we were in different places, or even in the same place, maybe then, decorating the same apartment could be quite fun."

P8: "It would definitely be more fun with a friend. So generally, everything you can do together is much more fun."

Participant 4 was the only one who didn't see the possibility to design together as a straightforwardly positive thing. They did note that if the service was better (related to for example usability issues and the quality of technology) they could use it with their partner to design their home together. But regarding using the service with friends, participant 4 didn't see it as a beneficial option.

P4: "Especially if you could scan your furniture and everything, if you live in different cities for example, and are moving in together and know your apartment, and then get it into virtual reality, you can just place your furniture and everything, and think about what you need to still get. So I could imagine using that." - - - "Well, if it was easy to use and the quality was better, well I don't still know if I could see myself doing it with others... It's just somehow that the immersiveness for me is associated with games still, so it feels so game-like. It's hard to imagine myself seriously decorating with friends without it being like messing around."

Participants were also asked if they faced other characters during the experience. Most participants (7/9) said that they didn't see other avatars during the experience. However, two participants (P1, P4) made specific observations about the ways the platform communicated with them. Participant 1 described that it felt like the tutorial phase was as they were visiting a furniture store, while the design phase was them transferring to their own apartment. Whereas participant 4 didn't remember if there were other characters but referred to the tutorial voice, and stated that if there were, they didn't affect their experience. Participant 1 however, made a suggestion that there could have been a possibility to interact more directly with the tutorial voice.

P1: "The tutorial kind of felt like there was another person there, but I didn't notice anyone to be there. So maybe it had a bit of a feeling like going into a furniture store where there would be a salesperson or another person in the space. But then when I moved to the second phase, it felt like I was coming alone to my own apartment, in a way. So then there wasn't really anyone there." - - - "Well, I don't really know how

you could ask anything from it [tutorial voice], it just was there and gave the basic instructions. Maybe in that kind of virtual reality, it would have helped if you could ask during the practice how it works or something like that. Like if it could repeat things or guide you in some other way, because it just gave the instructions and then you started doing it yourself."

P4: "Maybe there was during the tutorial at some point, was there at the beginning? I'm not sure, but someone was talking in the video at least."

5.3.9 Perception of Enjoyability

Whereas every participant found the experience enjoyable or fun, some differences in enjoyability arose between participants. For instance, some of the participant's own preferences and backgrounds were raised as factors that contributed to their experience's enjoyability. For instance, participants 5, 6, and 8 raised newness as a factor that especially influenced their experience positively.

P5: "Well, I thought it was really fun and really nice and new."

P6: "I don't have much prior experience with any similar kinds of VR stuff, so it was fun to try it like that."

P8: "Well, I always like using such kinds of [advanced technology] products, but like, it is also really cool, as I had never done any like interior design with VR glasses or in that environment before. Trying something new is fun."

Two participants (P2, P3) even found themselves immersed because the experience was new to them. They stated that the newness raised their focus to the tasks. Also, participant 7 noted that time feels to go especially fast when trying out new things.

P2: "It was really easy to get like immersed in the experience, so that you weren't like thinking about anything else but it. Especially since it was a new experience, I just tried everything."

P7: "I often feel, that always maybe when learning something new, I feel like time goes by really fast, because you are like okay, what is this here, and you have to think about so many different things. So the time went by quite quickly."

Only a few direct notes about earlier skills affecting the experience were made. Participant 8 noted that their multiple earlier experiences with VR headsets made navigating in the environment easier and more enjoyable. On the other hand, participant 7 felt like the lack of experience with similar games

affected their experience at first by making it difficult to navigate in the environment. But once they got the hang of it, they stated that the experience was more enjoyable for them.

> *P7: "Since I'm not really like a PlayStation player or anything, I haven't used any controllers or anything like that before, so I was lost. But once I got the hang of it, I thought, okay, this is actually fun, and like, it has an idea to it."*

> *P8: "Well, [navigating/operating in the virtual space felt] very normal; all of that was so familiar to me. I know how all of those like buttons work."*

6 REFLECTIONS

In this chapter, we will break down the complex relationships between immersion in a virtual environment and the customer's experience, especially within the pre-purchase stage. The chapter explores how immersiveness can affect the way customers feel and think during their interaction within a virtual environment, thus answering both our research questions:

RQ1: How is an Immersive Customer Experience formed in the pre-purchase stage?

RQ2: In what ways can immersiveness shape the customer experience in the metaverse during the pre-purchase stage?

First, to provide a base for this analysis, we will analyze the experience of the study as a whole. First, we will examine how the platform used suits the characteristics, technologies, and applications of the metaverse presented in the theory section of this study. Next, we will dive deeper into analyzing the experience by studying how different elements of the Immersive Experience framework by Han et al. (2024) were present in the studied experience. Additionally, we will analyze the experience from the perspective of the users. This will be done by first analyzing how immersed participants felt in the experience by looking at their own statements about the issue, followed by an overview of their behaviors during the experience by reflecting especially on the behaviors typical for the pre-purchase stage (Lemon & Verhoef, 2016). By this initial analysis, we will obtain a base for further analysis of how Immersive Customer Experiences in the pre-purchase stage are formed.

In order to analyze the Customer Experience as a concept, we will be following the omnichannel Customer Experience definition by Gahler and others (2023). First, we will study how the subjectivity of immersiveness and Customer Experience appeared in our study within each theme affecting the experience, which are further named as Experience Factors. To analyze the applicability of the formed Experience Factors, we will analyze each factor by the definition of immersiveness by Shin (2019) (which categorizes immersiveness to form out of cognitive, emotional, and sensory aspects) and the six dimensions of Customer Experience by Gahler et al. (2023). Finally, to analyze the effect of touchpoints on the Immersive Customer Experience within the pre-purchase stage, we will analyze how the participants gained information about the products during the experience and apply the Customer Experience touchpoints presented by Lemon & Verhoef (2016) to the analysis. This will result in presenting how Immersive Customer Experiences are formed in the metaverse, especially during the pre-purchase stage. For clarity, this method is presented in Figure 5 below. Lastly,

this chapter analyzes the reliability and limitations of the study, followed by proposing managerial implications and perspectives for future research.

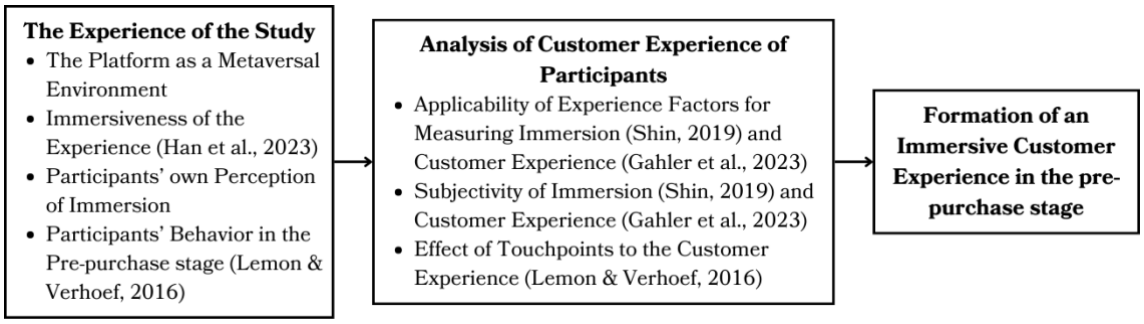


FIGURE 5 Method Resulting in the Formation of a Framework of Immersive Customer Experiences in the Pre-purchase Stage

6.1 The Experience of the Study

First, this chapter analyzes how characteristics, technologies, and applications of the metaverse were present in the experience of the study. Next, the immersion of the experience of the study is analyzed through the Immersive Experience framework by Han et al. (2024). To analyze the participant's overall immersion, we will look at how participants stated to have experienced immersion during the experience. To gain more information about the behaviors of participants during the study, their experiences are examined by the typical behaviors connected to the pre-purchase stage by Lemon and Verhoef (2016). These analyses will provide a base for the other analysis presented further within Chapter 6, by considering the specific features and possible deficiencies of the exact platform and experience used to conduct the study.

6.1.1 The Platform as a Metaversal Environment

In order to analyze the platform used in the study as a part of the metaverse, we must address how the characteristics, technologies, and applications of the metaverse appear in it. As stated earlier, the relevance of specific dimensions presented by earlier literature can depend on the type of the metaverse examined, so first, we will examine what key characteristics are present in the platform used in the experience. As the platform was accessed through a VR-headset, immersiveness can be seen as an important characteristic in forming the metaversal environment of the study experience. Similarly, due to the use of VR-technology, the digitally mediated nature is a focal characteristic of the experience. As the platform was designed to provide an opportunity to design

with real-life-like furniture, environmental fidelity was also highly present in the experience with the platform. Also, the possibility to design in an MR environment emphasizes the presence of environmental fidelity as a characteristic. Thus, the platform can be seen to mimic real life, while still providing an immersive and digitally mediated experience.

Regarding interactivity, the platform can be analyzed through different perspectives. As during the experience, participants interacted with and through the technology, it can be seen as a central part of the experience. However, even if the platform offered a chance for designing with friends, this type of interactivity wasn't explored during the experience of the study. Thus, interactivity can be seen as a present characteristic of the platform, but it might also contain other effects on the experience besides those that were found from this study. While interoperability between different virtual environments and platforms is hard to obtain at this stage as the development of the metaverse is still in its initial stages, the interoperable nature appeared in the platform as a possibility to save the creations and thus return to them at a different time. However, this opportunity wasn't explored in the study, as the study procedure only included one testing session with the platform.

As the platform was accessible only through VR-technology, many central technologies of the metaverse were used in the platform. Regarding XR, the platform utilized all VR, MR and AR technology in the implementation of the experience. This also points out the presence of immersive communication, as a lifelike experience was offered through XR technologies. While the presence of AI can't straightforwardly be perceived by only examining the platform from the user interface, it was potentially used in implementing the platform. Similarly, the presence of blockchain technology can only be hypothesized. However, to our notion, no NFT's were available on the platform, as it only directed users to purchase furniture from the websites of the companies whose furniture was available in the designing phase of the platform. On the other hand, the availability of real furniture in a digital form represents the presence of digital twins. The furniture available for designing on the platform can be seen as digital twins, thus replicas of their real-life versions. However, avatars, which are a typical technology to the metaverse, weren't present in the experience. The users weren't asked to make avatars on the platform and didn't see themselves as represented in a digital form enduring the experience. However, we aren't certain if, for example, the opportunity to design with other users would contain digital personas.

When examining the nature of the platform, it is clear that it is designed for consumers. Thus, regarding metaverse applications, it can be seen as a part of the consumer metaverse. Virtual showrooms overall are typically used for consumers, especially to reduce their uncertainty before a purchase (Sun et al., 2023, p. 1128; Gao ja Su, 2017, p. 3). Similarly, the platform of the study can be seen to be designed to offer consumers a chance to explore available furniture in

an environment where they can gain more versatile information about them, for example in terms of dimensions.

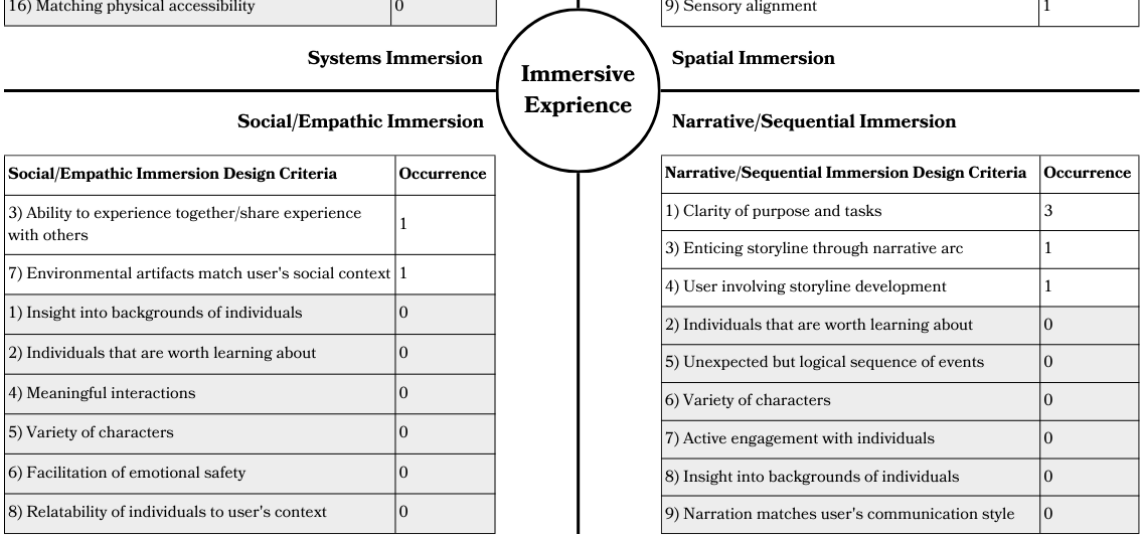
Thus, the platform used in the study can be seen to contain multiple of the central characteristics of the metaverse, making it a great environment to study answers to the offered research questions. The technologies and characteristics of the metaverse can be seen as factors that alter the customer experience in many ways compared to more traditional experiences. For instance, immersiveness, which is typically seen to be obtained through XR technologies (Zhao et al., 2022, p. 56; Punpeng and Yodnane 2023, p.5; Shen et al., 2023, p. 2), has been seen to lead to more persistent mental and emotional effects (Han et al., 2024, p. 14). Another example that explains the differences between customer experience in traditional environments and the metaverse is interactivity, which is seen to lead to a more enjoyable experience (Violante et al., 2019, p. 257). For example, MR technologies, which are also present in the experience of the platform studied, are perceived as the technology that enables the formation of interaction with virtual particles in physical surroundings (Lee et al., 2021, p. 7-8).

6.1.2 Immersiveness of the Experience

In order to review the immersiveness of the experience, we analyzed how each of the design criteria of the Immersive Experience framework provided by Han et al. (2024) could be identified in the participants' responses. This analysis was done by utilizing the themes we had identified earlier. We carefully went through the data by themes and analyzed the statements made by participants. The goal of this was to find out whether the design criteria appeared in the themes either as a positive, negative, or neutral factor. However, we soon found out that the design criterias appearing either positively or negatively differed greatly between participants. Thus, we decided to only count the appearances in general without noting the tone of participants' opinions. Regardless, this finding emphasizes the subjectivity of immersiveness. The participants' own opinions and preferences affected greatly on how these design criterias were noted in their experience. Figure 6 below presents the results of this analysis summarized.

Systems Immersion Design Criteria	Occurrence
5) Predictability of the system	4
4) Clarity of purpose and tasks	3
10) Smoothness of interactivity with the system	3
1) Reduction of potential unrelated interruptions	1
2) Sense of influence in the experience	1
6) Ease/convenience to get into the set experience	1
7) Integrated and clear user interface	1
9) Technological embodiment	1
11) Technological consistency	1
14) Audiovisual alignment	1
15) Functional alignment	1
3) Increasing complexity of task/activity	0
8) Content stability and fit to device	0
13) Unambiguous, immediate feedback	0
16) Matching physical accessibility	0

Spatial Immersion Design Criteria	Occurrence
1) Contrast between current environment and the immersing environment	4
4) Coherency within the space/environment	3
6) Verisimilitude of content	3
5) Content stability and fit to device	2
10) Balance between detail and coherency in the environment	2
2) Reduction of potential unrelated interruptions	1
7) Smoothness of interactivity	1
8) Environment that can be explored	1
9) Sensory alignment	1



Social/Empathic Immersion Design Criteria	Occurrence
3) Ability to experience together/share experience with others	1
7) Environmental artifacts match user's social context	1
1) Insight into backgrounds of individuals	0
2) Individuals that are worth learning about	0
4) Meaningful interactions	0
5) Variety of characters	0
6) Facilitation of emotional safety	0
8) Relatability of individuals to user's context	0

Narrative/Sequential Immersion Design Criteria	Occurrence
1) Clarity of purpose and tasks	3
3) Enticing storyline through narrative arc	1
4) User involving storyline development	1
2) Individuals that are worth learning about	0
5) Unexpected but logical sequence of events	0
6) Variety of characters	0
7) Active engagement with individuals	0
8) Insight into backgrounds of individuals	0
9) Narration matches user's communication style	0

FIGURE 6 Occurrence of Design Criteria within the Experience

Overall, we can note that Systems Immersion and Spatial Immersion were the most central categories of immersion relevant to this setting. The emphasis on Systems and Spatial Immersions is quite predictable when thinking about the platform and study setting. As during the experience, the participants didn't create avatars, communicate with other players, or overall provide any information about themselves. Moreover, the higher occurrence of spatial and systems immersion is in line with previous research. According to Han and others (2024, p.8), systems immersion describes users' engagement in the functions and the activity in the experience, which were highly present in the participants' answers. Additionally, VR technology has been previously connected to support Spatial immersion, as it describes the user's perception of location (Han et al., 2024, p. 14), which supports our findings related to users' perceptions of presence.

Some findings from both Social/Empathic Immersion and Narrative/Sequential Immersion were made. Despite the lack of interaction with other users in the experience, the category of Social / Empathic Immersion was relevant and emerged in the interviews, as the showroom application offers a possibility to design with friends. Participants noted this in their answers.

> *P5: "Well, it sounds like fun, for example, that it would maybe be even more fun to do it with someone rather than alone."*

> *P8: "It would definitely be a lot more fun with a friend. Basically, anything you can do together is a lot more fun."*

Every participant noted that using the service with other people would make the experience more enjoyable or potentially more useful, as they would be able to discuss options with their living partner/roommate. Additionally, the theme Suitability of Content includes participants' views of the design criteria 'Environmental artifacts match user's social context'. In their answers, participants offered opinions about the products and their style, reviewing whether or not the content matched their social context. For example, participant 5 said the following:

> *P5: "...there was a really good selection, it was really nice, and such modern ones, actually nice ones that I could like buy too, so all the products were good."*

Only one participant (P9) noted that the (tutorial) environment did not match their preferences. According to Han and others (2024, p. 4), social / empathic immersion refers to the relatedness to one's own social context. Thus, it is notable that the experience taking place in a foreign environment may have limited the chances to experience social immersion, as the space was not actually familiar to the participants.

In the interviews, three design criterias of Narrative / Sequential Immersion occurred in the themes, the design criteria 'Clarity of Purpose and Tasks' having the most appearances. However, it should be noted that this specific design criteria also belongs to the category of Systems Immersion. The other two design criterias were 'Enticing storyline through narrative arc' and 'User involving storyline development', that both fall under the Experience Factor Perception of Sociability. However, both of these design criterias were represented as hypothetical options for future use or as critique, leaving the category of Narrative / Sequential immersion the least visible in participants' experience.

These findings suggest that most of the participants were likely experiencing immersion during their experience, especially in the forms of systems and spatial immersion. As Han and others (2024, p. 12) suggest, an experience may be immersive, even if not all of the immersion categories are met.

However, the categories contribute to the overall experience of the immersive experience (Han et al., 2024, p. 12). Thus, when designing immersive experiences, it may be beneficial to include characteristics from different categories.

6.1.3 Participants' own Perceptions of Immersion

Almost every participant (7/9) straightforwardly stated that they were immersed during the experience by using the word "immersed" itself (or "uppoutuminen" in Finnish). Factors that were raised to justify these comments were especially the newness (P2, P3) and reality (P1, P2, P4, P6) of the experience. Also, a thing that was stated to raise immersion among participants (P2, P7) was the moments when the technology was working as they liked and a high focus on the tasks they were doing (P9).

> *P3: "I think I was quite immersed in it. And like, of cource since it was new, you had to use your focus all the time on how it works and where each button was and so on. So you didn't think about anything else."*

Participant 5 didn't straightforwardly say that they were immersed, but they did explain that they experienced many closely related subjects such as presence in the virtual environment and a feeling of time passing by fast. Participant 8 was the only one to directly state that they weren't immersed, which was due to the short time of the experience. However, worth mentioning, participant 8 was the only participant to decide to end the experience earlier than the planned duration of the experience. Also, in other parts of the interview they did note that it was easy to forget the outside world during the experience and that it was easy to focus on the experience as they trusted the technology. So, by these notes we can note that also participant 8 probably felt at least some degrees of immersion during the experience, even if they didn't directly note so themselves.

> *P8: "But it was such a short time that I didn't really have time to get like immersed."*

All participants, except participant 8, stated that time went by fast, implying that they were focused on the task and did not pay attention to the passage of time. These findings support the participants' alleged immersion, as immersion increases user's focus on the task at hand, resulting in extended perception of time (Dwivedi et al., 2023, 760).

> *P1: "It felt like only a few minutes had passed or like that. Once I got into it, it very quiqly felt like time seemed to go by much faster than like this in real life, I don't know."*

> *P6: "I felt like it took longer than 20 minutes. But at the same time, it felt like the time went by really quickly, so maybe like a feeling that time*

whent by fast, which is why I thought I had been there for more than 20 minutes."

Four participants (P1, P6, P7, P9) mentioned that they experienced feelings similar to flow, which in a way supports the interpretation of being immersed in the experience. In literature, flow has been connected to the feeling of being totally involved and thus immersed in an activity (Dwivedi et al., 2023, p. 760). These participants described how they would have wanted to continue on what they were doing after the time was up, which further implies that they were immersed in and enjoying the experience. This total involvement also implies that participants' consciousness was not focused in the world surrounding them, which supports the impression of them experiencing immersion (Shin, 2019, p. 1223, 1226).

6.1.4 Participants' Behavior in the Pre-purchase Stage

The behaviors of customer experience in the pre-purchase stage have traditionally been categorized as need recognition, consideration, and search, but in practice, all behavior that happens after the need has been recognized until the purchase is made can be included in this (Lemon & Verhoef, 2016, p. 76). Within the experience of the study, this behavior occurs mostly as finding information (search), as the participants of the study weren't actually conducting a purchase.

First, to be able to analyze how the participants found information about the products, we will review their reported product information needs and the information gained (see Table 5) during the experience. Most of the participants (P2, P3, P4, P5, P6, P7) informed that they expect to get information about visual factors (e.g. looks, material, color, size) and later stated that the information they gained was mainly visual information (such as appearance, shape, material and size). Participants 8 and 9 noted that the price of a product is among the most important things to find out prior to purchase. Also, participants 8 and 9 eventually reported gaining visual information about the products, leading to visual information being obtained by all participants. To note, participant 1 was not asked about their product information needs before the experience. However, they stated that they also gained especially visual information about the products. Moreover, participants P1, P3, P4, P5, P7, and P9 all expressed satisfaction with the content in the virtual environment, appreciating especially the diversity and aesthetic appeal of the furniture options available. All of these participants, except participant 3 noted that the products fitted their preferences and social context. Even though participants gained visual product information, all of them reported missing some information they would need before making a purchase decision:

P1: "if in real life, that's what I was thinking, that of course you'd want to know what they cost and so on."

P5: "Well, I think it would've been good, that there would have been immediately some dimensions or material or something like that, like it could have been like even when you choose the product so then there is like some info, like a little one on the side, something more specific right after, so then you could generally think that if you are really buying, then you could think about whether or not I should even try it if it's something that I do not want?"

P9: "maybe more detailed list like description about the product like product size, because I can see actually put it into the bed into that room. But it's still if the like proper size and everything will be described then everybody would understand"

However, three participants (P1, P3, P7) declared that they were not specifically looking for the product information, if it was not visible right away, whereas participant 2 was not even sure if there existed a chance to see more product information.

P1: "Mainly there were just the categories and names that stuck in my mind, so not really, like I didn't notice any prices or anything, so I didn't think about it in the same way as I would when actually decorating, like how much everything costs for example."

P3: "well, they [the information] were there that you could have gone to look at more precisely. But then maybe because there was so little time, I just wanted to make the room look like something."

P2: "I don't know if it was in such a way that I could have gone from the menu to choose the sofa and then there might have been some more information. So I just selected it directly, I just pressed the picture and looked a bit at the title."

Participants P4 and P5 on the other hand noted the chance to look for more information, but they were not able to see exact information due to the service-related reasons. Similarly, participant 7 tried, but was not sure if the feature would have worked in a real setting.

P4: "Or when that shopping thing came up in the tutorial, I never like went to that shop thing during the building phase, because when I tried it during the tutorial time, it just showed that, like, it's apparently, that through that you could actually buy these products."

P5: "Mainly now I got, since I didn't get to the details or apparently, since I didn't get to the web version, so there weren't as much information besides like what it looks like and what color, you couldn't even see any measurements."

P7: "Well, it showed that you could also select those products and go look at some of their information. But then the product I had chosen at the beginning, it said something like it is not available in your area."

Participant 8 was sure that there was more information but chose not to look after it. Similarly, participant 6 noted the chance to look for more information.

P8: "Yes, just like in a basic online store, you could get more details on the product page. But at this moment, I didn't want to dwell on them. You could see the price and everything else, but perhaps right now the visual aspect interested me more in that."

As in the pre-purchase stage customer experience is highly focused on providing the right type and suitable amount of information in a right way (Hoyer et al., 2020, p. 65), this showroom experience can be seen to provide visual information in a suitable format. However, it should be noted that users may require having exact information available right away. Nonetheless, virtual showrooms aim is to reduce the customer's uncertainty prior purchase (Sun et al., 2023, p. 1128; Gao ja Su, 2017, p. 3), which well resonates the purpose of offering adequate product information, and thus backing up the customers' usual behaviors in the pre-purchase stage such as search and consideration.

When thinking about the consideration behavior, it is important to find adequate information about the products that support the decision-making process. As research has suggested, the virtual showroom in this scenario helped participants to sense dimension and provide a more realistic vision of products (Olivas Martinez et al., 2023, p. 439-440) than traditional two-dimensional online stores. The use of immersive technology seemed to help participants see the products in a 3D way. Moreover, in the pre-purchase stage the technology's role is to aid in the decision-making process (Hoyer et al., 2020, p. 65), which may happen for example through offering better visual information about the products. However, Sun's and others' (2023, p. 1128-1129) notion of the lack of touch and possibility to feel the products in a VR-based showroom, occurred as a concern among participants:

P6: "For example, if I were buying a sofa or a bed, it would be important to know what it feels like to sit or lie on it, or just generally how the materials feel to the touch that it's like that. So from that you really couldn't, like compared to a traditional brick-and-mortar furniture store if you would actually go there"

Noteworthy, some participants clearly stated that due to the study arrangement, they were not acting in a way that they would when actually looking to make a furniture purchase. Thus, it needs to be considered that participants did not take part in the experience as a part of a real purchase process.

P3: "Maybe I now approached this a bit like this was a fun experiment, a game, so then of course you'd really look carefully at all the materials and surfaces and such."

P6: "I actually didn't even realize to look for more information, but from what I understood from the tutorial, I could have pressed that shop button, which would then have opened a new window where I might have seen more information. But now I'm more focused on the appearance and placing furniture there."

P8: "Not in this situation [need other information], possibly yes if it were a real purchasing situation."

Multiple participants also stated that during the experience, they ended up trying to form a 'complete' interior for the room in question. It is interesting whether this happened due to the study setting, or as a natural consequence of high engagement in the activity. Previously, immersive virtual environments have been connected to possible feelings of addiction towards the content (Han et al., 2022, p. 1455). It is possible that during the experience participants were focused on the task and enjoyability of designing rather than finding the product information. For example, participant 9 stated that they were "so lost in designing" that they did not end up noticing product information. Hence, when designing experiences aimed to support customer's consideration, decision-making processes, and other behaviors related to the pre-purchase stage, it is important to ensure adequate access to information regardless of the high immersivity of the experience.

6.2 Formation of Participants' Customer Experience and Immersion

This section aims to analyze how the participants' immersion and customer experience were formed during the experience. First, we will analyze the participant's experience and immersion overall through the Experience Factors by concluding how they affected the participants' experience. Secondly, we focus on comparing the analysis of the experience by the dimensions of Gahler and others (2023, p. 195) in order to analyze the suitability of the Experience Factors in forming a customer experience. By combining these two analyses, we will provide an overview that explains the subjectivity of Customer Experience and Immersion. Lastly, to analyze how customer experiences are formed in the pre-purchase stage, we will analyze how the four touchpoint types presented by Lemon and Verhoef (2016, p. 77) appeared in the experience of this study.

6.2.1 Analysis of Participants' Experience and Immersion

Despite the specific insights provided by participants, a comprehensive understanding of their immersion and experience requires evaluation from different perspectives. As stated earlier, Shin (2019, p. 1223, 1226) explained that immersiveness indicates how the user is connected to the content and platform cognitively, emotionally, and sensorily. Accordingly, we have categorized our identified themes within these dimensions to assess their roles more accurately in shaping the experience. These themes are now referred to as 'Experience Factors' to better describe their role as contributors to the overall experience.

The Cognitive dimension includes Experience Factors that relate to how users process information and make judgments about the platform, emphasizing mental processing and decision-making. Cognitive Experience Factors include Perception of Usability, Perception of Quality of Technology, Experienced Presence, Perception of Suitability of Content, and Perception of Clarity of Tasks. In the Sensory dimension, we placed Experience Factors that engage the user's sensory experiences (sight, hearing, touch, taste, and smell). These include Experienced Virtual-Real World Contrast and Perception of Audiovisual Environment. Finally, the Emotional dimension captures Experience Factors associated with the emotional responses arised by the platform. These include Perception of Sociability and Perception of Enjoyability. The categorization between the dimensions is visualized in Figure 7.

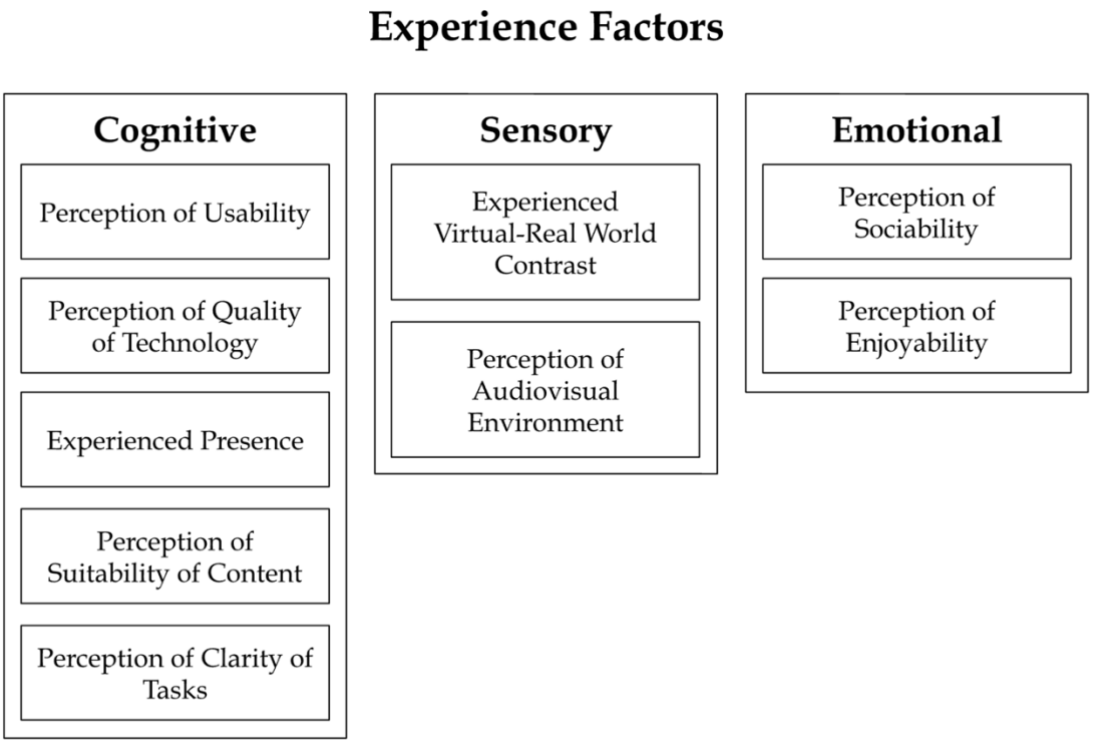


FIGURE 7 Experience Factors Grouped by Dimensions of Immersion

To further analyze the immersiveness and experiences of participants through the Experience Factors and dimensions of immersion, Table 5 presents the findings of our study by indicating how each Experience Factor was perceived by participants to affect their experience; positively, negatively or neutrally.

TABLE 5 Effects of Experience Factors on participants' experience

Dimension	Experience Factor	Effect on experience	P1	P2	P3	P4	P5	P6	P7	P8	P9	Count
Cognitive	Perception of Usability	Positive	x	x		x	x	x	x	x	x	8
		Negative	x	x		x	x	x	x	x		7
		Neutral	x		x		x		x		x	5
	Perception of Quality of Technology	Positive		x	x		x	x			x	5
		Negative		x		x	x			x		4
		Neutral	x						x			2
	Experienced Presence	Positive	x	x	x	x	x	x	x	x	x	9
		Negative								x		1
		Neutral										0
	Perception of Suitability of Content	Positive	x		x	x	x		x		x	6
		Negative	x									1
		Neutral										0
	Perception of Carity of Tasks	Positive		x	x	x	x	x	x	x	x	8
		Negative	x				x		x		x	4
		Neutral	x									1
Sensory	Experienced Virtual-Real World Contrast	Positive	x	x	x		x	x	x		x	7
		Negative				x						1
		Neutral				x				x		2
	Perception of Audiovisual Environment	Positive	x	x	x	x	x	x	x	x	x	9
		Negative		x		x	x	x	x	x		6
		Neutral			x		x			x	x	4
Emotional	Perception of Sociability	Positive	x	x	x		x	x	x	x	x	8
		Negative										0
		Neutral				x						1
	Perception of Enjoyability	Positive	x	x	x	x	x	x	x	x	x	9
		Negative										0
		Neutral							x			1

We can make several conclusions about the participant's immersion and experience from the results presented in Table 5 and chapter 5. These will be described next in more detail by diving deeper into each Experience Factor individually.

Perception of Usability

The Perception of Usability was a significant Experience Factor that had a complex impact on participants' experiences, affecting their immersiveness in various ways. While the platform was seen as overall easy to use by all participants, their experiences also differed a lot. The cases in Table 6 where usability affected the experience neutrally come from instances when participants (P1, P3, P5, P7, P9) initially faced challenges using the platform, but after becoming familiar with the controls, they were able to interact effectively within the environment. Interestingly, three out of four of the participants who found navigating easy from the start (P4, P6, P8) had all used a VR-headset multiple times before. This suggests that earlier experiences with similar platforms can have an effect on the immersion and experience of users.

The positive notions about usability presented in Table 6 were mostly related to intuitivity, as most participants (6/9) found the process of browsing and choosing products easy and intuitive. Besides the overall perception of the platform's usability and the positive remarks of intuitivity, various challenges in usability negatively impacted the experience of seven out of nine of participants (P1, P2, P4, P5, P6, P7, P8). Challenges occurred especially in various things while placing the products, which, however, is one very central functionality of using the platform and designing an interior design. Worth mentioning, also participants 4 and 8 who found the platform overall easy to use expressed frustration over the inconvenient interface. For example, participant 8 noted: "*But also just, people don't like a clumsy interface. So also a little irritation came from that.*" Also, participant 6 who found the usability overall good noted:

> *P6: "It was convenient or like that, simple enough, at least for me. I feel that I am pretty good at such things and using technology, so it was easy for me, but I can imagine that it can be much harder for someone else."*

Such experiences suggest that even if the platform is ultimately navigable, even smaller difficulties with usability can disrupt the immersive experience by distracting users of the experience itself by arising negative feelings. This is consistent with research by Shin (2019, p. 1223), who indicated that the degree of how easy it is to interact with technology can greatly affect how immersive an experience feels, depending on the user's previous experiences. This underscores the importance of creating intuitive and accessible virtual environments to minimize the distractions caused by bad usability and thus support a better immersive experience for all users, regardless of their earlier experiences.

Perception of Quality of Technology

The Experience Factor that also attracted multiple negative opinions from some (4/9) participants was the Perception of Quality of Technology. While participants 2 and 5 recognized some technological improvements, especially with the quality of the camera, yet these did not significantly impact their overall experience. In contrast, participants 4 and 8 felt like the quality of technology affected their experience in such a negative way, that it influenced their willingness to use the service again. Participant 8 mentioned that the service would not be useful to anyone until better technology is used. Participant 4 commented on the frustrating experience caused by the low-quality cameras: "*It was agonizingly poor quality, the imagery. It continuously kind of [irritated me]...*"

> *P8: "Better technology [would make the service application useful]. Yes, it [the service] will definitely become useful when we actually get better glasses."*

Worth mentioning, participants 4 and 8 had both used VR-headsets multiple times before. In fact, they were the only ones besides participant 6 to have used a VR-headset multiple times before. Even if participant 6 didn't make notable negative notions about the quality of technology, the data suggest that prior experiences with similar technologies can greatly affect an individual's perceptions related to technology, potentially leading to a negative impact on their immersion.

Alternatively, the positive feelings regarding the Perceived Quality of Technology also reinforces this argument. Participant 5, who had never used VR technology before, and participant 9, who had only used it once, both experienced technological embodiment. This shows that people who are new to the technology can have a very different experience from those who are more familiar with it. These observations are supported by Shin (2019), who highlighted that technologies can strengthen or weaken the immersion depending on the users' perceptions of various issues like quality, interaction possibilities with the service, and the type and functionality of the technological aspects (Shin, 2019, p. 1223).

Experienced Presence

While every participant felt present in the virtual environment, some notions that contributed to the Experienced Presence were made. Participants 3, 4, 6, and 9 mentioned that the high focus in the tasks increased their immersion. However, the specific reasons why they felt focused on the tasks couldn't be straightforwardly noted from their comments except for participant 9 that emphasized the feeling of doing the tasks with their own hands.

> *P9: "Yeah, I felt present. And I'm doing with my hands and everything. It feels real…."*

This observation aligns with the findings by Han and others (2022, p. 1455), who noted that the feeling of presence can lead to strong attachment towards the content. This suggests a link between the presence experienced and the tasks provided by the service, and thus the Experience Factor of Perception of Clarity of Tasks. If a user knows how they must act in the virtual environment, they are more likely to feel present in it.

One thing that varied between participants' Experienced Presence was the effect that outside noises made on the immersion. Participant 8 reported the lack of headphones, and thus hearing excess noises from the outside world, to affect their presence in a negative way. While participant 3 noted that there were no distractions from the outside world. This indicates that individual differences, such as personal sensitivity to the environment, can affect the Experienced Presence depending on how they take account of the environment they are in.

Perception of Suitability of Content

The Perception of Suitability of Content in the virtual showroom had a mostly positive impact on the majority of participants (6/9), demonstrating that the content aligned well with their personal preferences and the potential ways of using the platform. The satisfaction with the content was especially related to the appearance of the available furniture options. This positive response highlights that the content met or exceeded the expectations of most participants, making it easier for them to envision the furniture in their own spaces or hypothetical settings. However, participant 1 also noted a negative aspect, pointing out the absence of certain everyday items like televisions or computers. This lack of essential elements was seen as a limitation in the platform's ability to fully replicate a realistic home environment, which slightly affected an otherwise satisfactory experience regarding the suitability of content.

All in all, the Perception of Suitability of Content within the virtual showroom generally enhanced the participant’s satisfaction with the service and thus immersion in the experience. When the user’s needs and wishes regarding the content are met, they are more focused on the experience and less likely to be distracted by negative thoughts of dissatisfaction with the available options. Thus, Perception of Perception of Suitability of Content is important in order for users to feel present in the experience. This highlights the importance of understanding the needs of the target audience when developing virtual platforms, especially virtual showrooms. By recognizing the needs and preferences of users, organizations can enhance the relevance of the content of the virtual environment, and thus deepen the immersion of users while also providing a better overall experience.

Perception of Clarity of Tasks

While most participants (8/9) felt that the proceeding of events was logical and supportive of their experience, there were distinct views on the clarity and suitability of the instructions. Six participants (P2, P3, P4, P5, P6, P8) appreciated the clarity of the instructions in the tutorial, which led to them knowing how to perform the tasks as required in the real design space. For instance, P6 commented like this on the natural flow and ease of the tutorial:

> *P6: "So it worked very logically in my opinion, in a natural way, it was an easy tutorial. And it was easy to then move to that [design space] and in a way, I didn't have anything on my mind at that point, like how does this work now, so then when I started to do [design] that space, then I was like OK, I already know this."*

However, the clarity of tasks wasn't positively perceived even by some of the participants that found the tutorial helpful, and overall, four participants (P1, P5, P7, P9) experienced various challenges regardless of the instructions. P1 and P5, for example, suggested improvements for clearer or simpler instructions, especially concerning the interaction with products and controls.

The suggestions from participants point to the need for more guidance on interacting and navigating in the environment. Even if participants were able to overcome the challenges once they got acquainted with the platform, it can be noted that clearer instructions could have helped in providing a more enjoyable and immersive experience. However, it can be noted that the ones who had multiple previous experiences with VR technology (P5, P6, P8) didn't feel like they would need clearer instructions. Thus, previous experiences can impact the user's Perception of Clarity of Tasks and need for instructions. Participant 7 also pointed out that their own ability to understand and follow the instructions could have affected their Perception of Quality of Tasks. Thus, it is also important to take into account individual learning styles and familiarity with similar technologies when designing instructions. This approach helps make sure the instructions work well for both new and experienced users, enhancing usability and enjoyment for everyone. Overall, providing clear instructions for navigating in the virtual environment and using controls can lead to a more overall positive experience, ensuring all users can engage deeply and effectively with the platform regardless of their earlier experiences.

Experienced Virtual-Real World Contrast

The majority of participants (P1, P2, P3, P5, P6, P7, P9) experienced a mostly positive impact of Experienced Virtual-Real World Contrast, appreciating especially how the virtual environment was designed and how real it felt. This was particularly highlighted regarding the MR designing space, where participants felt a seamless blend of virtual and real-world elements, enhancing their sense of presence and engagement. For example, participant 5 described it like this:

P5: "It was actually so realistically sized, and like that, that it really well like, I settled into that space, that it was really somehow, maybe even more realistic than what I thought."

The MR designing space was actually perceived more approachable by participants 5 and 7, who felt out of place in the totally virtual tutorial space. Participant 7 noted that their lack of earlier experiences with gaming might have affected their experience:

P7: "It feels kind of weird, because it's not like, maybe if I had played some computer games, that I would have spent time in such a virtual world, then maybe it wouldn't feel so weird, but since I haven't, then it feels really very new, because it is new."

These findings underline the importance of enhancing the quality of the blending between virtual and real worlds by for example easing the transitions between the two worlds and making the virtual environment realistic. This can lead to improved user satisfaction and deepen the immersion of the experience.

Despite the generally positive feedback, there were a few participants (P4, P8) who experienced mixed feelings about the contrast between the virtual environment and the real world particularly due to the quality of technology. For example, participant 4 felt that if the technology was better, the difference between the virtual and real worlds would be less noticeable:

P4: "... if the technology was better, a better camera and so on, so that if the implementation really looked like what the environment is, it would be somehow... There wouldn't be such a big difference [between reality and the virtual world], but yes, it now feels like there was quite a big difference between reality and the virtual world."

Overall, the neutral experiences noted by participants 4 and 8 suggest that while the technology was somehow sufficient for immersion, there was still something lacking that would make them feel present in the virtual environment. This suggests that also the Perception of Quality of Technology can affect Experienced Virtual-Real World Contrast. Also, Shen and others (2023, p. 1) noted that immersive communications are technologies that support the interoperability between the real and virtual worlds. Thus, if a technology is not meeting the expectations of the user, the contrast between the two worlds can be affected. This indicates that also user's prior experiences with similar technologies can affect the contrast between these two worlds.

Perception of Audiovisual Environment

The Perception of the Audiovisual Environment within the virtual platform had diverse impacts on participants, emphasizing the importance of both visual and auditory elements in enhancing immersion. The audiovisual environment

enriched the experience for many, leading to deeper immersion, but there also arose critique, especially about the visual aspects of the experience. While three participants (P1, P3, P9) didn't feel like the visuals needed adjustments, the rest of the participants (P2, P4, P5, P6, P7, P8) would have required some. Here are a few comments that give valuable insight about the participants' thoughts:

> *P2: "Well, I think at least improving the visual aspect would affect the user experience very positively, that I think there aren't really many such, um, or like other things that could be improved are quite minor compared to it being visually better."*

> *P8: "You do get more out of it [exploring furniture in the virtual world] versus just looking at them [the furniture] in an online store, because you can actually spin them around in your hand a bit."*

The nature and type of adjustments suggested for visuality varied between participants - some were smaller things, while others were things that disrupted the immersion significantly. Most suggestions for improvements were related to the visualization of the furniture, either from the perspective of realism (P2, P5), or 3D appearance compared to the catalog (P4, P5, P7). However, multiple participants (P4, P5, P6, P8) also noted that the poor quality of the technology affected their visual experience, and thus their immersion, in a negative way. Participant 6 noted that issues with usability broke their visual immersion, as they experienced problems with placing the products.

The audio of the experience didn't arise as notable opinions from the participants. However, the lack of headphones divided opinions as two participants (P4, P7) enjoyed it, participant 2 would have wanted a better quality of audio, and participant 8 felt like it affected their immersion as they were able to hear voices from the outside world.

> *P4: "Now, like there aren't headphones, but they weren't actually really needed in it anyway, it was just nice because it's like... When you're not playing but rather designing, some kind of reality is preserved, or a shared reality through that as well."*

Overall, as the perceptions on the audiovisual environment varied so much between participants, we can come to a conclusion that a user's own preferences have a high effect on how they perceive it. This underscores the importance of delivering realistic visuals that align with user expectations to enhance their immersion. Additionally, the interconnection between the Experience Factors of Perception of Usability and Perception of Quality of Technology with the Perception of Audiovisual Environment suggests that achieving a satisfying audiovisual experience also depends on the underlying technology and ease of use of the platform. In order to provide an audiovisual environment that matches users' perceptions, it is important that both the visual

and auditory aspects of the platform are developed with high-quality standards and user-friendly interfaces.

Perception of Sociability

Participants expressed overall positive feelings about the potential for social interaction within the platform even if they did not actually use it with others during the experiment. Most participants (8/9) felt positively about the idea of using the service with someone, such as a partner or roommate, believing it would enhance the experience, especially in a shared living scenario. They suggested for example that designing a space together could be fun and collaborative, allowing for immediate sharing of ideas and adjustments in real time. However, one participant (P4) had a neutral view regarding sociability, noting that while collaboration could be useful with designing for example a partner, they were skeptical about doing it with friends. They felt that it could result in only fooling around, more for entertainment purposes.

Most participants did not encounter other avatars or characters during their experience, which suggests that the social aspect of the service could be expanded. For example, participant 1 felt the tutorial phase resembled visiting a furniture store. This suggests that there might be a potential for more interactive elements to be added to the experience, like communicating with a virtual assistant. Such features could mimic real-world interactions, potentially enhancing the user's engagement and immersion by providing direct feedback or help during the design process.

Even if sociability wasn't a very present aspect in this experience, the results show that enhancing the sociability could significantly enrich user experience, promoting a sense of community and cooperation. However, as participant 4 noted, it's also important that these kinds of platforms that are designed to be useful for users, maintain a balance between playful interactivity and functionality to meet the needs of users.

Perception of Enjoyability

All participants generally found the virtual environment enjoyable or fun. However, participants noted different things to enhance their enjoyment. For instance, the sense of newness and novelty was highlighted by multiple participants (P2, P3, P5, P6, P7, P8) as a factor to make their experience more enjoyable or immersive. Participants 2 and 3 specifically mentioned that the newness of the experience helped them become deeply immersed, focusing intensely on the tasks. Even participants 6 and 8 who had multiple earlier experiences with VR technology perceived especially the factor of conducting interior design exciting and new.

> *P8: "I always like using those [advanced technology] products, but also, I must admit that it's really cool, because I've never done something*

like interior design with VR glasses before or in that environment. Trying out new things is fun."

In addition to the newness, previous experiences and familiarity with similar technologies also played a role in some participants' enjoyment. For instance, participant 8 found navigating the virtual space straightforward and enjoyable because using the technology was easy for them. On the contrary, participant 7 found that the difficulties with using the technology affected their enjoyment negatively at first.

P7: "Because I'm not really like much of a PlayStation player, I haven't used any controls or anything like that before, so I was lost. But once I got the hang of it, then I was like, okay, this is actually fun, or like, there's a point to it."

This indicates that familiarity with the technology can significantly help using such platforms and thus enhance enjoyment. Thus, we can conclude that the degree of enjoyment can vary based on personal backgrounds, familiarity with technology, and openness to new experiences. This suggests that while VR platforms can be universally engaging, designing experiences in a way that takes all kinds of users into account could enhance enjoyment for all users.

6.2.2 The Connection Between Customer Experience Dimensions and the Experience Factors

In order to find answers to our research question RQ2, *In what ways can immersiveness shape the customer experience in the metaverse during the pre-purchase stage?*, we will proceed to analyze the results of the analysis of the participants' experience and immersion by the dimensions of Gahler and others (2023, p. 195). Due to the qualitative nature of the study and the specific focus on immersion of the research question, the scale by Gahler and others (2023) wasn't used to study the participant's customer experience. However, the presence of these dimensions was clearly notable across various aspects of the participants' experience. Interestingly, the dimensions of customer experience are also similar to the dimensions of immersion (cognitive, sensory, emotional) presented by Shin (2019). This alignment not only reinforces the relevance of these dimensions in studying immersive environments but also provides a structure for understanding the complex interplay between immersion and customer experience. Next, we explore how the Experience Factors identified in our study connect with each dimension of Customer Experience, focusing especially on the multidimensional nature of customer experience in immersive settings.

Affective

As stated earlier, most participants found the experience overall enjoyable, which affected their immersion and overall experience positively. We found that the enjoyability of an experience varies based on an individual's own preferences and characteristics, such as personal backgrounds, familiarity with technology, and openness to new experiences. It is also deeply intertwined with all other Experience Factors. The level of enjoyment can influence perceptions of other factors, while also perceived enjoyability from other factors affects the overall enjoyability of the experience. For example, participants that weren't content with the quality of technology often felt negatively about multiple other Experience Factors as well, resulting in an overall less enjoyable experience and negative feelings such as frustration. Conversely, another participant that found the experience extremely fun reported almost no negative perceptions about other Experience Factors. This suggests that when the experience is overall enjoyable, the immersion is likely to be deeper and the experience more satisfying, as the enjoyability can distract the user from possible lacks in other Experience Factors. Thus, while the affective dimension is connected to all of the Experience Factors, the Perception of Enjoyability can be seen as its direct indicator.

Cognitive

As previously mentioned, cognitive elements were present within the Experience Factors of Perception of Quality of Technology, Perception of Usability, Experienced Presence, and Perception of Clarity of Tasks. When considering especially immersive communications (such as a VR-headset like in this study), a negative Perception of Usability was found to be a cognitive factor that can easily disrupt the immersion of the experience. Similarly disruptive for the immersion was a negative Perception of the Quality of Technology. These negative perceptions within these two Experience Factors were seen to occur especially for individuals who had earlier experience with similar technology, which had likely led to them having higher expectations about the use experience. If such expectations are unmet, cognitive dissonance where the current experience doesn't meet the expected standards can occur. On the other hand, participants with little to no earlier experience with similar technologies encountered less cognitive disruptions regarding these issues during the experience. The lack of earlier experiences likely helped the users feel more immersed in the experience, and their cognitive engagement was more focused in exploring and familiarizing themselves with the new environment. This was seen to lead to a more positive overall experience.

Moreover, cognitive engagement is also connected to how information is presented and processed within the virtual environment, forming a connection to the Experience Factor of Perception of Clarity of Tasks. While most participants found that the instructions during the experience were clear overall, many of them still faced challenges with conducting the tasks during the experience. Some of them even provided suggestions to make the instructions

clearer to enhance the experience. This suggests that clear instructions and tasks can help in reducing the cognitive load, allowing users to engage more deeply with the content. As many users found navigating in the environment difficult at first but stated that they were enjoying the experience more once they knew properly how to engage in it, we can note that the clarity of tasks can greatly minimize the cognitive effort that users may encounter.

Furthermore, the participants felt present in the experience especially when they were focused on the tasks they were doing. While also linked to the clarity of tasks, the presence can also be seen as a cognitive factor, as a user isn't able to feel present unless they also feel stimulated by the experience itself, which again suggests a link to the cognitive dimension.

In conclusion, ensuring high-quality technology and usability, providing clear tasks, and enhancing the relevance of the environment to reinforce presence are crucial for supporting a positive cognitive experience. Thus, all of the Experience Factors presented support a deeper immersion and formation of a more positive experience by making the experience more cognitively enriching.

Physical

In our study, the physical dimension arises in the experience, especially by the Experience Factors of Perception of Quality of Technology and Perception of Usability. While these perceptions varied between participants, they had a notable impact on participants' bodily movement and overall comfort during the interactions. Navigating in the virtual environment caused issues for some participants, affecting their experience in a negative way as they weren't able to navigate as they would have preferred. Even if the products were virtual, their placement in the room can be seen as a physical action, as it affects the user's bodily actions. On the other hand, regarding usability, intuitivity can be seen as a factor that enhanced the physical dimension in a positive way. For example, some participants found the placements of the menus to suit their preferences, emerging positive feelings about their physical presence in the virtual environment.

Some participants also addressed the physical features of the technology. For example, one participant stated that the VR-headset was noticeable and heavy on their head, while two participants experienced technological embodiment. Also, the placement in the room arose both negative and positive feelings within participants, as for example participant 7 found themself hitting the walls of the room regardless of the safety boundaries implemented in the VR headset.

Overall, the study shows that both the Perception of Quality of Technology and Perception of Usability are crucial in shaping the physical interactions within the virtual environment. If the participants' perceptions are met within these factors, a more physically comfortable and immersive experience can occur.

Relational

Even if the platform used to conduct the study didn't belong to a specific brand, some connections to the relational dimensions can be made. There was an option to find more information about the furniture available in the catalogs on the platform, but none of the participants chose to explore this feature. However, some participants noted that the inclusion of familiar brands could have enhanced the utility of the experience for them in real life scenarios. One participant even suggested that if a furniture company that they prefer would have such a service, they would be interested in using it. Thus, we can note that the effect of brands can have a significant effect on the Perception of Suitability of Content, as content from recognized brands could be seen as more relevant and appealing to the user's preferences.

Additionally, relational perceptions also arose in participants within the Perception of Sociability. For instance, participant 1 suggested that there could have been a virtual character that would provide information about navigating in the environment, which could have enhanced the experience for them. Although the experience didn't contain any other interactive characters, the presence of them would affect the Perception of Sociability. Overall, the Experience Factors of Perception of Suitability of Content and Perception of Sociability can be seen to have an influence on the customer experience through the relational dimension.

Sensorial

As noted earlier, the Experience Factors of Experienced Virtual-Real World Contrast and Perception of Audiovisual Environment are highly related to the sensory dimension of immersion. Similarly, they are also present in the sensory dimension of customer experience. The use of a VR headset in this study was a significant factor that affected the sensory experience of the participants. In fact, as highlighted by Shen and others (2023, p. 1-2), as highly sensory technologies, immersive communications can support the blending of real and virtual worlds, enhancing the sensory engagement of users.

The presence in the virtual environment was experienced by participants especially when no signs from the real world (such as voices) were encountered. This underlines the impact of sensory elements on the presence and immersion experienced by users during an experience. Regarding the audiovisual environment, participants perceived it differently based on their personal preferences and expectations. Positive perceptions on visuals and sound not only enhanced immersion but also contributed to positive emotional responses, while negative observations led to unpleasant sensations and disrupted the immersive experience.

Overall, a satisfying and realistic audiovisual environment, where the sensorial environment corresponds to the participants' expectations, can be seen

to deepen the satisfaction and presence of users towards the experience. Moreover, our study suggests that a satisfying and realistic sensory environment that meets or exceeds expectations can be seen to increase users' satisfaction and presence towards the virtual experience. This finding confirms that the sensory dimension is central to the immersive customer experience, as proper use of senses directly influences user engagement and satisfaction.

Symbolic

While the symbolic dimension cannot be thoroughly analyzed due to the minimal presence of brands in the platform used in the study, some connections can be made to the Perception of Suitability of Content. Participants stated that the products available in the design mode mostly suited their needs and preferences. This alignment with their personal tastes and aesthetics could contribute to self-expression and affirmation, as participants could design and create spaces that reflect their personal preferences and values.

However, if recognizable brands were added to the platform, it could further deepen the symbolic connections of users, and align it closer to their values. Similarly to the notions made about the relational dimension, participants stated themselves that a similar service that contains known brands would make the experience more satisfactory, and potentially trustworthy to them. Overall, even if the symbolic features were limited in our study, the presence of them is existent, and would likely appear more strongly, if brands were more in the focus of the service.

6.2.3 Subjectivity of Immersion and Customer Experience

Overall, the analysis of the immersiveness and the dimensions of customer experience reveals that both of these concepts are linked with various Experience Factors identified in our study. These findings provide reassurance about the relevance of the Experience Factors for affecting the perceived immersion and customer experience. From this, we can give an answer to our research question RQ2; immersiveness can shape the customer experience in various ways, both positive and negative. In terms of how immersiveness shapes the customer's experience, it is hard to give an overall conclusion that will suit every kind of experience, as the subjectivity of individuals can highly affect the formation of immersion. In fact, our results clearly reinforce the notion that both the customer's experience and immersion are highly subjective. This notion is also supported by literature (e.g. Shin, 2019; Gahler et al., 2023). The subjectivity of participants, for instance their preferences and earlier experiences, played a critical role in shaping their perceptions of the service across all identified Experience Factors. As these factors are components that affect the formation of

both the immersion and the customer experience, subjectivity can be seen to highly impact the creation of both of these experiences.

While subjectivity has an effect on all of the users' perception and parts of the experience, the impact of effect can be seen to vary between factors. For instance, earlier experiences with similar technology or platforms were found to significantly influence the Perceptions of Usability, Quality of Technology, and Clarity of Tasks. This underscores the importance of designing services that are accessible for users with all kinds of technological proficiency. Additionally, this suggests that while designing services, it is important to include some generally familiar elements and functionalities, ensuring that not everything is new and earlier experiences can make navigating in the virtual environment easier.

Meanwhile, factors like the Perceptions of Audiovisual Environment and Suitability of Content appeared to be highly influenced by the user's own preferences and opinions. Similarly, the Perception of Enjoyability emerged as highly subjective, as various issues, such as preferences, familiarity with similar technology, and openness to new experiences, affected how enjoyable the user found the service. This suggests that by taking these subjective opinions of the target group into account while designing a service, the service can be better designed to suit the user's preferences.

However, it must also be noted that the impact of subjectivity can vary across different services and platforms. For instance, subjectivity played a central role in the experience of this study, as interior design can be seen as an activity that is highly dependent on individual preferences. Thus, subjectivity could have influenced the perceptions of users in this study in different ways than it might in other kinds of services. Nonetheless, this research still confirms that subjectivity impacts both the formation of customer experience and immersion. A positive perception of the Experience Factors presented in this study is most likely to lead to an immersive experience, which will then affect the Customer Experience positively. Thus, we can conclude that by taking the perceptions that customers can have about the Experience Factors into account when designing a customer experience in a virtual environment, the Customer Experience can be shaped. Similar notions about the subjectivity of these concepts have been made in previous literature about both customer experience (e.g. Gahler et al., 2023; Palmer, 2008; Hirshman & Holbrook, 1982, Klaus & Maklan, 2012) and immersiveness (e.g. Shin, 2019; Melissen & Haggis-Burridge, 2023; Han et al., 2024).

6.2.4 Touchpoints in the Pre-purchase stage

To analyze how customer experiences are formed, we will next analyze how the four touchpoint types presented by Lemon and Verhoef (2016, p. 77) appeared in the showroom experience of this study. Even though the brands were not strongly present in this experience, the analysis will be made with the

assumption that the brand/company is the one offering and owning the product, while the showroom in question is the partner.

In the division created by Lemon and Verhoef (2016, p. 76-77), brand-owned touchpoints include actions and factors that are controlled by the company. Even though the product attributes and price are present in the showroom, some other types of brand-owned touchpoints only barely exist or are totally absent in the experience. In the showroom application, customers have a chance to visit the brand's website when looking for detailed product information or intending to make a purchase. In the context of pre-purchase, this information transmission is crucial, as customers are trying to collect facts to support their decision making (Lemon and Verhoef, 2016, p. 77). Other advertising or product-related facts, such as packaging, are not present in the showroom. However, these are still things that may influence the customer experience.

As mentioned above, the showroom represents a partner-owned touchpoint, as it is a jointly offered platform by the administrator and the brand(s) presented on the platform (Lemon and Verhoef, 2016, p. 77). Even though the brand has placed products on the platform, the platform is controlled by an external entity. Hence, the experience is affected by the platform's existence and choices, in addition to the customer- or brand-related factors. For example, the communications, functions, and the layout of the service are provided by the administrator of the showroom. In the pre-purchase stage, the partner-owned touchpoints are the ones that determine the way how information is presented to the customers, which may have a role in the overall customer experience. For instance, during the study experience, participants had difficulties in finding or noticing exact product information, which is likely caused by the design of the showroom application, hence being a partner-owned touchpoint factor.

According to Lemon and Verhoef (2016, p. 78), customer-owned touchpoints include everything that is not controllable by others. Thus, this touchpoint category includes a wide variety of subjective things emerging from customer's personal experiences, thoughts, and values. The high subjectivity is noted in every Experience Factor, but they do not address the individual factors in a purchase context. In the pre-purchase stage these individual factors include for example the customer's own thoughts on purchase needs and their wishes (Lemon and Verhoef, 2016, p. 78), budget, and tendency to make decisions.

The Social/External touchpoints on the customer journey recognize the role of others for the customer experience. These may include e.g. other customers, external information sources, peers, and environments that have the possibility to influence the customer's experience. For instance, when a purchase experience takes place in a setting where other customers are present, their comments and behavior may affect the experience of a customer. (Lemon and Verhoef, 2016, p. 78.) Similarly, product reviews or independent articles may have an impact on the customer's experience while making online purchases. In

the showroom application, other customers, peers, and independent information sources are not present, but may have a role in the background. For example, it may influence the user experience whether a customer found the service because of a suggestion or randomly.

As presented, this touchpoint categorization by Lemon and Verhoef (2016) can be seen to include a wide proportion of interactions and contexts that take place as a part of a customer journey. Thus, due to the broad exploitability, in further analysis this division is utilized to describe the different touchpoints that customers may face during their customer journey's pre-purchase stage that cannot be covered through the Experience Factors.

6.3 Immersive Customer Experience

Next, we will move on to exploring how an Immersive Customer Experience is formed. This is supported by the findings analyzed earlier in this chapter; that Experience Factors are suitable to explain the formation of the immersion and experience of users, subjectivity is a central part of building these concepts, and various touchpoints connected to the experience can have an effect on the formation of the customer experience. In order to be able to explain the formation of an Immersive Customer Experience, we will first explore how the Experience Factors are connected to each other, resulting in the formation of a Subjective Immersive Experience. By connecting the customer experience touchpoints by Lemon and Verhoef (2016) to this concept, we will present the formation of an Immersive Customer Experience.

6.3.1 The Formation of a Subjective Immersive Experience

To be able to explore the formation of a Subjective Immersive Experience, the connections of Experience Factors affecting the experience and immersion must be analyzed. In fact, the earlier analysis of the Experience Factors already brought up connections between certain Experience Factors. The notion that different factors can affect each other underlines the multifaceted nature of Immersive Experiences, presented also for example in the Immersive Experience framework by Han et al. (2024). In order to better explain the effects of each Experience Factor on the Subjective Immersive Experience, the factors are grouped into four groups: Foundational Factors, Amplifying Factors, Refining Factors, and Enhancing Factor. Figure 8 presents a visualization of the formation of an overall Subjective Immersive Experience by explaining the connections between these groups. In this, the naming of the Experience Factors as "perceptions" or "experienced issues" illustrates the subjectivity of the Immersive Customer Experience.

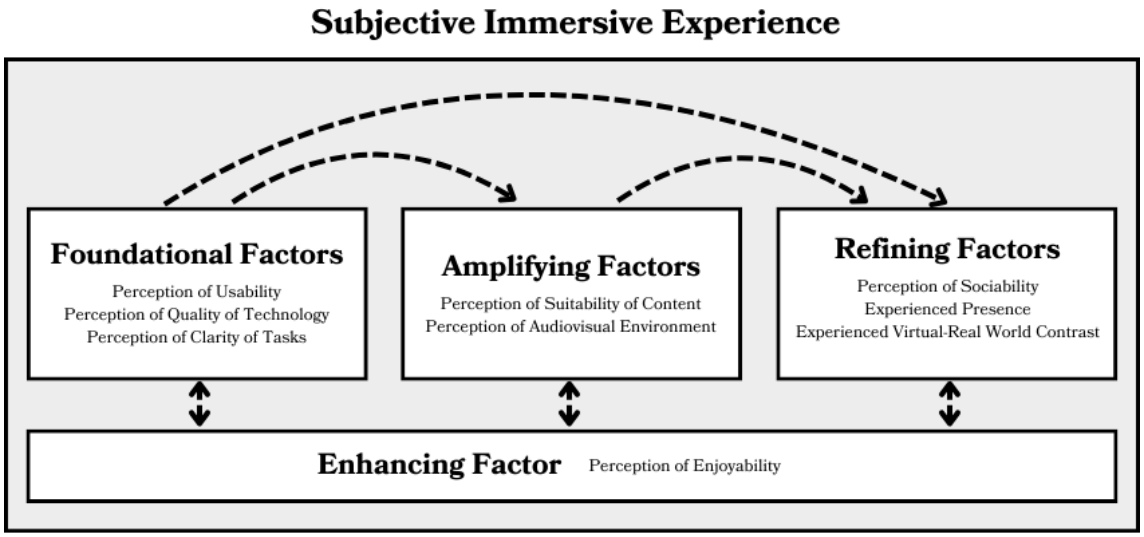


FIGURE 8 The Formation of a Subjective Immersive Experience

The Foundational Factors contain the Perceptions of Usability, Quality of Technology, and Clarity of Tasks, as these were identified as the factors that have the most influence on all of the other factors. They were all highly connected to a user's earlier experiences with similar experiences and technologies, highlighting their effect on the other Experience Factors. If a user found the quality of technology or usability to not meet their expectations, the whole immersive experience could be disturbed. Similarly, Flavián and others (2019, p. 10) noted the importance of examining the role and effect of technologies when designing digitally enhanced customer experiences. In addition, unclear instructions made the users focus on issues with engaging in the environment rather than focusing on enjoying the virtual environment itself. Clear instructions were found especially important to be able to provide an experience that is immersive for both users that have earlier experiences with similar technology, and those who don't. All of the Foundational Factors affected the user's immersion, as if they faced difficulties or negative perceptions about some of the factors, their thoughts and cognitive focus was centered in them rather than the experience. Thus, the Foundational Factors can be seen as the factors that can easily affect the formation of an Immersive Experience. Therefore, these factors can be seen as the foundation elements that provide a steady base for other Experience Factors to profound the immersion even deeper into a thoroughly Immersive Experience. Also supporting the effect of Foundational Factors, Shin (2019, p. 1225) highlighted the dynamic nature of immersion and central role of the customer within a technologically mediated experience. Thus, the Foundational Factors should be implemented by maintaining the user's earlier experiences and potential perceptions in mind.

The Amplifying Factors present the factors that are important to the experience, but not as crucial for experiencing immersion. These factors are Perceptions of Suitability of Content and Audiovisual Environment. The suitability of content was found to affect the focus in the experience, as dissatisfaction with the available content could lead to breaking the immersion by forming negative thoughts that would affect for example the Experienced Presence during the experience. Similarly, Wodehouse and Abba (2016, p. 462) highlighted the role of the context where the products are displayed within a 3D online environment when enhancing the immersiveness of an experience. Whereas the Perception of Audiovisual Environment is heavily related to the user's perceptions of usability and quality of technology, it could be seen as a factor that affected the overall immersion in various ways. While engagement leads to a better customer experience (Han et al., 2024, p. 14), better engagement can be experienced by the positive influence that AR, VR, and MR technologies can have on the customer's imagination (Hoyer ym., 2020, p. 63). Punpeng and Yodnane (2023, p. 7) even further highlighted the role of specifically VR technologies supporting the total sense of immersion. Thus, a good perception of the audiovisual environment enhanced by these technologies can be seen to provide a more immersive customer experience.

The Refining Factors contain Perception of Sociability, Experienced Presence, and Experienced Virtual-Real World Contrast. For instance, presence in the experience was formed especially through the tasks that the users were conducting. Once a user felt focused and they knew how to operate in the virtual environment, they were able to experience higher presence and thus immersion in the experience. Similarly, while the Experienced Virtual-Real World Contrast was built by the users' ability to feel present in the environment, the perceptions of the quality of technology affected it for some participants. Regarding sociability, the study found that it is not necessary for immersiveness, but it could be a relevant part in forming a Subjective Immersive Experience by for example creating a stronger sense of belonging for users. However, previous literature has emphasized that due to its immersive and multi-dimensional nature, the metaverse potentially contains more touchpoints than more traditional channels (Dwivedi et al., 2022, p. 19-20). Thus, the role of sociability in forming the customer experience could be more significant (Lemon and Verhoef, 2016, p. 69) than what this study can perceive due to its limitations in studying the sociability of the platform used. Also, the role of touchpoints regarding the users own networks, which could have a significant impact on the customer experience in the metaverse (Palmer, 2010, p. 199), couldn't be studied in this study. Overall, even if the Refining Factors are mostly relying on other factors to be perceived positively, they are crucial in building the Subjective Immersive Experience.

Finally, the Perception of Enjoyment was seen as a factor that can affect and be affected, either positively or negatively, by all of the other Experience Factors. Thus, it is located at the background of all other factors affecting the

Subjective Immersive Experience in Figure 8 and named as an Enhancing Factor. High enjoyability can even be seen to compensate for possible negative perceptions evolving of other factors. The interconnected nature of enjoyability is also supported by literature, as for example Violante and others (2019, p. 257) noted that the interactivity of immersive experiences can provide more enjoyment to users, and Han and others (2022, p. 1455) emphasized that the feeling of presence in the virtual environment can lead to positive feelings towards the content. Also, similarly to the participants notion that the newness enhanced the enjoyability of the experience, previous literature has suggested that immersiveness can provide new kinds of engaging experiences for customers (Richter and Richter, 2023, p. 7), which can thus lead to a better customer experience (Han et al., 2024, p. 14). However, it must be noted that depending on the experience, the significance of enjoyability can differ. For instance, if the experience is gamified somehow, the importance of enjoyability is likely to be more critical. Whereas regarding a purchase situation, the enjoyability might play a smaller role, while other factors, such as Perception of Suitability of Content, might have a bigger impact on the immersion.

Overall, Foundational Factors can be seen to affect both the Amplifying Factors and the Refining Factors, whereas Amplifying Factors can be seen to affect the formation of the Refining Factors. While Perception of Enjoyability is a factor that is affecting and affected by all other factors. However, it is also important to note that the Subjective Immersive Experience can differ widely based on both the type of experience in question and the user itself. For instance, the factors on the second and top layers don't always require positively perceived factors from the lower levels to be perceived positively, as immersive experiences are highly subjective. Differences between the factors that an individual perceives as important might differ, so this framework only explains the overall formation of a Subjective Immersive Experience.

6.3.2 Formation of an Immersive Customer Experience in the Pre-purchase Stage

Even though the Experience Factors describe the experience and immersion of a customer and are interconnected with the customer experience dimensions and subjectivity suggested by Gahler and others (2023), they do not completely cover the whole nature and context of customer experience. Thus, it is reasonable to identify which parts of the customer journey can affect the overall formation of an Immersive Customer Experience. As noted earlier, the touchpoints by Lemon and Verhoef (2016) were perceived as suitable touchpoints to cover the nature of customer experience that isn't covered by the Experience Factors in forming a customer experience. Therefore, we suggest that the Subjective Immersive Customer Experience is affected by the four touchpoint categories in addition to

the formation of the Subjective Immersive Experience itself. This finding is visualized in Figure 9 below.

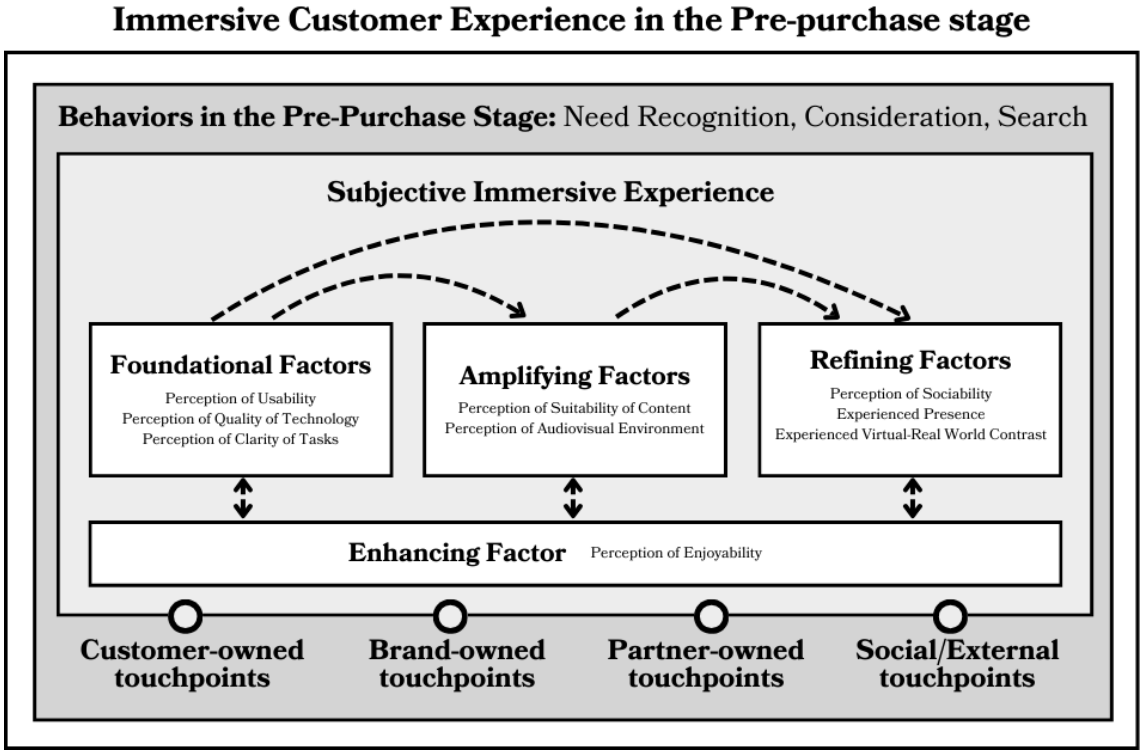


FIGURE 9 The Formation of an Immersive Customer Experience in the Pre-purchase stage

As Lemon and Verhoef (2016, p. 76-77) present, the customer journey is a continuous and dynamic process that is shaped by the customer's previous experiences. Thus, it is notable that an individual's customer experience is never strictly built on the factors and events occurring in a specific moment or in a limited period of time, as their past influences, their perceptions, and evaluation of different aspects can affect the formation of the experience. Also, while earlier experiences and touchpoints can affect the experience, it is important to focus on providing adequate content to match with the customer's behavior related to the specific stage of customer experience. During the pre-purchase stage, these behaviors include need recognition, consideration, and search. Thus, when designing a pre-purchase customer experience, it is important to provide adequate information to support these behaviors. This notion is presented in Figure 9 in the background of the framework, as the behavior of the customer affects all of the other concepts within the framework.

Even if this framework can be seen as a suitable way to present the formation of an Immersive Customer Experience in the Pre-purchase stage by the findings of this study, it should be reviewed critically. As suggested by Dwivedi and others (2022, p. 19-20), the metaverse may contain more touchpoints than more traditional digital marketing channels which couldn't be analyzed in this

study due to its limitations. However, due to the newness of the topic, there still don't exist predetermined touchpoints to measure metaverse customer experiences within previous marketing literature. Even if the construct of Customer Experience in Omnichannel Environments by Gahler and others (2023) is designed to measure customer experiences in also metaverse-like environments, it doesn't offer specific touchpoint categories for such customer experiences. Thus, this issue requires more study in order to be able to address the dynamic nature of customer experiences in the metaverse thoroughly.

Regardless of the critique that can be applied to the framework, we can still conclude that it provides new suggestions on how such customer experiences are formed. The multidimensional nature of the concept provides its own challenges, but the framework can still be seen to offer more specific insights on what should be considered when designing Immersive Customer Experiences in the pre-purchase stage. To better address these findings, we will provide some concrete managerial implications in the next chapter.

6.4 Managerial Implications

As this study was able to note various factors that affect the formation of a Subjective Immersive Experience, and further an Immersive Customer Experience, we formed some guidelines to designing such experiences. The guidelines are presented in Table 6 and further discussed below. These guidelines connect the findings from the theory with the insights gained from the interviews of this study, offering an overall checklist of applying all Experience Factors to an Immersive Customer Experience especially in the pre-purchase stage.

TABLE 6 Guidelines for the Implication of the Experience Factors

Nature of Factor	**Experience Factor**	**Practical Implications**
Foundational Factors	Perception of Usability	An intuitive and accessible user experience can help minimize distractions caused by poor usability for all users regardless of their earlier experiences. User-friendly interface supports user's focus on the topics related to the main experience rather than focusing on possible lacks on usability.
	Perception of Quality of Technology	Utilizing high-quality technology can help minimize distractions caused by a quality of technology that doesn't meet the expectations of users.

	Perception of Clarity of Tasks	Creating instructions that cater to different learning styles and technological proficiencies is essential in providing a clear experience for all users.
Amplifying Factors	Perception of Suitability of Content	Familiarizing with the target group's needs and preferences is especially important to provide content suitable for them. It is beneficial to review what type of information customer's need in the stage of the purchase process and provide it in a suitable format.
	Perception of Audiovisual Environment	Delivering realistic and high-quality visuals and audio, that align with both the preferences and expectations of the target group, is essential to enhance the quality of the experience.
Refining Factors	Perception of Sociability	Providing sociability that mimics real-world interaction can enhance the perception of the experience and enhance engagement within it.
	Experienced Presence	By ensuring the formation of presence through for example the relevance of content and audiovisual environment, users can feel more connected to the experience.
	Experienced Virtual-Real World Contrast	Making the virtual environment realistic and enhancing interoperability between the real and virtual worlds can help to provide a better experience for users.
Enhancing Factor	Perception of Enjoyability	Enjoyability is built by each of the Experience Factor, so providing a high-quality service that matches or exceeds the target group's expectations is likely to result in an overall enjoyable experience. While making the experience entertaining is important, ensuring that the elements designed for enjoyment do not detract from the platform's utility is essential.

These guidelines underscore especially the importance of carefully designing immersive experiences to be able to take all of these diverse dimensions into account and enhance overall customer satisfaction and engagement during an experience. By acknowledging and addressing the unique contributions of each dimension, immersive environments can be better built to meet the complex needs and preferences of users, ensuring a richer and more effective Immersive Customer Experience in the metaverse.

In addition to following these guidelines, it is important to evaluate how the different categories (Systems Immersion, Spatial Immersion, Social/Empathic Immersion, and Narrative/Sequential Immersion) of an immersive experience by Han et al. (2024) can be applied to the specific service

in question. By applying variable characteristics from different categories, the experience is likely to be more immersive. For instance, in order to better enhance the user's Narrative / Sequential immersion, the service could offer a chance to change the course of effects.

Additionally, when designing customer experiences overall, it is important to keep in mind how the behaviors related to the specific stage of the customer journey affect the actions of a customer. In the pre-purchase stage, it is important to ensure that the customer is able to access the right type of information about the products/services. In order to support customer experiences and to build stronger brand-customer relationships, it's also important to listen to the received feedback (Pina et al., 2019), which further helps to provide the right information for customers. Also, the touchpoints should be kept in mind when designing Immersive Customer Experiences. The potential role of each touchpoint type should be examined carefully, in order to provide an optimal Immersive Customer Experience that is likely to lead to the purchase stage.

By the findings of this study backed up by earlier research, virtual showrooms can be seen as a way to provide visual information about the products/services in a richer way. Also, the immersive communication technology used in the platform was perceived as helpful in visualizing the products in 3D. Thus, virtual showrooms and such immersive technologies can be seen as a great way to reduce customer uncertainty in the pre-purchase way. This notion highlights the opportunities of helping the customers' decision-making process in the pre-purchase stage. Thus, we can suggest that using these concepts can lead to a better customer experience, and their application should be considered by organizations.

Why should organizations aim to provide immersive customer experiences in the pre-purchase stage and pay attention to their quality? Immersiveness has been suggested to strengthen user engagement on mental, physical and emotional levels, leading to tenacious effects on mental and emotional levels after the experience (Han et al., 2024, p. 14). By offering positive immersive experiences already at the pre-purchase stage, companies can strive to provide meaningful memories of touchpoints with the company, which may further support customer engagement and loyalty towards the brand and its services. Such meaningful and innovative service experiences may also lead to a better reputation, as customers may feel that their expectations are met or even exceeded, and thus they're provided with an experience that meets their needs and expectations. Overall, all brand-related experiences affect the image of the organization, which itself serves as a reason to aim for offering an Immersive Customer Experience in the pre-purchase stage.

6.5 The Reliability and Limitations of the Study

It is important to note that as with all research, also this study has some challenges and limitations. According to Eskola & Suoranta (1998, p. 210), in qualitative research, the reliability of the study is especially examined by the entire research process, especially through researchers themselves, thus the entire research process. It has been proposed that the reliability of a qualitative study can be examined by four categories: credibility, transferability, certainty, and confirmability. Credibility (*uskottavuus*) examines how the perceptions and interpretation of the researchers affect analyzing the results, whereas transferability (*siirrettävyys*) refers to the generalisability of the results. The certainty (*varmuus*) of the research can be enhanced by taking prior information that can have an effect on the researchers' perceptions on the results into account. Whereas the confirmability (*vahvistuvuus*) of the study is seen to arise if the finding of the study can be connected to other similar studies. (Eskola & Suoranta, 1998, p. 210-212). Next, the reliability of this study will be analyzed by these four criteria.

Even if both immersiveness and customer experience are very subjective concepts, the researchers in this study have analyzed the concepts only based on the perceptions provided by the participants. The concepts have been analyzed by using a lot of direct citations, to prevent the perceptions of the researchers from affecting the results. Thus, the credibility of the study was ensured by transparently reporting the analysis and results derived from the data.

As this study is highly centered on new themes and emerging technologies, similar research isn't yet widely available. At least to our knowledge, immersiveness hasn't been studied as a factor affecting customer experience in the metaverse, especially in the pre-purchase stage. Due to the novelty of the phenomenon, we analyzed the data with an abductive approach. This way, we were able to find connections to existing theories. By analyzing the outcomes data-drivenly, we were able to find answers that provide insights for our specific research questions. As this research is the first of its kind, the results of this study do require more study, in order to be generalized properly. However, as the results were formed by using various theories offered by literature, they can be seen as overall transferable and open for further development. Thus, this study provides a base for multiple further studies, by linking together the more traditional concept of customer experience with new technologies and environments.

Due to the newness of the topic of this study, the researchers obtained most of the information about the concepts, especially regarding the metaverse and immersiveness, while conducting the study. Thus, their earlier perceptions are likely to have a minimal effect on the results. However, the lack of knowledge within some themes might have affected the possibility to provide multiple

perspectives about the studied issues. As the metaverse is such a large concept that is developing continuously, a deep understanding of the issue requires continuous research and excessive studying.

Regarding the confirmability of the results, as they were analyzed through theories provided by earlier studies, they can be seen to be confirmed. However, as this study also evolved new insights about the formation of an Immersive Customer Experience, all of the results couldn't be confirmed by other studies.

In addition to the reliability of the study, some particular limitations based on the research methods were identified during the process. For instance, the participants weren't actually intending to conduct a purchase, they were simply participating in the research simulation. This could have affected especially the ability to analyze how the touchpoints and behaviors related to the pre-purchase stage affected the formation of an Immersive Customer Experience. However, this potential lack was noted already in the analysis of the findings, and the effect of touchpoints and behaviors on the overall customer experience is still proved by earlier literature. Also, the limited time of the simulation with the VR-headset could have affected the participants' experience. A longer time in the simulation and a real wish to purchase furniture could have led to varying results.

Additionally, the characteristics of the participants such as their age and background could affect the results. As all of the participants were representatives of Gen Z, the age of individuals wasn't considered as an affecting factor. However, there could arise differences in the results among participants representing different generations. Also, the fact that all participants were students of the Jyväskylä University School of Business and Economics could have affected their values and perceptions, as they all represented a similar background of studies. This could especially be visible in the way they were able to provide notions from the perspective of a potential organization that would own the showroom in question. Also, not all participants were particularly interested in interior design. Thus, further research within different target groups could provide interesting insights into the results.

Regarding the platform used in the service, some limitations are worth mentioning. Klaus and others (2013, p. 506) noted that customer experience in the pre-purchase stage is highly affected by how users perceive the brand. As the platform wasn't assigned to any brand, and familiar brands to the participants weren't present in it, it was challenging to analyze the effect of brands on the experience, especially regarding customer experience and specify the pre-purchase stage. Thus, we can only hypothesize their effects. Additionally, haptics didn't play a big role in this platform, which can be seen as a notable part of immersive communications, at least in the future. Thus, as technologies emerge, studying how the implementation of haptics would affect the experience, could provide some new insights to the research questions. Finally, as the experience was formed by the tutorial phase and the design phase, the experiences of the

tutorial affected some participants' overall experience. However, these notions have been opened in the analysis of the study to provide clarity on the difference.

6.6 Future Research Recommendations

Due to the newness of the topic, there are many interesting future research opportunities that emerged from this study. As already noted in the limitations of this study, the following topics could extend the results of this study and provide valuable insights about them:

- How would different demographics (such as age, gender, and socio-economic backgrounds) affect the formation and perceptions of an Immersive Customer Experience?
- How is the Immersive Customer Experience formed within different kinds of metaverse environments? How is the experience different for example in an entertainment context or in a working environment? Can the formation of an Immersive Customer Experience be affected if more sociability was present in the experience?
- How does the Immersive Customer Experience change over time? What kind of role does learning, usability improvements, and long-term customer relations have on the concept?
- How does the Immersive Customer Experience differ and develop between novices and experienced users?
- How does the experience change if a user is familiar with the brand(s) available in the showroom?

Additionally, the following totally new research opportunities arose from this study:

- Could there be other kinds of elements that can be seen as foundational, amplifying, refining, and enhancing factors for the Immersive Experience in addition to the ones discovered in this research?
- How are the Experience Factors connected to each other? Are there certain patterns of influence?
- How would the use of more advanced technologies affect the formation of the Immersive Customer Experience?
- Does implementing Immersive Customer Experience contain any ethical dilemmas?
- Is the formation of Immersive Customer Experience affected once people get generally more familiar with the metaverse and the emerging technologies utilized to provide the experiences?

- Does implementing Immersive Customer Experiences offer competitive advantages for organizations?
- Does the formation of an Immersive Customer Experience differ between different stages of the customer journey? If yes, how?
- Does the formation of Immersive Customer Experience differ when purchasing virtual products (e.g. NFT's) instead of physical ones?

These recommendations aim to extend the understanding of Immersive Customer Experience within the metaverse and encourage further studying of the concept. By addressing these areas, researchers can contribute to the development of more engaging, effective, and inclusive immersive customer experiences.

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APPENDICES

APPENDIX 1 Formation of the Questionnaire

First, we formed questions to analyze the customer experience of participants. To succeed in this, we relied on earlier literature of customer experience related to the pre-purchase stage. As measuring customer experience can be challenging, we sought ideas for questions from other relevant scales utilized to measure marketing (presented in picture below, retrieved from Klaus & Maklan, 2013). The sources and aims of each question are provided in the Table below.

Customer satisfaction (e.g. Dagger et al. *2007)*

Respondents rated each item using a 7-point scale (1 = strongly disagree, 7 = strongly agree) or as Do not know/Not applicable.

SAT1 My feelings towards XYZ are very positive.
SAT2 I feel good about coming to XYZ for the offerings I am looking for.
SAT3 Overall I am satisfied with XYZ and the service they provide.
SAT4 I feel satisfied that XYZ produce the best results that can be achieved for me.
SAT5 The extent to which XYZ has produced the best possible outcome for me is satisfying.

Behavioural loyalty intentions (Zeithaml et al. *1996; Parasuraman* et al. *2005)*

Respondents rated their likelihood on each scale item using a 7-point scale (1 = not at all likely, 7 = extremely likely) or as Do not know/ Not applicable. The items below were grouped as outlined below on the survey.

L1 Say positive things about XYZ to other people?
L2 Recommend XYZ to someone who seeks your advice?
L3 Encourage friends and relatives to use XYZ?
L4 Consider XYZ the first choice to buy – services?
L5 Use XYZ more in the next few years?

Word-of-mouth behaviour (Brown et al. *2005)*

Respondents rated 'How often they did the following' on each scale item using a 7-point scale (1 = never, 7 = frequently) or as Do not know/Not applicable. The items below were grouped by dimensions as outlined below on the survey.

WOM1 Mentioned to others that you do business with XYZ.
WOM2 Made sure that others knew that you do business with XYZ.
WOM3 Spoke positively about XYZ employee(s) to others.
WOM4 Recommended XYZ to family members.
WOM5 Spoke positively of XYZ to others.
WOM6 Recommended XYZ to acquaintances.
WOM7 Recommended XYZ to close personal friends.

Klaus, Phil & Maklan, Stan. (2013). Towards a Better Measure of Customer Experience. International Journal of Market Research. 55. 227-246. 10.2501/IJMR-2013-021.

Questions of customer experience in the pre-purchase stage

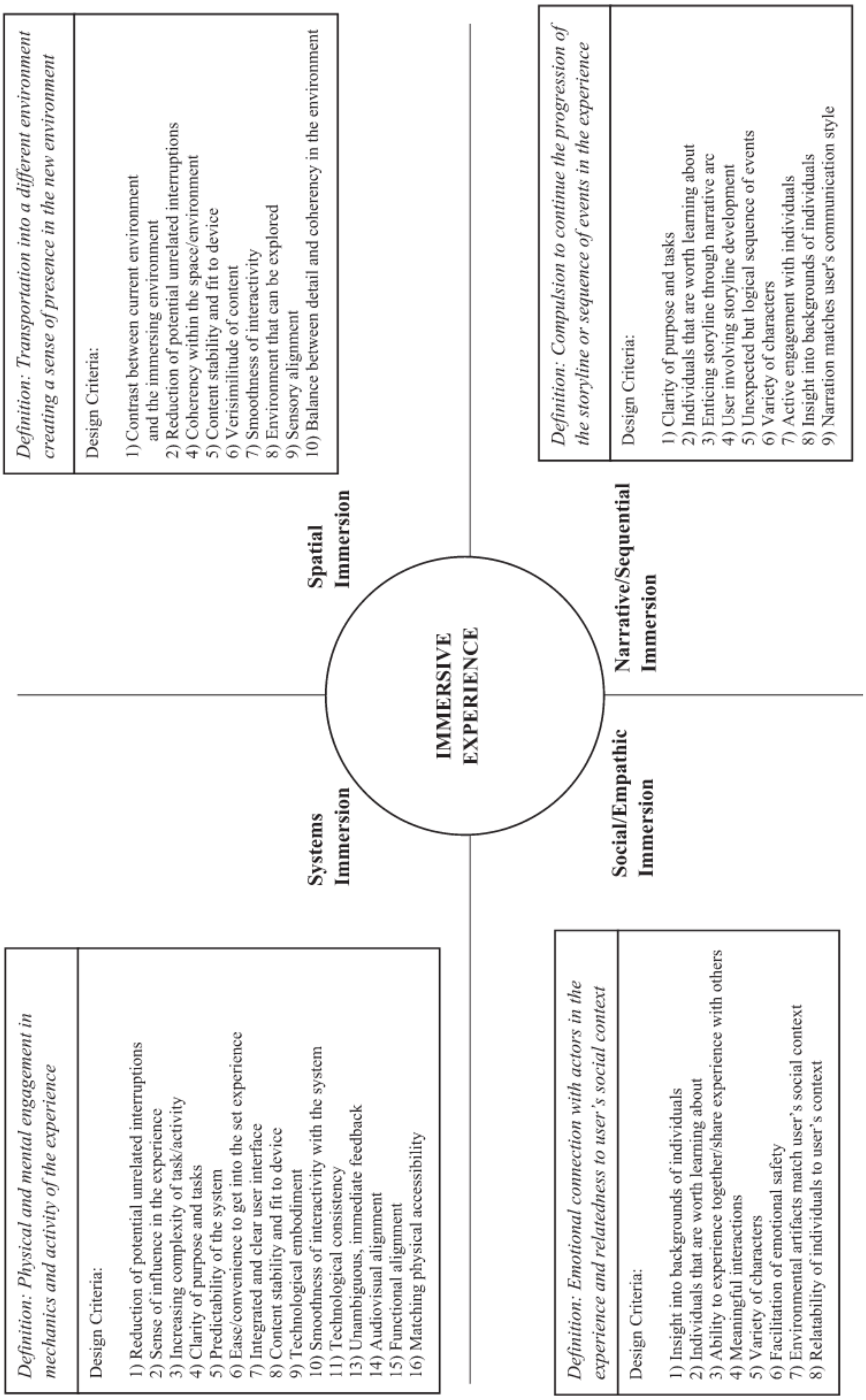
Source	Aim	Question

Relevant information and a proper way of providing it is the key in optimal customer experience in the pre-purchase stage (Hoyer et al., 2020, p. 65)	Finding out what information the customer gained through the experience. This can be compared with their answer to the earlier question *"What information do you seek for when shopping for furniture?"*	13. What information did you gain about the products?
Relevant information and a proper way of providing it is the key in optimal customer experience in the pre-purchase stage (Hoyer et al., 2020, p. 65) The risk of information overload should be avoided in the pre-purchase stage (Lee & Lee, 2004, p. 176-177)	Finding out whether the customer is provided with relevant information in the right way.	14. How did you find the information provided about the products?
The satisfaction with the decision-making process is especially essential in the pre-transaction stage. (Hoyer et al., 2020, p. 65) The risk of information overload should be avoided in the pre-purchase stage (Lee & Lee, 2004, p. 176-177)	Finding out whether the customer is provided with relevant information in the right way.	15. Is there something you would have liked to know more about the products?
The satisfaction with the decision-making process is especially essential in the pre-transaction stage. (Hoyer et al., 2020, p. 65)	Finding out whether the customer is provided with relevant information.	16. Could this experience help you to make a purchase decision if you were to buy furniture?
The customer experience scale (EQX) describes customer experience's attributes and connects them to valuable marketing outcomes, such as word-of-mouth, **loyalty** and **satisfaction**. (Klaus & Maklan, 2012, p. 5 ; Klaus & Maklan, 2013, p. 240)	Analyzing the customer experience by examining customer's loyalty.	27. Could you imagine using the application (or a similar one) again in the future?

The customer experience scale (EQX) describes customer experience's attributes and connects them to valuable marketing outcomes, such as word-of-mouth, loyalty and satisfaction. (Klaus & Maklan, 2012, p. 5 ; Klaus & Maklan, 2013, p. 240)	Analyzing the customer experience by examining customer's loyalty.	28. Do you consider the service useful?
The optimal level of experience: what amount of experience is enough or on the other hand too much. (Palmer, 2008, p. 202-203) By adding various technologies to the retail actions, the customer's **experience can be enhanced** and **value creation increased** (Neuhofer, Buhalis & Ladkin, 2014, p. 346). The customer experience scale (EQX) describes customer experience's attributes and connects them to valuable marketing outcomes, such as word-of-mouth, loyalty and **satisfaction**. (Klaus & Maklan, 2012, p. 5 ; Klaus & Maklan, 2013, p. 240)	Analyzing the customer experience by examining whether the service met their needs and if not, what was missing or what was too much. Also analyzing if the technologically enhanced experience added value to interior planning.	29. Was there anything about the experience that you would have liked to change?
The customer experience scale (EQX) describes customer experience's attributes and connects them to valuable marketing outcomes, such as **word-of-mouth**, loyalty and satisfaction. (Klaus & Maklan, 2012, p. 5 ; Klaus & Maklan, 2013, p. 240)	Analyzing the customer experience by examining the customer's probability of spreading word-of-mouth about the experience.	30. Would you recommend this experience?

Then, we moved on to forming questions about the immersiveness of the experience. We relied on the immersive experience framework created by Haggis-Burridge and the operationalized framework (figure below, retrieved

from Han et al., 2024). The immersion-related questions are presented in the table below alongside the related design criterias obtained by the framework by Han et al. (2024).



Han, D. D., Melissen, F., & Haggis-Burridge, M. (2024). Immersive experience framework: A Delphi approach. Behaviour & information technology, 43(4), 623-639. https://doi.org/10.1080/0144929X.2023.2183054

Questions of immersion

Category of Immersion	Related design criterias	Question
Systems immersion = Physical and mental engagement in mechanics and activity of the experience	1) Reduction of potential unrelated interruptions 2) Sense of influence in the experience 3) Increasing complexity of task/activity 4) Clarity of purpose and tasks 5) Predictability of the system 6) Ease/convenience to get into the set experience 7) Integrated and clear user interface 11) Technological consistency 15) Functional alignment 16) Matching physical accessibility	17. How did you find your overall experience navigating through the virtual showroom and interacting with it? • You can for example describe the clarity, predictability, and ease of use of the experience.
	8) Content stability and fit to device 9) Technological embodiment 10) Smoothness of interactivity with the system 11) Technological consistency 13) Unambiguous, immediate feedback	20. How did you feel using the technology?
	8) Content stability and fit to device 14) Audiovisual alignment	23. How did you find the visuals and audio in the experience?
Spatial immersion = Transportation into a different environment creating a sense of presence in the new environment	1) Contrast between current environment and the immersing environment 5) Content stability and fit to device 7) Smoothness of interactivity	18. Can you describe how the virtual environment felt to you? • How does it compare to the real world?

	9) Sensory alignment 10) Balance between detail and coherency in the environment	
	2) Reduction of potential unrelated interruptions 4) Coherency within the space/environment 6) Verisimilitude of content 8) Environment that can be explored	19. Describe your feelings when exploring the space. Did you feel present in the environment? • What factors contributed to the level of presence?
Empathic/social immersion = Emotional connection with actors in the experience and relatedness to user's social context	1) Insight into backgrounds of individuals 2) Individuals that are worth learning about 4) Meaningful interactions 5) Variety of characters 6) Facilitation of emotional safety	24. How did you feel about the characters or individuals you encountered and how did these affect your experience?
	7) Environmental artifacts match user's social context 8) Relatability of individuals to user's context	25. How did you find the elements (objects, surroundings, etc.) in the virtual showroom?
	3) Ability to experience together/share experience with others	21. How would you feel about the possibility of using the environment together with friends/other users?
Narrative/sequential immersion = Compulsion to continue the progression of the storyline or sequence of events in the experience	1) Clarity of purpose and tasks 3) Enticing storyline through narrative arc 5) Unexpected but logical sequence of events 9) Narration matches user's communication style	26. How did you find the progression and sequence of events?
	2) Individuals that are worth learning about 4) User involving storyline development 6) Variety of characters	22. How did you find the interactions with characters within the virtual showroom?

	7) Active engagement with individuals 8) Insight into backgrounds of individuals	

Finally, we mixed up the order of the questions a bit to prevent leading the ideas of participants. The final questionnaire and structure of the interview can be seen in the Appendix 2.

APPENDIX 2 Research Questionnaire

Interior design related background:

1. How do you typically plan for new interior designs?
2. How do you typically shop for furniture?
    - Have you ever ordered furniture online?
3. What information do you seek for when shopping for furniture?
4. Have you ever used [the specific application in question] or something similar to design interiors?
5. Do you have any expectations for this experience? Any concerns?

Metaverse-related background questions:

6. Have you used a VR-headset before? In what kind of setting?
7. Are you familiar with the metaverse? How would you describe or define it?
8. Have you ever experienced the metaverse? Describe your potential experiences.

Next, instructions are offered for participants.

- The function logic of the VR-headset and controllers is explained.
- The participant puts the VR-headset to their head and required adjustments are done.
- When everything seems to be functioning, the participant will be instructed to start with the tutorial and then proceed to plan an interior for the space. The total use time is 20 minutes and the participant will be informed verbally when the time is completed.

Now the participant explores the virtual showroom for 20 minutes. After the time has passed, the participant will be informed to remove the VR-headset. Then, the rest of the questions will be presented.

9. Describe what you did during your experience.
10. Describe what you felt during your experience.
11. Describe your experience about the duration of the experience.
    - Did time go by fast/slow?

Customer experience in the pre-purchase stage:

12. What information did you gain about the products?
13. How did you find the information provided about the products?
14. Is there something you would have liked to know more about the products?
15. Could this experience help you to make a purchase decision if you were to buy furniture?

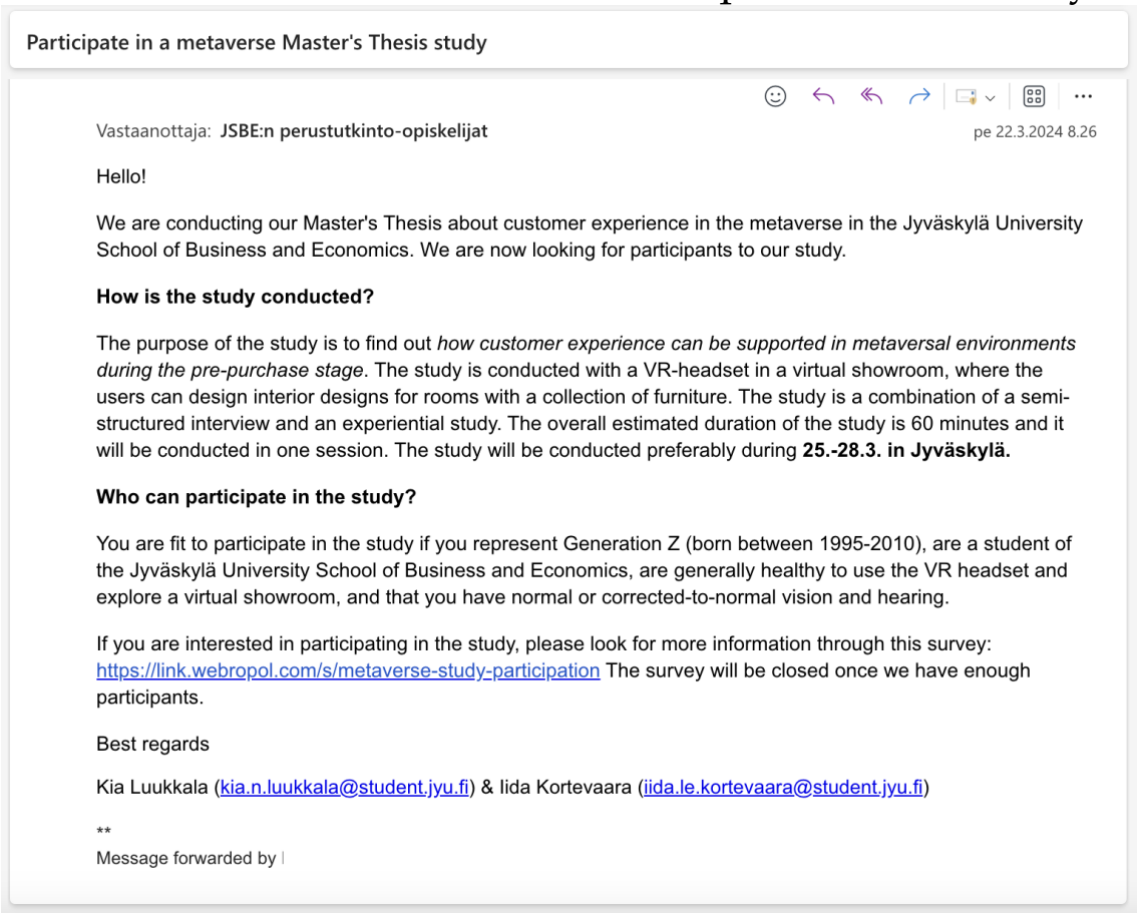
Immersion related questions:

16. How did you find your overall experience navigating through the virtual showroom and interacting with it?
    - You can for example describe the clarity, predictability, and ease of use of the experience.
17. Can you describe how the virtual environment felt to you?
    - How does it compare to the real world?
18. Describe your feelings when exploring the space. Did you feel present in the environment?
    - What factors contributed to the level of presence?
19. How did you feel using the technology?
20. How would you feel about the possibility of using the environment together with friends/other users?
21. How did you find the interactions with characters within the virtual showroom?
22. How did you find the visuals and audio in the experience? What about the 3D?
23. How did you feel about the characters or individuals you encountered and how did these affect your experience?
24. How did you find the elements (objects, surroundings, etc.) in the virtual showroom?
25. How did you find the progression and sequence of events?

Customer experience in the pre-purchase stage (part 2):

26. Could you imagine using the application (or a similar one) again in the future?
27. Do you consider the service useful?
28. Was there anything about the experience that you would have liked to change?
29. Would you recommend this service to others? Justify your answer.
30. Who do you think could benefit from using the service?

APPENDIX 3 Email to Gather Participants for the Study



Participate in a metaverse Master's Thesis study

Vastaanottaja: **JSBE:n perustutkinto-opiskelijat** pe 22.3.2024 8.26

Hello!

We are conducting our Master's Thesis about customer experience in the metaverse in the Jyväskylä University School of Business and Economics. We are now looking for participants to our study.

How is the study conducted?

The purpose of the study is to find out *how customer experience can be supported in metaversal environments during the pre-purchase stage*. The study is conducted with a VR-headset in a virtual showroom, where the users can design interior designs for rooms with a collection of furniture. The study is a combination of a semi-structured interview and an experiential study. The overall estimated duration of the study is 60 minutes and it will be conducted in one session. The study will be conducted preferably during **25.-28.3. in Jyväskylä.**

Who can participate in the study?

You are fit to participate in the study if you represent Generation Z (born between 1995-2010), are a student of the Jyväskylä University School of Business and Economics, are generally healthy to use the VR headset and explore a virtual showroom, and that you have normal or corrected-to-normal vision and hearing.

If you are interested in participating in the study, please look for more information through this survey: https://link.webropol.com/s/metaverse-study-participation The survey will be closed once we have enough participants.

Best regards

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**

Message forwarded by