

Are fashion brand consumers intending to use the Metaverse?

A quantitative study exploring the factors which influence the intention of international social media fashion brand followers to interact with fashion brands through the metaverse

Student Name: Jonathan Schwahn
Student Number: 523032

Supervisor: Dr. Elisabeth Timmermans

Master - Media and Business
Erasmus School of History, Culture and Communication
Erasmus University Rotterdam

Master Thesis
June 2023
Word count: 14709

Abstract

The goal of this study is to unfold factors which influence the intention of international fashion brand consumers to interact with fashion brands through the metaverse. Increasingly more fashion brands evolve themselves, their business model and their consumers into the new digital space of the metaverse and thus it is of high relevance for marketers to gain deeper insights into the predicting factors which form consumers behavioral intention of using the metaverse for fashion brand interaction.

Survey results of 189 internationals between the age of 19-54 were obtained. All the respondents interacted with at least one of eleven examined fashion brands through social media platforms. The results of the study suggest that attitudes towards using the metaverse for fashion brand interaction, subjective norms towards using the metaverse for fashion brand interaction and perceived behavioral control when using the metaverse for fashion brand interaction, play a significant influential role in constructing a behavioral intention of using the metaverse in order to interact with fashion brands. Furthermore, attitude was found to be a multidimensional factor which consists of a cognitive, affective and conative component. Further deconstruction of the components provided insight into a significant relation between the two factors of the cognitive component, namely perceived usefulness and perceived difficulty, and attitudes towards interacting with fashion brands through the metaverse. No significant relation was found between the two factors of the affective component, namely technophilia and technophobia, and the respondent's attitude towards interacting with fashion brands through the metaverse. Lastly, a partial significant relation between the conative component and attitudes towards fashion brand interaction through the metaverse was found, as the factor of manifest barriers was found to be not significantly influential while the factor of latent barriers was found to have significance in influence. Further analysis revealed that attitude provides a significant mediation effect between the three components of attitude and the intention of using the metaverse for fashion brand interaction.

KEYWORDS: *metaverse, fashion brands, attitudes, tripartite model, theory of planned behavior*

Table of Contents

Abstract	2
Introduction	4
Theoretical framework	6
<i>The metaverse</i>	6
<i>Commercial usage of the metaverse in the fashion industry</i>	7
<i>Consumers intention of using the metaverse for fashion brand interaction</i>	9
<i>The multidimensionality of attitudes</i>	10
<i>Factors influencing behavioral intention</i>	13
<i>Moderation effect of attitude</i>	14
<i>Conceptual framework</i>	17
Method	17
<i>Procedure and Sample</i>	17
<i>Measures of the tripartite model</i>	21
<i>Measures of the theory of planned behaviour</i>	28
Results	30
<i>Correlation matrix</i>	30
<i>Independent t-tests</i>	32
<i>Multiple regression analysis for measures of the tripartite model</i>	33
<i>Multiple regression analysis for measures of the theory of planned behaviour</i>	35
<i>Mediation analysis with one moderator and multiple independent variables</i>	37
Discussion	40
<i>Limitations and future research</i>	44
Conclusion	46
References	47
Appendix	56
<i>Survey</i>	56

Introduction

Technological innovations increasingly allow people and brands to intensify their relationship through online media platforms (Alvarez-Risco et al., 2022). Consumers all over the world state that online media platforms allow them to interact with brands more easily and efficiently, and thus an increase of brands investments towards the adaptation of digital environments can be seen (Holmes, 2021). Currently, the most prominent case of these developments may be marked by the rebranding of Facebook in October 2021, in which CEO Mark Zuckerberg announced the renaming of his social media platform into “Meta”. With this new name the main focus of this rebranding strategy was clear, namely the creation and narrow focus on Meta’s own metaverse. Zuckerberg stated that the metaverse allows for the interplay of the digital and physical space in which users can create their own personal representation, through avatars, and pursue a list of almost unlimited activities, such as going to work, to meetings, to concerts or even shopping and trying on clothes (Milmo, 2021).

A report of McKinsey (Hatami et al., 2023) furthermore states that the metaverse is likely to play an essential role across various consumer and enterprise use cases. McKinsey states that: “the opportunity is enormous” (Hatami et al., 2023, p. 1) and could potentially generate 4-5 trillion dollars across various industries such as banking, manufacturing, retail, education, advertising etc., by 2030. The highest prospective consumer use case is however seen in the e-commerce sector (Hatami et al., 2023). Nowadays, such high use-cases are especially visible within the fashion industry, in which many apparel brands have already partnered up with metaverse developers and have created their own metaverse, for different purposes (Breia, 2022). It therefore seems that many businesses already see great potential in the metaverse and are increasingly moving into this new technological field. However, a business cannot succeed without its customers and thus the question arises of whether the broader public is already ready to adopt to the metaverse in order to interact with fashion brands.

Heiman et al. (2020) argue that especially marketers play an important role in bringing a new technology to a customer segment and adopting it in a commercial space. This is due to the fact that marketing strategies can and should cover aspects which are also relevant for the potential customer/user concerns, which may arise when forming an intention of adopting to and using a new technology (Heiman & Hildebrandt, 2018). As a result, it is important for marketers to understand what different factors might influence the potential concerns of customers, and what kind of aspects might even convince them to form an

intention of adopting a new technology, in this case being the metaverse. Ajzen (1991) explains that forming a positive behavioural intention is the foundation stone of actually displaying the behaviour. Thus, when fashion brands and their marketers want to successfully evolve their consumers into the metaverse, they need to gain an understanding of what factors influence the customers/followers' intention of actually using the metaverse for brand interaction.

Similarly, the metaverse attracts increasingly more attention in academia. Oleksy et al. (2022, p. 6) state that: "The metaverse development is likely to become the next milestone on the road to the further virtualization of our daily lives." Research was conducted on the opportunities the metaverse could create for fashion brands (Joy et al., 2022, Periyasami & Periyasamy, 2022), such as a stronger and more efficient interaction between fashion brands and their consumers. However, questions arise concerning whether the consumers of these fashion brands are actually willing to use the metaverse for fashion brand interaction. Toraman (2022) explored the attitudes towards the metaverse and how this affects one's intention of actually using the metaverse. The sample consisted out of people living in Turkey, who already use blockchain technology and thus are familiar with the metaverse. The results suggest that positive attitudes towards the metaverse have a positive influence on individuals' intention of using the metaverse, thereby accelerating the adaption process. However, these results only represent a smaller sample of people, namely those that are already familiar with the metaverse and its technology. Therefore, questions arise whether the quick adoption of the new technological medium of the metaverse can also succeed in a population which is not so familiar with it. Oleksy et al. (2022) compared the willingness to engage with the metaverse, between international gamers and non-gamers living in Poland. In this case, both groupings were not familiar with the technology of the metaverse, but the gamers had a better understanding of what it could entail. The results show that individuals who are less attached to the current virtual environments express stronger associations of threat related to using the metaverse, thus suggesting that the quick integration of this new technology may raise concerns in individuals who are not familiar with the metaverse. A research gap can however be found in the field of metaverse adoption towards commercial purposes and especially what factors influence the formation of an intention towards interacting with fashion brands through the metaverse.

Consequently, the societal relevance lies within gaining a deeper understanding of what factors influence the formation of an intention to use the metaverse in order to interact with fashion brands. This is especially relevant as the metaverse is a relatively new

technological implementation in the commercial space, but brings enormous opportunities to the retail and e-commerce sector (Hatami et al., 2023). This is also likely to be the reason why increasingly more businesses and brands have emerged themselves so quickly into the metaverse (Breia, 2022). Therefore, it is of societal relevance for marketers to understand what factors influence the intention of using the metaverse for fashion brand interaction, as these are required to develop successful marketing strategies that correspond to the potential concerns and opportunities of potential metaverse users (Heiman & Hildebrandt, 2018).

As a result, this study seeks to contribute to a greater understanding of what and how certain factors influence the intention of a broader mass, to use the metaverse in order to interact with fashion brands. Thereby, the following research question will be investigated: “What factors influence the intention of international social media fashion brand followers to interact with fashion brands through the metaverse?”

Theoretical framework

The metaverse

Although the adoption of the metaverse into the commercial sector is a rather new phenomena, the term itself (metaverse) can be traced back to 1992, with the publication of the SCI-FI novel *Snow Crash*. The author, Neal Stephenson, describes the metaverse as the descendent of the internet, in which people interact within a virtual world as personalized avatars (Huddleston, 2021). Since then, the idea and perception of the metaverse has continuously developed. In academia, the first definition can be traced back to 1996, in which the metaverse is described as the descendant of the internet in which users are represented by avatars and interact in a virtual reality world (Perlin & Goldberg, 1996). Nowadays we see that the metaverse and the internet are still sustained simultaneously, at least until now, and know that the metaverse is a virtual environment which allows for the interplay of the physical and digital world (Lee et al., 2021), thus acting as a “continuum of extended reality” (Barrera and Shah, 2023, 6). It allows for the interaction of individuals through the usage of digital personalized avatars (Duan et al., 2021) and offers users to immerse themselves and experience this digital world (Hollensen et al., 2022). Thereby the options of operability and scalability of the metaverse are almost unlimited (Duan et al., 2021).

Commercial usage of the metaverse in the fashion industry

Due to these unlimited number of options, there is still no universal definition of the metaverse. Rather it is more of the question what individual developers want it to be and what type of possibilities they give its users within their own metaverse. Thus, the metaverse can be used across different sectors, as companies can adapt their metaverse to the different wants and needs of the sector. From a brands' perspective, the metaverse is an excellent opportunity to increase interaction and improve communication between themselves and their followers, as the users are actively interacting with the virtual world, rather than consuming online branded content (Periyasami & Periyasamy, 2022). Next to that, shopping in the metaverse allows its users to access the store from all over the world without needing to go somewhere. Differently to simple online shopping, the metaverse creates a shopping experience which is shaped by the interaction of digital avatars and the virtual world (Joy et al., 2022).

Furthermore, as the metaverse is a digital world which is shaped by the interaction of individualised avatars, the role of digital clothing items becomes increasingly important within this space. This is due to the fact that humans use clothing as a way to communicate individual personal characteristics, status and identity (Palomo-Lovinski, 2008). Research suggests that digital wearables increase virtual body ownership as well as one's dominance and presence in digital spaces, as the personalized expression of digital clothing relates to a stronger sense of self-identity in the digital environment (Waltemate et al., 2018). Experts in the industry state that digital fashion in the metaverse will act as an extension of the social media filters we know nowadays, in which these digital twin clothes are used as an expression of one's digital self and will completely change the meaning of fashion as we know it nowadays (Amed et al., 2022). As a result, the metaverse does not only enable fashion brands to strengthen the interaction with its consumers by enhancing the online experience, but it also allows for the implementation of a completely new product category, namely digital clothing.

Many fashion brands have already emerged themselves into the metaverse. Gucci was the first fashion brand to move into the metaverse, in May 2021, by collaborating with the gaming and metaverse platform Roblox, in which users were able to explore Gucci's virtual brand-themed world and personalize their avatar with digital Gucci wearables. Louis Vuitton, Nike and Givenchy Parfums took a similar approach by creating their own metaverse and allowing its users to interact with digital wearables and enjoying the virtual brand-themed

world. Dior and Forever 21 on the other hand, had a different approach, by merging the digital and physical world more closely together by presenting their newest physical collection in their metaverse. Similarly, Zara also launched its newest collection in 2021 in the metaverse, but one year later even launched a new metaverse campaign in which users were able to buy digital clothes and makeup to customize their avatar, but also wear them in real life as the same pieces were also released physically. Such an approach was also taken by Adidas and Dolce & Gabbana, in which buyers of the digital wearables received a physical replication. Lastly, Ralph Lauren and Balenciaga, partnered up with the gaming developer Epic-Games to each release a digital clothing collection in the game Fortnite, which players could equip to their avatar and then use in their gameplay, while at the same time releasing a physical clothing collaboration with the game. Similarly, Burberry partnered up with the game “Minecraft” and released a digital in-game clothing collection which the users of the game were able to equip to their avatar, while at the same time releasing a physical clothing replication collection. At the same time, Burberry however also partnered up with metaverse developers in which users can explore a Burberry brand-themed world and can personalize their avatars with Burberry wearables (Breia, 2022).

By looking at these different fashion brands and their emergence into the metaverse, it is evident that the metaverse can be used for different purposes. While some brands use the metaverse to increasingly engage their followers/customers with the brand through an immersive branded online experience, others focus on using the metaverse as a new opportunity to sell digital wearables (see table 1). This is also underlined by the statement of Robert Triefus, who is the executive vice president for brand and customer engagement of Gucci: “The idea that everything has to be physical is very quickly being disproven... People are willing to pay good money for non-fungible tokens (NFT’s), for digital collectibles, and to have a second life in the metaverse” (Williams, 2021). The NFT’s, which Robert Triefus refers to, represent a unique digital address that in turn proves the ownership of an individual piece of digital content (Kugler, 2021). As each NFT is unique and therefore cannot be exchanged with one another, they are very commonly used within an online environment to certify the authenticity and ownership of digital belongings. Furthermore, NFT’s are easily transferable in an online environment across blockchain technology (Joy et al.,2022). NFT’s are therefore efficient in transferring digital collectibles/wearables across individuals, and at the same time grant an identifiable security of ownership and are consequently very relevant in the online fashion industry, as they provide customers with the ability of owning something unique and individual. This extends the value of digital wearables, as they do not

only allow metaverse users to express themselves in an online context, but also allow for the storage of value by representing ownership of unique and individual digital goods (Chohan, 2021).

Table 1.

Fashion brands that use the metaverse

Purpose of metaverse usage	Brand	NFT usage?
Allowing users to wear digital branded clothing	Gucci	No
	Louis Vuitton	Yes
	Nike	No
	Givenchy	No
	Forever 21	No
	Burberry	Yes
Presenting new clothing collections	Dior	No
	Zara	No
Producing digital twins of physical wearables	Zara	No
	D&G	Yes
	Ralph Lauren	No
	Balenciaga	No
	Burberry	No

Consumers intention of using the metaverse for fashion brand interaction

As discussed above, many fashion brands are ready and willing to take the step forward into the metaverse. However, questions arise of whether the consumers of the fashion brands are comparably ready to take this step, and if so, what factors influence the consumers behavioural intentions of using the metaverse in order to interact with fashion brands? The theory of planned behaviour (TPB) (Ajzen, 1991) suggests that an individual intention of displaying a certain behaviour is affected by different psychological factors, namely the attitude towards displaying the behaviour, the subjective norms and the perceived behavioral control when displaying the behavior (Ajzen, 1991). Therefore, when forming an intention of displaying a certain behaviour, an individual evaluates whether he/she is favorable or unfavorable towards displaying the behaviour (attitude), whether he/she

perceives to receive negative or positive reactions from his/her social surroundings (subjective norms), and whether he/she perceives to have self-efficacy and control over displaying the behaviour (perceived behavioral control) (Schaller & Malhotra, 2015). Research shows that these three variables of the TPB are influential factors in constructing a behavioral intention (Spatz et al., 2003; Schaller & Malhorta, 2015) and thus are also relevant factors in predicting behavioral intentions (Godin & Kok, 1996; Sparks et al., 1997).

In regards to forming a behavioral intention of using a new technological medium (i.e. the metaverse), attitude is likely to play an important role in adopting a new technology medium, due to the fact that when one considers using the metaverse to interact with fashion brands, he/she will first evaluate to what degree he/she has a favorable or unfavorable reaction to this certain behavior (Donat et al., 2009). Next to that, subjective norms are likely to especially play an important role for forming a behavioral intention of using a new technological medium such as the metaverse, as many people might not have enough information about a such a new technological medium and thus are more dependent on the information and opinions of others (Toraman, 2022). Lastly, the perceived behavioral control is also an important factor to consider when forming a behavioral intention of using a new technological medium, due to the fact that individuals are likely to especially seek a certain level of perceived control when trying or doing something new (i.e. using a new technological medium such as the metaverse in order to interact with fashion brands) (Sparks et al., 1997).

As a result, in the context of this study, attitude, subjective norms and perceived behavioral control are likely to influence individuals behavioral intention of using the metaverse for fashion brand interaction.

The multidimensionality of attitudes

The theory of attitude-behavior consistency is a widely spread and well-known in the field of marketing research (Hansen, 1969; Bonfield, 1974; Bennet & Harrel, 1975) as its main assumption is highly relevant for marketers. Based on the attitude-behavior consistency theory, there is a strong relation between one's attitudes and one's overt behavior (Schuman & Johnson, 1976; Seligman et al., 1979). In marketing, the relevance of this theory therefore lies within the assumption that when consumers have a positive attitude towards a certain product/service, they are also more likely to use the product/service (Juster, 1964; Ryan & Bonfield, 1975). Measuring consumers attitude as an entity may however result in predictive limitations for behavior (Wicker, 1969) due to the fact that attitude is a

multidimensional factor, which incorporates an explanatory and predictive approach (Day, 1972). The explanatory approach is constructed around the cognitive and affective component, as they deal with individuals emotional information processing of displaying a certain behaviour (Day, 1972). This means that through an explanatory approach, a person gathers the information he/she has about a certain behaviour, and evaluates the feelings towards displaying this behaviour with this information (Donat et al.2009). The predictive approach, on the other hand, is constructed around the conative component, which addresses one's confidence and willingness of displaying a certain behaviour (Donat et al.2009).

Research suggests that the evaluation of one's overall attitudes towards an object, person, behaviour or other stimuli is a multidimensional process (Day, 1972; Breckler, 1984; Eagly & Chaiken, 1993) which is derived from Rosenberg and Hovland's (1960) tripartite model and assessed through the distinct evaluation of three components, namely cognitive, affective and conative. The tripartite model suggests that a person's attitude is formed by the attitude stimuli through three distinct components (cognitive, affective and conative response towards the attitude stimuli). The cognitive response toward the attitude stimuli, is derived through verbal statements an individual states around the attitude stimuli (i.e. the metaverse is fun and helpful and will therefore be adopted in our society). The affective response toward the attitude stimuli is on the other hand derived through facial expressions or verbally expressed feelings towards the metaverse (i.e. joyful expressions when thinking about using the metaverse and/or stating that using the metaverse is something fun to do). Lastly, the conative response toward the attitude stimuli is derived through behavioral consequences one faces when behaving in a certain way (i.e. when I want to use the metaverse I firstly need to take some time to learn how I of how I can use the metaverse) (Rosenberg and Hovland, 1960).

Greenwald (1968) suggests that the cognitive, affective and conative information is gathered through separate learning processes. While ones cognitions are evaluated through verbal statements and communication, the affectional responses are obtained by classical conditioning and the conative component through operational conditioning. Furthermore, Breckler (1984) notes that each component is evaluated differently, thus stressing the importance of measuring the components individually in order to capture the entity of the tripartite model. While the cognitive component is assessed by the respondents in terms of to what extent they are favorable or not of using the metaverse in order to interact with fashion brands, the affective component is evaluated in terms of to what extent one feels enjoyment or perceives pleasure when interacting with fashion brands through the metaverse. Lastly, the

conative component is evaluated in terms of to what extent the respondents feel supportive and willing to interact with fashion brands through the metaverse.

Thus, it is of importance to measure the components of the tripartite model separately as they consist of individual developmental origins and are made through individual evaluative responses (Kaiser & Wilson, 2019). The separate measurement also allows for a comparative judgment of the three distinct attitude components, which is important to evaluate, as they are likely to each have a distinct effect on forming one's overall attitude towards interacting with fashion brands through the metaverse (Day, 1972).

The cognitive component represents the participants perceptions of interacting with fashion brands in the metaverse (Donat et al., 2009). It acts as a storage section, in which an individual store all the information he/she has about the attitude stimulus, and evaluates this information to form individual opinions about the stimulus (Jain, 2014). To evaluate one's perception, the respondents will be likely to assess the information he/she has about interacting with fashion brands through the metaverse to form their individual thoughts and beliefs about forming an intention to replicate this behaviour (Breckler, 1984). This component will therefore focus on how useful, interesting, easy, time consuming, exhausting, expensive or safe the respondents perceive the metaverse to be in order to interact with fashion brands (Donat et al., 2009) and will investigate the following hypothesis.

H1a: Positive perceptions of the metaverse are positively related to a positive attitude of interacting with fashion brands through the metaverse.

However, attitudes cannot simply be formed and identified around individual beliefs towards and attitude stimulus. The affective component acts more as a subconscious component which interplays with the cognitive process of forming an attitude about a stimulus (Jain, 2014). It represents the emotional thoughts one has about a certain attitude stimulus (Breckler, 1984). When addressing one's emotions, the respondents will evaluate their liking or disliking of using the metaverse to interact with fashion brands. The affective component addresses the respondent's preference of either sticking to the traditional technological advances to interact with fashion brands, or trying something new by being able and wanting to adapt to the metaverse to interact with fashion brands (Day, 1972). This component will therefore focus on to what extent the respondents are technological optimistic/pessimistic, to what extent they are afraid/excited about technological advances, or to what extent technology makes the respondents life easier (Donat et al., 2009). Ostrom

(1969) indicated a positive relationship between the affective component and attitudes, thus the following hypothesis will be tested.

H1b: Positive emotions about the metaverse are positively related to a positive attitude of interacting with fashion brands through the metaverse.

Lastly, the conative component addresses the respondents' reactions, in terms of their willingness and confidence of using the metaverse to interact with fashion brands (Lee et al., 2017). Therefore, the conative component addresses the behavioral tendency of an individual towards the attitude stimulus (Jain, 2014). This includes the respondent's evaluation of their personal level of interest, their willingness of spending time (if applicable also money) to learn how to use it, or also certain barriers which may hinder them in interacting with fashion brands through the metaverse (Donat et al., 2009). Research suggests that the higher an individual's willingness of displaying a behavior and the more confidence an individual has in performing this behavior, the more positive the attitude towards displaying this behavior will be (Lee et al., 2017). Thus, the following hypothesis will be tested.

H1c: Positive reactions about the metaverse are positively related to a positive attitude of interacting with fashion brands through the metaverse.

Factors influencing behavioral intention

Breckler (1984) states that: "Attitude is defined as a response to an antecedent stimulus or attitude object." When one assesses his/her attitude towards a behavioral intention, an evaluative response towards this behavior will be constructed which is classified through a combination of the cognitive, affective and conative component (Ostrom, 1969). Although research suggests that the three components of the tripartite model serve as a reliable guide to measure attitudes (Harding et al., 1954, Fishbein, 1966), Breckler (1984) states that attitudes still need to be measured independently. This is due to the fact that differently to the cognitive, affective, and conative component, which responses to the stimulus are never observable, attitudes act as exogenous variable and thus the responses to the stimulus may sometimes be observable (Breckler 1984). As a result, the respondent's attitude towards interacting with fashion brands need to be measured independently, although the cognitive, affective and conative components are likely to interplay in forming the respondent's attitude towards displaying the behaviour.

Ajzen (1993) explains that an attitude of an individual determines whether this individual reacts favorable or unfavorable towards displaying a certain behaviour. Porter and Donthu (2006) state that when evaluating attitudes towards new technologies, attributes such as the advantage the new technology supplies or the complexity of using the new technology are likely to be evaluated by the individuals. This also supports the statement of Breckler (1984), who states that the attitude stimuli are sometimes observable, as the advantages and complexity of using the metaverse to interact with fashion brands is something which individuals can observe. Therefore, following hypothesis will be tested.

H2a: A positive attitude towards the metaverse is positively related to a stronger intention of interacting with fashion brands through the metaverse.

Moderation effect of attitude

Research suggests that the relationship between attitudes and behavior is mediated through behavioral intention (Bagozzi, 1981; Ajzen & Fishbein, 1980; Ryan & Bonfield, 1975). Consequently, Kim and Hunter (1993) found that the relationship between attitude and behavioral intention was stronger than the relationship between attitude and behavior, therefore suggesting that the intention of displaying a certain behavior is a consequence of attitudinal factors. Bagozzi (1981) explains that the tripartite model of attitude (Rosenberg & Hovland, 1960) provides a “possible conceptualization” (p. 93) of the attitudinal factors which influence behavioral intention. In the tripartite model, attitudes are classified through three evaluative dimensions, namely the cognitive, affective and conative component. Hence, the following hypothesis will be tested.

H2b: The relation between the cognitive, affective & conative component of attitudes and the intention of using the metaverse for fashion brand interaction is mediated by attitudes towards using the metaverse for fashion brand interaction.

Next to that, subjective norms are also an important factor to understand and predict individuals’ intention of displaying a certain behaviour (Lin, 2006). In regards to displaying a certain behaviour, subjective norms are defined as a person’s perception about to what extent important others would encourage her/him to display this certain behaviour (Shepers & Wetzels, 2006). Subjective norms therefore capture the social pressure oneself perceives about acting out a certain behavior (Paul et al., 2016). Due to the fact that the metaverse is a rather new technology, individuals are likely to not have formed a distinct and complete

opinion about the metaverse. This inability of forming a distinct opinion through self-lived experiences emphasizes the importance of the subjective norm. Those that have not interacted with fashion brands through the metaverse, are likely to be strongly affected by the opinion of others about using the metaverse in order to interact with fashion brands (Toraman, 2022). As a result, the opinions of others are likely to play a crucial role in forming the individual's intention of interacting with fashion brands through the metaverse in those who have no direct experience in this behavior.

To evaluate the respondents' subjective norms, two distinct dimensions will be considered, namely on the one hand to what extent people who influence the respondents' opinions would encourage them to use the metaverse in order to interact with fashion brands, and on the other hand to what extent important others would encourage the displaying of the behavior. While people who influence the respondent's behaviour may consist also of people who they actually do not personally know, the people who are important to them consist of people who they personally know from their inner social circle. Therefore, by considering these two distinct dimensions a more complete overview of social influences is created, as the respondents' perceptions of people who influence their behavior and the respondents' perceptions of people who are important to them may vastly differ (Taylor & Todd, 1995). Research suggests that when the subjective norms towards a certain behavior are positive, the behavioral intentions of oneself will be similarly positive (Taylor & Todd, 1995; Han et al., 2010) and thus following hypothesis was constructed.

H3: Positive subjective norms towards the metaverse are positively related to a stronger intention of interacting with fashion brands through the metaverse.

The perceived behavioral control focuses on the perception of individuals in terms of how easy or difficult it is to display a certain behavior (Ajzen & Madden, 1986). It includes the respondent's personal reflection about which certain barriers may influence the ability of displaying a certain behaviour (Terry & O'Leary, 1995). Ajzen (1986) states that the intention of performing a certain behavior is ultimately determined by the resources and opportunities one has, thus emphasizing the importance of perceived behavioral control in predicting behavioral intention. Especially in situations in which an individual lacks volitional control to display a certain behavior of interest, perceived behavioral control is a very important construct to acknowledge. It relates to situations in which individuals themselves do not have the full voluntary control of acting out a certain behaviour, but are

instead dependent on other factors which will ease or constrain the individuals in displaying the behaviour of interest (Ajzen, 2002). In the scope of this research, the perceived behavioral control is therefore a very relevant factor to measure, due to the fact that individuals that want to interact with fashion brands are dependent on the fashion brands decision of emerging themselves increasingly into this new technology. If fashion brands decide to increasingly use the metaverse for the interaction between their consumers and their brand, the individual followers need to either adopt to using the metaverse or to abstain from interacting with the fashion brand.

To what extent individuals perceive behavioral control, is influenced by internal and external factors (Ajzen, 1993). The internal factors relate to one's own perceived self-efficacy which "is concerned with judgments of how well one can execute courses of actions required to deal with prospective situations" (Bandura, 1982, p. 122), relating in this context to ones one judgment of how well he/she can use the metaverse in order to interact with fashion brands. Hung et al., (2003) found that self-efficacy is able to predict perceptions of perceived control when adopting new technological mediums. Facilitating conditions, on the other hand, focus on the external factors, relating to outside barriers which influence the ease of interacting with fashion brands through the metaverse (Lin, 2006). Taylor and Todd (1995) suggest that outside resources which facilitate the conditions between oneself and technology are a viable predictor of perceived behavioral control. In the context of the metaverse, such resources include digital devices, the internet or in some cases also blockchain technology.

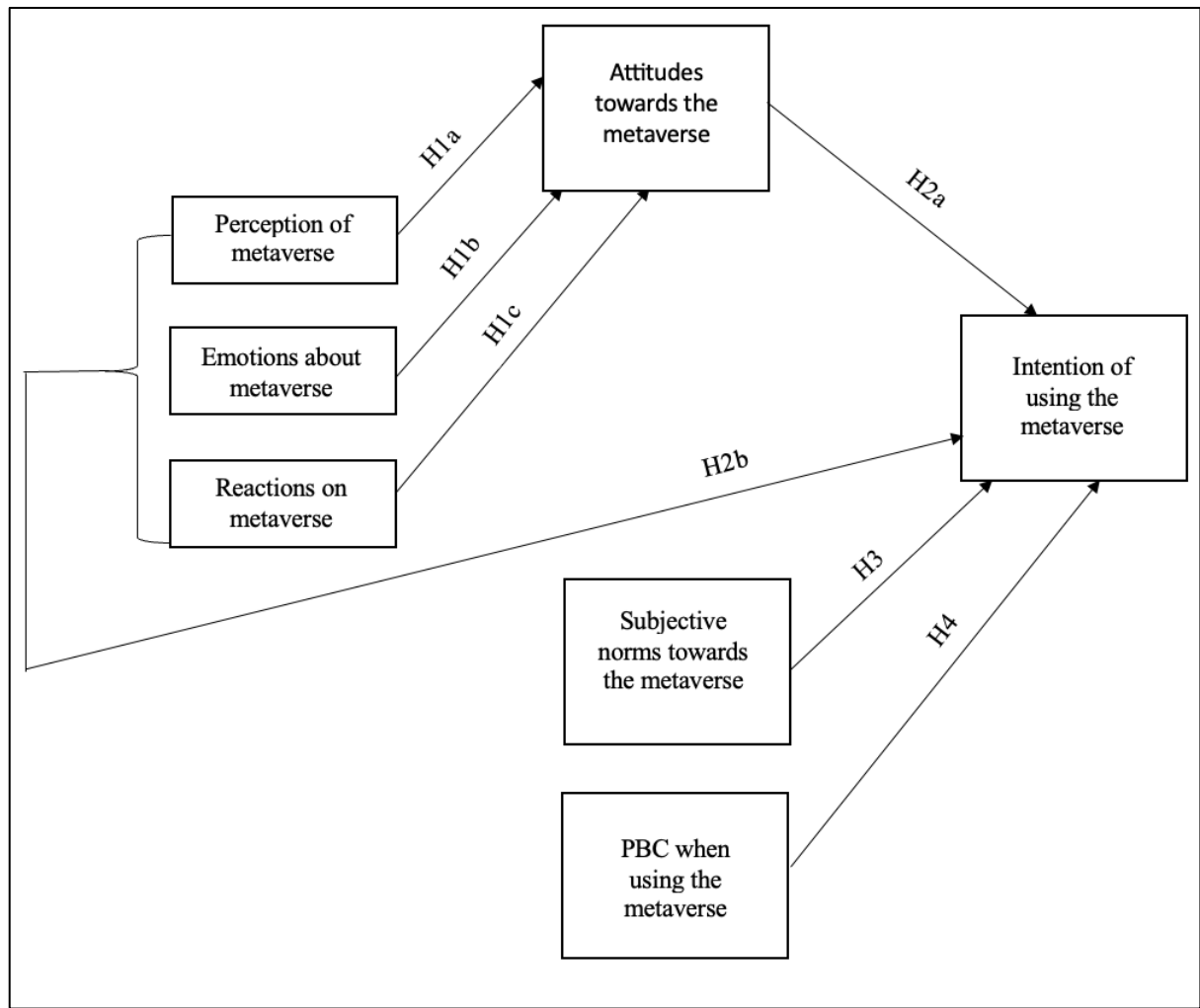
It is therefore important to acknowledge these two dimensions as separate factors of perceived behavioral control, as they are constructed and evaluated differently. While the internal factors touch upon the control one perceives to have when using the metaverse, the external factors relate to the perceived difficulties one may face when trying to use the metaverse (Sparks et al., 1997). Cheung and Chan (2000, p. 21) state that: "Our result suggest that the difficulty-control distinction is theoretically meaningful and empirically non-negligible. Thus, the more one believes to have a sufficient skill set of using the metaverse for fashion brand interaction (internal) and the more time and opportunities one believes to have in order to use the metaverse for fashion brand interaction, the higher the perceived behavioral control will be. Cheung and Chan (2000) stated that the prediction of behavioral intention is significantly improved by implementation of perceived behavioral control. Hence, the following hypothesis will be investigated.

H4: Higher perceived behavioral control in using the metaverse is positively related to a stronger intention of interacting with fashion brands through the metaverse.

Conceptual framework

Figure 1

Conceptual framework based on the tripartite model of attitudes (Rosenberg and Hoyland, 1960) and the theory of planned behavior (Ajzen, 1991)



Method

Procedure and Sample

A survey allows for a structured data gathering of a large number of respondents, which enables the assemblance of a variety of opinions and attitudes towards the metaverse (Matthews and Ross, 2010). Thus, by using a survey, opinions of different respondents about using the metaverse to interact with fashion brands can be evaluated. This is especially

relevant, as the respondents for this research will consist of an international sample of people who may or may not be familiar with the metaverse. The metaverse is a virtual world which can be accessed and used around the whole world, enabling the interaction of cross-cultural groupings. Hatami et al. (2023, p. 2) states that "... the metaverse appeal spans genders, geographies and generations" and therefore it is of importance to establish as few sampling restrictions as possible, so that a variety of respondents from different cultures, age groups and gender can be reached. The only criteria for respondents to participate in this study will be that they need to follow at least one of the eleven fashion brands that have emerged themselves already into the metaverse, on social media platforms (Gucci, Louis Vuitton, Burberry, Nike, Givenchy Parfums, Dior, Forever 21, Zara, Dolce & Gabbana, Ralph Lauren and Balenciaga). Thus, a purposive sampling technique was used, which includes the active choice of the researcher in sampling participants (Etikan et al., 2016), in this case using participants who follow one of these fashion brands on social media platforms.

The data collection process started by the deployment of the survey on the 4th of April 2023, which was actively distributed through various online channels until the 7th of May 2023. The respondents were contacted through social media platforms, including WhatsApp, LinkedIn and Facebook. Next to that, survey swap websites were used, including *surveycircle.com* and *surveysawp.io*. In this time-span 251 responses were collected, of which 62 responses were excluded. Forty-eight of these respondents did not follow/interact with one of the 11 brands on social media, while the remaining 14 have not fully completed the questionnaire. As a result, a total sample of 189 respondents was used for further analysis.

Eighty-six of respondents were male (45.5 %), 102 were female (54%) and one respondent identified as non-binary (0.5%). The age of the respondents ranged between 19-54, with an average age of 25.96 ($SD = 4.88$) and 86.2% of respondents below the age of 30. Eighteen percent of the respondents had a high-school degree, 59.8% obtained a bachelor degree and 20.1% had a master degree. The other 1.6% had a doctoral degree and 0.5% a professional degree. Furthermore, the sample included respondents of 42 different nationalities, with the most prominent being German (42.9%), Dutch (11.1%) and the UK (6.3%). The high percentage of German participants may be explained through the fact that the survey was mostly shared in German speaking social media groups and survey swap websites. Nonetheless, the survey was published in English in order to not exclusively appeal to German speaking respondents. Most of the respondents followed/interacted with Nike the most through social media channels (42.3%), while 25.9% followed Zara and 7.3% Louis Vuitton. Lastly, only 21.2% of the respondents have used the metaverse before, however the

majority of respondents stated that they were either slightly familiar with the metaverse (49.7%) or moderately familiar (23.3%). Nonetheless 21.7% of respondents also stated to be extremely unfamiliar with the metaverse (see table 1)

Table 1

Demographics

	Frequency (count)	Frequency (%)		
Gender				
Male	86	45.5		
Female	102	54.0		
Non-binary	1	0.5		
Age				
			Mean	SD
			25.96	4.88
Level of Education				
High school degree	34	18.0		
Bachelor degree	113	59.8		
Master degree	38	20.1		
Doctoral degree	3	1.6		
Professional degree	1	0.5		
Nationality				
Germany	81	42.9		
Netherlands	21	11.1		
UK	12	6.3		
Poland	10	5.3		
Other (38 nationalities)	65	34.4		

Which fashion brand do you follow/interact with the most?

Nike	80	42.3
Zara	49	25.9
Louis Vuitton	14	7.4
Ralph Lauren	10	5.3
Balenciaga	9	4.8
Dior	8	4.2
Gucci	7	3.7
Burberry	5	2.6
Forever 21	4	2.1
Dolce and Gabbana	2	1.1
Givenchy Parfums	1	0.5

Ethical issues were taken into account, and addressed at the beginning of the survey. The respondents were informed about the nature of the study, the approximate duration of the survey (5-10 minutes), as well about the fact that they should feel fully comfortable to give their subjective and truthful answers as no right nor wrong answers exist for the questions asked in the survey. Next to that, the respondents were informed about the fact that the researcher is from the Erasmus university in Rotterdam and that their data is treated with complete confidentiality and anonymity. Furthermore, the participants were informed about their right to exit the online questionnaire at any given point if they do not feel comfortable answering the questions, and that their participation is voluntary. Lastly, contact details were shared, in order for participants to reach out to the researcher if any further questions exist. After that, the participants were asked to give consent in order to participate in the survey, and if they did not agree to the terms they were redirected to the end of the survey.

Once consent was given, the questionnaire started by asking the respondents about their familiarity of the metaverse and if they have ever used it before. They were then provided with a brief definition of the metaverse stating: *The metaverse is a virtual*

environment which allows for the interplay of the physical and digital world (Lee et al., 2021), thus acting as a “continuum of extended reality” (Barrera and Shah, 2023, p. 6). It allows for the interaction of individuals through the usage of digital personalized avatars (Duan et al., 2021) and offers users to immerse themselves in this digital world (Hollensen et al., 2022). Thereby the options of operability and scalability of the metaverse are almost unlimited (Duan et al., 2021). This gave the respondents, especially those who are completely unfamiliar with the metaverse, a better understanding of what it entails. Following that, the participants were asked about which of the eleven brands they follow and interact with the most on social media platforms. Option number 12 indicated *none of the above*, which resulted in getting redirected to the end of the survey. If one of the eleven brands were chosen, the respondents were shown a small video clip of this brand in the metaverse, as well as a small description of what the users are able to do. The videos can be viewed by using the link or qr code to the survey (see appendix). After that, the respondents were asked to fill out some demographic questions, including gender, nationality, age and highest obtained educational degree. From there on, questions including variables and scales were asked, which will be further discussed in the next section.

Measures of the tripartite model

Due to the multidimensional nature of attitudes, the scale of Donat et al. (2009) was used to address the cognitive, affective and conative component separately. The scale was originally constructed to predict internet usage, based on the respondent’s attitude towards the (in that time) rather new technology. Lee et al. (2021, 45) state that the metaverse will shape the internet in terms of creating a new, more immersive form of the internet. Other definitions of the metaverse describe it as being the descendant of the internet (Perlin & Goldberg, 1996), thus emphasizing the similar nature of the two technologies. As a result, the scale of Donat et al. (2009) is justifiable to use for the scope of this study.

Cognitive component of attitudes. For the cognitive component, the respondents were given nine polar attributes with which they were able to rate their attitude towards the metaverse. Each of the nine attributes began with the statement *interacting with fashion brands through the metaverse is...* and then the attributes were added (e.g. good for me, relaxing, useful etc.). The respondents were then asked to rate to what extent they agree with these statements through a five-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*). In order to replicate the scale of Donat et al. (2009) and check whether the same factors will be found, the nine items were entered into a factor analysis using a principal component

extraction with varimax rotation, based on two fixed factors (as conducted by Donat et al. (2009)), $KMO = .80$, $\chi^2 (N = 189, 36) = 483.94$, $p < .001$. The Cronbach's α of the overall scale was $.78$, thus showing that the scales reliability is "good" (George & Mallery, 2003, p. 231). As a result, two subscales were created namely *usefulness* and *difficulty*, which explained 59.4% of the variance (see table 2).

The two factors found were:

Usefulness. This factor included five items related to the respondents' basic cognitions of perceived usefulness towards interacting with fashion brands through the metaverse. This included the respondent's perception of to what extent the metaverse is useful, good, safe, interesting and relaxing for the sake of interacting with fashion brands. The Cronbach's α was $.81$ which is considered as "good" (George & Mallery, 2003, p. 231) and the mean was 3.61 ($SD = .75$). This factor explained 44.6% of the model's variance.

Difficulty. The second factor included three items related to the respondent's perception of to what extent they perceive potential difficulties when using the metaverse in order to interact with fashion brands. This included the respondent's perception of to what extent they believe using the metaverse to interact with fashion brands would be time-costing or time-saving, easy or difficult, expensive or inexpensive and the user difference in terms of age. The Cronbach's α was $.48$ which is considered as "unacceptable" (George & Mallery, 2003, p. 231). When deleting the item "the metaverse is something only for young people" the Cronbach's α becomes $.64$ which makes it "questionable" but moderately reliable (George & Mallery, 2003, p. 231). Therefore, the item was deleted. The mean of this scale was 3.06 ($SD = .83$). This factor explained 14.7% of the model's variance.

Table 2

Factor and Reliability Analyses for Scale for Cognitive Component of Attitude (N = 189)

Item	Usefulness	Difficulty	Cronbach's α
Cognitive component			.78
Interacting with fashion brands through the metaverse is...			
good for me	.752		
relaxing	.751		
useful	.717		
safe	.684	.432	
interesting	.681		
easy	.659	-.359	
inexpensive		.757	
time-saving	.469	-.623	
Something only young people do ^A		.552	
Eigenvalue	44.6	14.7	
Cronbach's α	.81	.64	

Note. ^A = item was deleted

Affective component of attitudes. To measure the affective component the respondents received five statements which addressed to what extent they are excited or afraid of adopting to new technological innovations and were adopted from the scale of Donat et al. (2009). The items measuring the affective component only included statements

not related to the metaverse, but instead to the respondents overall feeling of using new technologies. Examples of such statements are: *I am afraid of technical things, it is just fun to try new things* or *today everything changes so fast that I cannot get along with it*. The respondents were then asked to rate to what extent they agree with these statements through a five-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*). Donat et al. (2009) explained that the item battery intentionally includes negative feelings, positive feelings and also evaluative feelings so that an overall neutral item battery is constructed. Thus, no reverse coding was conducted. Again, in order to reassure that the same factors with the same item would be found, as by Donat et al. (2009), the factor analysis was replicated. Thus, these five items were entered into a factor analysis using a principal component extraction with varimax rotation, based on two fixed factors (as conducted by Donat et al. (2009)), $KMO = .60$, $\chi^2 (N = 189, 10) = 93.86$, $p < .001$.

As a result, two subscales were created namely *technophilia* and *technophobia*, which explained 57.4% of variance (see table 3). Through a reliability analysis, it was however found that the scales reliability was very low, with a Cronbach's α of .009. When reverse coding two negative loaded items and: "I am afraid of technical things" and "Today everything changes so fast that I cannot get along with it" the Cronbach's α however increased significantly to .552, adjusting the reliability of the scale from "unacceptable" to "poor" (George & Mallery, 2003, p. 231). As a result, a reverse code was used to increase the reliability of this scale. Furthermore, this made the overall scale across all attitude components more consistent, as the item batteries were now either positively loaded or evaluative.

The two factors found were:

Technophobia. This factor included three items related to the respondents' potential affective fear of using a new technological medium. This included the respondent's feeling of to what extent they are afraid of technological things, to what extent they perceive the current technological advances as too quick to follow, and to what extent they rather rely on well-tried things in their life. The Cronbach's α was .43 which is considered to be "unacceptable" (George & Mallery, 2003, p. 231). As a result, the reliability of this factor needs to be treated with caution. A further elaboration of the implications will follow in the limitation section. The mean was 2.59 (SD = .74) and the factor explained 37.7% of the model's variance.

Technophilia. The second factor included two items related to the respondent's potential affective enjoyment of using a new technological medium. This included the respondent's evaluation of enjoying to use a new technology or to what extent they believe

technology makes life easier. The Cronbach's α was .55 which is classified as "poor" (George & Mallery, 2003, p. 231). The mean was 1.78 ($SD = .59$). This factor explained 19.7% of the model's variance.

Table 3

Factor and reliability analyses for scale for affective component of attitude (N = 189)

Item	Technophobia	Technophilia	Cronbach's α
Affective component			.55
I always rely on well-tried things in my life	.753		
I am afraid of technical things	.624		
Today everything changes so fast that I can't get along with it	.560		
It is just fun to try new things		.838	
Technology makes life easier	.316	.755	
Eigenvalue	37.7	19.7	
Cronbach's α	.43	.55	

Conative component of attitudes. Lastly, to measure the conative component of attitudes towards the metaverse, the respondents were asked about to what extent certain barriers may influence their willingness to interact with fashion brands through the metaverse. Ajzen (1993) suggests to measure this component through questions regarding the respondents' behavioural intentions. Thus, this scale of Donat et al. (2009) sought to explore

the respondents' reactions when thinking about using the metaverse in order to interact with fashion brands, and which factors might influence their behavioural intention of using this new technological medium to do so. Therefore, the respondents were given seven negative written statements and were asked to what extent they agree or disagree with through a five-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*). Examples of these statements are: *I am not interested in interacting with fashion brands through the metaverse*, *I do not know what the metaverse is* or *interacting with fashion brands is too laborious (to learn)*. In order to check whether the same factors are found, the factor analysis of Donat et al. (2009) was replicated, by entering the seven items into a factor analysis using a principal component extraction with varimax rotation, based on two fixed factors (as conducted by Donat et al. (2009)), $KMO = .81$, $\chi^2 (N = 189, 21) = 478.24$, $p < .001$. The Cronbach's α was .81, thus showing that the scale's reliability is "good" (George & Mallery, 2003, p. 231). As a result, two subscales were created namely *latent barriers* and *manifest barriers*, which explained 66.8% of the variance (see table 4).

The two factors found were:

Latent barriers. This factor included four items related to the respondents' perceived usefulness, interest and willingness to spend time or money to interact with fashion brands through the metaverse. Latent barriers therefore describe the more evaluative barriers which are not directly recognizable. The Cronbach's α was .86 which is "good" (George & Mallery, 2003, p. 231) and the mean was 2.55 ($SD = .95$). This factor explained 48.3% of the model's variance.

Manifest barriers. The second factor included three items related to the respondent's lack of knowledge on how to use a technological device, on how to use the metaverse and on taking the costs and effort of learning how to use the metaverse in order to interact with fashion brands. Manifest barriers therefore describe the more obvious barriers, which do not need much evaluation. The Cronbach's α was .66 which is considered to be "questionable" but moderately reliable (George & Mallery, 2003, p. 231). The mean was 1.98 ($SD = .72$) and this factor explained 18.5% of the model's variance.

Table 4

Factor and reliability analyses for scale for conative component of attitude (N = 189)

Item	Latent	Manifest	Cronbach's α
Conative component			.81
Interacting with fashion brands through the metaverse is not useful for me	.877		
I am not interested in in interacting with fashion brands through the metaverse	.866		
I have no time to interact with fashion brands through the metaverse	.835		
Interacting with fashion brands through the metaverse is too (cost) expensive	.492	.651	
I do not know how to use a computer and/or smartphone		.812	
I do not know what the metaverse is		.714	
Interacting with fashion brands through the metaverse is too laborious (to learn)	.376	.515	
Eigenvalue	48.3	18.5	
Cronbach's α	.86	.66	

Measures of the theory of planned behaviour

Attitude towards interacting with fashion brands through the metaverse. This variable was used to assess the opinion of the respondents towards interacting with fashion brands through the metaverse. The respondent's attitude was measured through the scale of Porter and Donthu (2006), which originally investigated how attitudes determine internet usage. Due to the similar nature of the internet and the metaverse (Lee et al., 2021; Perlin & Goldberg, 1996) this scale is suitable for the scope of this research. The scale included three items which were measured through a 5-point liker scale (1 is *strongly disagree*, 5 is *strongly agree*). Through the three items, the respondents were questioned about (1) to what extent they are positive, (2) to what extent it makes sense and (3) to what extent they believe people should adopt to interacting with fashion brands through the metaverse. The Cronbach's α was .89, therefore indicating that the scale's reliability is "good" (George & Mallery, 2003). The mean value of this scale was 3.49 ($SD = .92$), which shows that on average the respondent chose *somewhat agree* (see table 5).

Subjective norms towards interacting with fashion brands through the metaverse. This variable was used to measure to what extent the closer social circle of the respondents would encourage or not encourage them to use the metaverse in order to interact with fashion brands. To do so, a scale of Lin (2006) was used, which originally sought to understand respondents' behavioural intentions to participate in virtual communities. Based on the fact that the metaverse is a virtual community (Lee et al., 2021; Hollensen et al., 2022), the scale of Lin (2006) is suitable for this study. The scale included two items which were measured through a 5-point Likert scale (1 is *strongly disagree*, 5 is *strongly agree*). Although research suggests that a scale should at least include three items (Tabachnik & Fidell, 2001; MacCallum et al., 1999), Worthington & Whittaker (2006) argue that it is justifiable to retain a scale with only two items if they are highly correlated. In this study, the correlation between the two items of this scale were very high ($r = .83, p < .001$) and the Cronbach's α was .91, thus suggesting that this scale is still acceptable and its reliability is "excellent" (George & Mallery, 2003). The two items assessed to what extent the respondents agree or disagree that people who influence their behaviour would encourage them to use the metaverse in order to interact with fashion brands, and to what extent the respondents agree or disagree that people who are important to them would encourage them to interact with fashion brands through the metaverse. The mean value of this scale was 2.90 ($SD = 1.16$),

which therefore shows that the respondents chose on average *somewhat disagree*, but closely leaning towards the neutral statement of *neither agree nor disagree* (see table 5).

Perceived behavioural control when using the metaverse in order to interact with fashion brands: This variable was used to assess to what extent the participants perceive behavioural control when using the metaverse in order to interact with fashion brands. To measure this, the scale of Lin (2006) was used. The scale includes two items which are measured through a five-point Likert scale (1 is *strongly disagree*, 5 is *strongly agree*). Similarly, to the scale of subjective norms, this scale also entails only two items, which is generally viewed as being too low (Tabachnik & Fidell, 2001; MacCallum et al., 1999). However, the two items are again highly correlated ($r = .78, p < .001$), which makes it justifiable to use a scale with only two items (Worthington & Whittaker, 2006). Furthermore, the Cronbach's α was .72, thus showing that its reliability is "acceptable" (George & Mallery, 2003). The two items assessed on the one hand, to what extent the respondents agree or disagree that they would be able to participate in the metaverse in order to interact with fashion brands, and on the other hand to what extent they agree or disagree that they would be in control when interacting with fashion brands through the metaverse. The mean value of this scale was 3.84 ($SD = .90$), which therefore shows that the respondents chose on average *neither agree nor disagree*, but closely leaning towards the statement of *somewhat agree* (see table 5).

Intention of interacting with fashion brands through the metaverse. This variable was used to assess the respondent's behavioral intention of using the metaverse in order to interact with fashion brands. The variable was measured through the scale of Revels et al. (2010), which originally measured consumers' intention of using mobile services. Due to the fact that the metaverse is a service which can be used through mobile devices, this scale is justifiable to use for the scope of this research. The scale included three items which were measured through a 5-point Likert scale (1 is *strongly disagree*, 5 is *strongly agree*). Through the three items, the respondents were questioned about whether they: (1) intend to use the metaverse in order to interact with fashion brands, (2) predict to use the metaverse in order to interact with fashion and (3) plan to use the metaverse in order to interact with fashion brands. The Cronbach's α was .92, which shows that the reliability of this scale is "excellent" (George & Mallery, 2003). The mean value of this scale was 2.98 ($SD = 1.19$), which shows that on average the respondent chose *somewhat disagree*, but leaning very closely towards the neutral statement of *neither agree nor disagree* (see table 5).

Table 5*Reliability analyses for variables of TPB (N = 189)*

Item	Mean	SD	Cronbach's α
Attitude	3.49	.92	.91
Subjective norms	2.90	1.16	.91
Perceived Behavioral Control	3.84	.90	.72
Intention	2.98	1.19	.72

Results

Correlation matrix

In order to develop an overview of how the variables are related with each other, a correlation matrix was created. The correlations were interpreted by using Cohen's (1988) guidelines. A significant correlation between the attitude towards interacting with fashion brands through the metaverse, and all other variables, except for the variable technophobia was found. Thereby, the variable latent barriers had the largest correlation with attitude ($r = .70, p < .001$), closely followed by the variable usefulness ($r = .69, p < .001$), intention ($r = .69, p < .001$) and subjective norm ($r = .59, p < .001$). Furthermore, intention was found to have a significant correlation between all other variables except for age and technophobia. Especially subjective norm ($r = .64, p < .001$), latent barriers ($r = .62, p < .001$) and usefulness ($r = .58, p < .001$) were found to have a large association with the intention of using the metaverse for brand interaction. Besides that, large correlations were also found between the variables of usefulness and latent barriers ($r = .68, p < .001$), manifest barriers and technophobia ($r = .53, p < .001$), and perceived behavioral control and usefulness ($r = .50, p < .001$). Gender was negatively correlated with all other variables, suggesting that males have a larger correlation with the other variables. Age was found to have the least significant correlations with all other variables, by only significantly correlating with attitude ($r = .17, p < .05$) and negatively correlating with difficulty ($r = -.20, p < .01$). All other variables either had a medium, small or insignificant correlation (see table 6).

Table 6*Correlation matrix (N = 189)*

	1	2	3	4	5	6	7	8	9	10	11	12
1. Attitude												
2. Usefulness (Cog)	.69***											
3. Difficulty (Cog)	.32***	.47***										
4. Technophobia (Aff)	.05	.25***	.10									
5. Technophilia (Aff)	.33***	.44***	.25***	.34***								
6. Latent Barriers (Con)	.70***	.68***	.30***	.17*	.36***							
7. Manifest Barriers (Con)	.36***	.48***	.06	.53***	.44***	.47***						
8. Subjective norm	.59***	.46***	.18**	-.04	.22**	.40***	.27***					
9. Perceived behavioral control	.38***	.50***	.29***	.25***	.30***	.36***	.40***	.30***				
10. Intention	.69***	.58***	.21**	-.03	.29***	.62***	.24***	.64***	.40***			
11. Usage of metaverse ^B	-.20**	-.15*	-.10	.14*	-.04	-.14*	-.02	-.24**	-.20**	-.26***		
12. Age	.17*	.02	-.20**	-.03	.04	.05	.12	.09	-.03	.09	-.05	
13. Gender ^A	-.16*	-.31***	-.17*	-.24**	-.19**	-.26***	-.37***	-.05**	-.23*	-.14*	-.02	-.02

Note. * $p < .05$; ** $p < .01$; *** $p < .001$

Note. ^AGender: Male = 1, Female = 2

Note. ^BHave you ever used the metaverse: Yes = 1, No = 2

Independent t-tests

Furthermore, independent t-tests were conducted to explore the differences of respondents who have or have not used the metaverse before. Thereby, differences in attitudes, subjective norms, perceived behavioral control and intention of using the metaverse in order to interact with fashion brands were explored. Although the variable (usage of metaverse) was already used in the correlation matrix, the independent t-test allows for a more detailed exploration of differences in effect sizes between participants who have not used the metaverse before and those that have. The effect sizes were interpreted by using Cohen's (1988) guidelines. The results suggest that the respondents that have used the metaverse before ($N = 40$) ($M = 3.83$, $SD = .93$) have a slightly more positive attitude towards interacting with fashion brands through the metaverse than the respondents who have not used the metaverse before ($M = 3.40$, $SD = .90$), $t(187) = 2.73$, $p < .01$. The effect size was small ($\sigma = .49$). Subjective norms was also found to be more positive within the respondents who have used the metaverse before ($M = 3.43$, $SD = 1.10$) in comparison to those who have not used the metaverse before ($M = 2.76$, $SD = 1.14$), $t(187) = 3.30$, $p < .01$. Here, the effect size was medium ($\sigma = .59$). Similarly, the perceived behavioral control when using the metaverse in order to interact with fashion brands is also higher within the respondents who have used the metaverse before ($M = 4.19$, $SD = .93$) in comparison to the respondents who have not used the metaverse before ($M = 3.75$, $SD = .87$), $t(187) = 2.80$, $p < .01$, with a medium effect size ($\sigma = .50$). Lastly, the intention of using the metaverse in order to interact with fashion brands is also higher for those who have used the metaverse before ($M = 3.58$, $SD = 1.06$) compared to those who have not used the metaverse before ($M = 2.82$, $SD = 1.18$), $t(187) = 3.69$, $p < .001$. The effect size was medium ($\sigma = .66$) (see table 7).

Table 7

Independent sample T-test with “Have you ever used the metaverse before?” as grouping variable (N = 189)

Have you ever used the metaverse before?	Yes		No		<i>df</i>	<i>t</i>	<i>d</i>
	Mean	SD	Mean	SD			
Attitude	3.83	.93	3.40	.90	187	2.73**	.49
Subjective Norm	3.43	1.10	2.76	1.14	187	3.30**	.59
Perceived behavioral control	4.19	.93	3.75	.87	187	2.80**	.50
Intention	3.58	1.06	2.82	1.18	187	3.69*	.66

Note. * $p < .05$; ** $p < .01$; *** $p < .001$

Multiple regression analysis for measures of the tripartite model

In the first regression analysis hypothesis H1a, H1b and H1c will be tested. These hypotheses were tested to investigate the relation between the three components, namely (1) cognitive (2) affective and (3) conative, and attitudes. Based on the factor analysis, each component is made up of two factors and thus these factors were used in this analysis. Therefore, a multiple regression analysis was conducted with attitude towards brand interaction through the metaverse as criterium and the factors usefulness – difficulty (cognitive), technophobia – technophobia (affective), and latent barriers – manifest barriers (conative) as predictors. Age, gender and whether the respondents have used the metaverse before, were used as control variables. The standardized coefficients were studied.

The model has been proven to be significant $F(9,179) = 35.03, p = < 0.001, R^2 = .68$. Therefore, 68% of variance in attitudes towards using the metaverse for brand interaction was explained by the predictors (see table 8). The cognitive component was found to have a significant positive influence on the attitude towards interacting with fashion brands through

the metaverse, as the usefulness factor ($\beta = .37, p < .001$) and the difficulty factor ($\beta = .12, p < .05$) were found to be significant positive predictors for attitude. In contrast, the affective component was found to have no significant influence on the attitudes towards using the metaverse for brand interaction, as both the technophobia factor ($\beta = -.10, p = .061$) and technophilia factor ($\beta = .02, p = .71$) had not significant influence on the respondent's attitude towards using the metaverse in order to interact with fashion brands. A partially significant influence on attitudes towards interacting with fashion brands was found through the conative component. While the latent barrier factor had a positive significant influence on attitude ($\beta = .41, p < .001$), the manifest barrier factor was found to be an insignificant predictor of attitude ($\beta = -.06, p = .71$). As a result, H1a is accepted, H1b is not accepted, and H1c is partially accepted. Lastly, the control variables age and gender were found to have no significant influence on attitudes towards interacting with fashion brands through the metaverse, while the control variable concerning whether or not the respondents have used the metaverse before was found to have a negative significant influence on attitudes towards using the metaverse for brand interaction ($\beta = -.12, p < .05$), thus suggesting that those who have used the metaverse before have a more positive attitude towards using the metaverse for fashion brand interaction.

Table 8*Multiple regression analysis with attitude as criterium (N = 189)*

Variable	β
Age	.15**
Gender ^A	.07
Usage of Metaverse ^B	-.03
Usefulness	.37***
Difficulty	.12*
Technophobia	-.10
Technophilia	.02
Latent barriers	.41***
Manifest barriers	.03

Model 1	<i>R</i>	<i>R</i> ²	<i>F</i>	<i>p</i>
	.80 ^C	.68	35.03	<.001

Note. * $p < .05$; ** $p < .01$; *** $p < .001$;

Note. ^AGender: Male = 1, Female = 2

Note. ^BHave you ever used the metaverse: Yes = 1, No = 2

Note. ^CPredictors: (Constant), Age, Gender, Usage of metaverse, Usefulness, Difficulty, Technophobia, Technophilia, Latent barriers, Manifest barriers

Multiple regression analysis for measures of the theory of planned behaviour

A second regression analysis was conducted to test hypothesis H2a, H3 and H4. These hypotheses were tested to investigate the relation between the variables of TPB behaviour, namely (1) attitude (2) subjective norms, and (3) perceived behavioral control, with intention. Therefore, a multiple regression analysis was conducted with intention of using the

metaverse in order to interact with fashion brands as criterium - attitude, subjective norms and perceived behavioral control as predictors and age, gender and whether the respondents have used the metaverse before, as control variables. The standardized coefficients were studied. The model has been proven to be significant $F(6,182) = 42.35, p = < .001, R^2 = .58$. Therefore, 58% of variance in the intention of using the metaverse in order to interact with fashion brands was explained by the predictors. Attitude ($\beta = .43, p < .001$), subjective norms ($\beta = .35, p < .001$) and perceived behavioral control ($\beta = .12, p < .05$) were each found to each have a positive significant influence on the intention of using the metaverse in order to interact with fashion brands (see table 9). The control variables, age, gender, and usage of the metaverse had no significant influence on the intention of using the metaverse in order to interact with fashion. As a result, H2a, H3 and H4 are accepted.

Table 9

Multiple regression analysis with intention as criterium (N = 189)

Variable	β
Age	-.01
Gender	-.04
Usage of Metaverse	-.08
Attitude	.43***
Subjective norms	.34***
Perceived behavioral control	.12*

Model 1	R	R^2	F	p
	.76 ^A	.58	42.35	<.001

Note. * $p < .05$; ** $p < .01$; *** $p < .001$;

Note. ^APredictors: (Constant), Age, Gender, Usage of metaverse, Attitudes, Subjective norms, Perceived behavioral control

Mediation analysis with one moderator and multiple independent variables

To test H2b, a mediation analysis with one mediator and multiple independent variables was conducted. To do so, model four of PROCESS (Hayes, 2017) was used, in which the intention of using the metaverse for brand interaction was the outcome variable, attitude towards using the metaverse for brand interaction was the mediator and the three components of the tripartite model, namely the cognitive, affective and conative components, were the predictors. Furthermore, usage of the metaverse, age and gender were used as control variables. Although only one independent variable can be inserted into the PROCESS SPSS analysis tool, Hayes (2017) states that it is possible to integrate multiple independent variables by inserting the variables as covariates. This allows for the estimation of the direct and indirect effects of the different variables in the same model. When doing so, it is however crucial to repeat this process until each independent variable was inserted once as independent variable and the others as covariates. This allows each independent variable to be considered as an independent variable in the analysis tool, while still integrating the other independent variables in the model.

The results of this analysis revealed that the cognitive component had a significant indirect effect of impact on the intention of using the metaverse for brand interaction, through attitudes ($\beta = .37, t = 3.61$). However, no significance was found in the direct effect of the cognitive component on the intention of using the metaverse for brand interaction in presence of the mediator. As a result, attitude was found to fully mediate the relationship between the cognitive component and the intention of using the metaverse for brand interaction.

Moreover, the affective component was found to have a significant indirect effect of impact on the intention of using the metaverse for brand interaction, through attitudes ($\beta = .19, t = 2.30$). Furthermore, in presence of the mediator, a significant direct effect of the affective component on the intention of using the metaverse for brand interaction was identified ($\beta = .38, p < .05$). Therefore, the results revealed that the relationship between the affective component and the intention of using the metaverse for brand interaction was partially mediated by attitudes towards using the metaverse for brand interaction.

Lastly, the conative component also had a significant indirect effect of impact on the intention of using the metaverse for brand interaction, through attitudes ($\beta = .34, t = 3.92$). Next to that, a significant direct effect was found between the conative component and the intention of using the metaverse for brand interaction in presence of the mediator ($\beta = .32, p < .05$). Hence, attitude partially mediated the relationship between the conative component

and the intention of using the metaverse for brand interaction. As a result, H2b is accepted. A complete overview of the mediation analysis can be seen in table 10.

Additionally, gender and age had a significant impact on attitudes, but no significant impact on the intention of using the metaverse for brand interaction. On the other hand, the variable of whether or not the respondents have used the metaverse before was found to be a significant covariate affecting the intention of using the metaverse for brand interaction, but having an insignificant impact on the attitudes towards using the metaverse for brand interaction.

Table 10

Mediation analysis with one mediator and multiple predictors (N = 189)

Relationship	Total effect	Direct effect	Indirect effect	Confidence interval		t - statistics
				Lower bound	Upper bound	
Cognitive -> Attitude -> Intention	.51**	.14	.37	.17	.57	3.61
Affective -> Attitude -> Intention	.57**	.38*	.19	.04	.37	2.30
Conative -> Attitude -> Intention	.66***	.32*	.34	.17	.51	3.92

Note. * $p < .05$; ** $p < .01$; *** $p < .001$

Hypothesis overview

Table 11

Hypothesis

Hypothesis	Accepted?
H1a: Positive perceptions of the metaverse are positively related to a positive attitude of interacting with fashion brands through the metaverse.	Yes
H1b: Positive emotions about the metaverse are positively related to a positive attitude of interacting with fashion brands through the metaverse.	No
H1c: Positive reactions about the metaverse are positively related to a positive attitude of interacting with fashion brands through the metaverse.	Partially
H2a: A positive attitude towards the metaverse is positively related to a stronger intention of interacting with fashion brands through the metaverse.	Yes
H2b: The relation between the cognitive, affective & conative component and the intention of using the metaverse for fashion brand interaction is mediated by attitudes towards using the metaverse for fashion brand interaction.	Yes
H3: Positive subjective norms towards the metaverse are positively related to a stronger intention of interacting with fashion brands through the metaverse.	Yes
H4: Higher perceived behavioral control in using the metaverse is positively related to a stronger intention of interacting with fashion brands through the metaverse.	Yes

Discussion

This study aimed to assess which factors influence the behavioral intentions of fashion brand consumers to interact with fashion brands through the metaverse. As assumed, the results suggest that all three individual components from the TPB (Ajzen, 1991) have a significant positive influence on consumers' intention of using the metaverse for fashion brand interaction, with attitudes and subjective norms exhibiting the strongest significance level of influence.

Past research has already suggested that subjective norms are a key driver in predicting behavioral intentions of adopting new technologies (Sugar et al., 2004; Teo, 2009). Toraman (2022) explored the influence of the TPB components on the intention of using the metaverse through a sample of people in Turkey who were familiar with the metaverse. Opposing to this study, Toraman (2022) found no significant influence of subjective norms on the intention of using the metaverse. This may be explained by the difference of sample characteristics between the two studies, as 78.8% of respondents from this study have not used the metaverse before. This contrast may therefore suggest that subjective norms have a stronger influence on the intention of using the metaverse in those which have not yet experienced the metaverse themselves and are thus reliant on the information of third parties in order to assess whether or not they are intending to use the metaverse. Furthermore, the findings of this study conform with the findings of Taylor and Todd (1995) and Han et al. (2010), confirming that positive subjective norms predict a positive behavioral intention.

The positive significant effect of perceived behavioral control on the respondent's intention of using the metaverse for brand interaction also confirms the assumption of the TPB (Ajzen, 1986). In a meta-analytic exploration of studies which have used the TPB, conducted by Cheung and Chan (2000), it was found that the effect of perceived behavioral control on intention is lower when the average perceived behavioral control ratings are higher. Similar findings can also be seen in this study, as the relationship between perceived behavioral control and intention had the weakest significance level, but perceived behavioral control had the highest mean compared to the other two components of the TPB, namely attitude and subjective norms. This may be explained by the assumption that perceived behavioral control is less influenced by internal factors of perceived self-efficacy and more of external factors which contribute to perceived difficulty (Sparks et al., 1997). Toraman (2022) found no significant relation between perceived behavioral control and intention of using the metaverse and explained this through the suggestion that the metaverse technology

is not yet actively used in our daily lives and thus people might still have a limited idea of what it takes to be in control when using the metaverse. Although the results of this study suggest a small significant positive effect of perceived behavioral control on the intention of using the metaverse for brand interaction, similar conclusion can be taken, as the significance level was rather low.

Furthermore, the independent t-test of this study showed a relatively high mean score in the perceived behavioral control of both, respondents who have used the metaverse before, but especially also in the respondents who have never used the metaverse before. Fox and Connolly (2018) touch on the digital divide in our current society, stating that older adults perceive a higher risk when adopting to a new technology, especially due to less perceived control and higher levels of mistrust. Based on the fact that the sample of this study was relatively young, with an average age of 25.96, it is likely that the perceived behavioral control may have been lower with an older aged sample, especially with those who have never used the metaverse before.

The respondent's attitudes towards interacting with fashion brands was found to have a strong significance of influence on the respondent's intention of using the metaverse for brand interaction, as well as the strongest correlation score out of all other tested variables. This underlines the assumption of the attitude-behavior consistency theory, by seeing a strong relation between attitude and behavior. Although the performance of the actual behavior was not tested in this study, Ajzen and Madden (1986) argue that if the behavioral intention is high, there is a higher chance of that the behavior will also actually be performed. This assumption is also underlined by Kim and Hunter (1993) who found that the relation between attitude and behavioral intention is stronger than between attitude and actual behavior and thus suggest that the behavioral intention is a result of attitudinal factors. Furthermore, Rogers (1995) explains that attitudes especially play an important role in decisions concerning the adoption of new technologies and innovations. Due to the fact that the metaverse is a rather new innovation, and the sample characteristics suggest that the metaverse has not yet been very much adopted by the broader mass (only 21% of the respondents have used the metaverse before), the results of this study confirm the assumption of Roger (1995) as positive attitudes seem to be a significant predictor for fashion brand consumers to build a behavioral intention of using the metaverse for fashion brand interaction and thus adopting to the new technological medium of the metaverse.

Based on the strong significance of relation and the strong correlation between attitudes and intention of using the metaverse for brand interaction, the relevance of the

attitude-behavior consistency theory in marketing (Juster, 1964; Ryan & Bonfield, 1975) and the relevance of attitudes in adopting new technological innovations in society (Rogers, 1995), attitudes seem to be a very relevant concept to consider for fashion brands when trying to bring the metaverse closer to their followers and customers for the sake of brand interaction. Thus, the relevance of the tripartite model (Rosenberg and Hovland, 1960) in the scope of this research is very high, as it contributes a set of factors which enable marketeers and fashion brands to influence and predict consumers attitude towards interacting with fashion brands through the metaverse. Attitude was found to have a significant mediating role between all three components of the tripartite model and the intention of using the metaverse for fashion brand interaction. These findings also correspond with the findings of Bagozzi (1981) who states that the individual components of the tripartite model are likely to be attitudinal factors which influence behavioral intention. It is important to however acknowledge that a significant direct effect between the components of the tripartite model and the intention of using the metaverse for fashion brand interaction was only found in the affective and conative component, and in both relations the significance was rather low. Nonetheless, the findings of this study show that each, the cognitive, affective and conative component are significant predictors of attitude, which in turn mediates the relation between the component of the tripartite model and the intention of using the metaverse for fashion brand interaction.

In the context of marketing, it is therefore relevant to understand out of what factors these components of the tripartite model are made of, in order to gain a better understanding of how attitudes and therefore also the intention of using the metaverse for fashion brand interaction, can be influenced. Corresponding with the findings of Donat et al. (2009) each component of the tripartite model can be broken down into two factors. Based on this, the cognitive component was broken down into the factor of perceived usefulness and perceived difficulty of using the metaverse for fashion brand interaction. Similar findings can be seen through the technology acceptance model (TAM) (Davis et al., 1989) which suggests that when it comes to adopting a new technology, perceived usefulness and perceived ease of use are relevant factors which influence an individual's attitude towards using a new technology. In this study the perceived usefulness exhibited a strong positive significance of influence on the intention of using the metaverse for fashion brand interaction, while the positive significance of perceived difficulty was rather weak. Bruner & Kumar (2005) conducted a study on exploring consumer acceptance of handheld internet devices through the TAM and thereby found that perceived usefulness had a significant positive relationship with attitudes

towards accepting new handheld internet devices. On the other hand, no direct influence between ease of use and attitudes was found. Therefore, both, the study of Bruner & Kumar (2005) and this study suggest that perceived usefulness has a significant influence on people's attitude. This grants relevant insights for marketers, as illustrating how users can benefit from using the metaverse for fashion brand interaction is likely to significantly influence consumers attitude towards using the metaverse for fashion brand interaction.

The affective component was found to have no significant influence on attitudes towards using the metaverse for fashion brand interaction, as both factors (technophobia and techophilia) were insignificant. This is a rather surprising finding as it contrasts with previous research (Breckler, 1984; Crites et al., 1994) which has found a significant relation between the affective component and attitudes. These results may be explained by two separate assumptions. On the one hand, both factors of the affective component had very low reliability score, thus suggesting that the outcomes through this component may not be reliable. Further implications of this will be discussed in the limitation section. On the other hand, research however also suggests that the significance of the individual components on attitude may depend on the type of explored behaviour (Breckler & Wiggins, 1989; Glasman & Albaracín, 2006). Kunreuther et al. (2002) for example note, that the affective component strongly influences the intention of displaying a behavior when it comes to exploring behaviors which involve uncertain outcomes and substantial consequences,. As a result, the insignificance of the affective component on attitudes might be explained by this assumption, due to the fact that using the metaverse for fashion brand interaction is a behavior which does not involve uncertain outcomes with substantial consequences and thus affections might play a less significant role.

Previous research which investigated the tripartite model has suggested that the conative component is likely to be the better predictor of behavior, compared to the affective and cognitive component (Ostrom, 1969; Kothandapani, 1971). Breckler (1984) explains this by the reasoning that the cognitive and affective component share higher variance. Similar results were seen in the findings of this study. The conative component presented the highest significance level of total effect on the intention of using the metaverse for fashion brand interaction, through the mediator (attitude), compared to the two other components of the tripartite model. Significance, although low, was also found through the direct effect of the conative component on intention. The conative component was broken down into two factors, namely latent barriers and manifest barriers. Although manifest barriers were found to have no significant influence on attitudes towards using the metaverse for fashion brand

interaction, the latent barriers exhibited a significantly positive and strong influence. Furthermore, the latent barriers had the largest significant correlation with the intention of using the metaverse for fashion brand interaction, out of all factors of components from the tripartite model. As the latent barriers focus on the evaluative dimensions of how useful or how interesting it may be for an individual to interact with fashion brands and to what extent this individual is willing to spend time and money to build a behavioral intention of doing so, the findings of this study address the importance of these evaluative terms in predicting and influencing attitudes towards the metaverse use. A study conducted by Katz and Rice (2001) explored the digital divide in the scope of internet user's vs non-user's - in a time in which the mass adoption of the internet has not yet occurred – and explained that the digital divide comes from awareness, as being aware of how the internet can be used for one's own advantages is what makes individuals use the internet. It may therefore be the same evaluative dimension of awareness, in terms of to what extent individuals perceive benefits in using the metaverse for fashion brand interaction, which seems to establish the latent barriers factor of the conative component, and thus plays a significant role in influencing the attitudes towards using the metaverse for fashion brand interaction.

Limitations and future research

One limitation of this study is that it is cross-sectional and as a result no changes in effects over time can be observed. Future studies could focus on how the significance relevance of the individual variables changes over time, assuming that the metaverse development will increasingly play a more important role in fashion brand-consumer interaction. As suggested in this study, the influence of subjective norms on the intention of using the metaverse for fashion brand interaction may be currently so significant, as many respondents have not experienced the metaverse themselves and therefore are dependent on the opinions of others. In case the metaverse usage becomes more adopted into our society's daily interaction, the significance of influence of subjective norms on the intention to use the metaverse for fashion brand, might decrease. On the other hand, the significance of perceived behavioural control as predictor of the behavioural intention of using the metaverse for fashion brand interaction might increase, as users become more aware of what it takes to be in control when using the metaverse for fashion brand interaction.

Further limitations of this study are identified in the reliability of multiple scales measuring the individual components of the tripartite model. Although the adopted scale of Donat et al. (2009) measured attitudes towards internet usage and therefore is of similar

nature to this research, the transferability seemed to result in a low reliability, especially in the affective component. Thus, different results might have been obtained with different scales of higher reliability. Chou et al. (2020) for instance developed a scale which measured each component of the tripartite model separately through one factor, and has proven to sustain a high reliability in other studies ((Mughal et al., 2021, Tiganis et al., 2023).

Similar limitations can be found in the scales measuring two variables of the TPB, namely subjective norms and perceived behavioural control, as both scales only entailed two items. Although both scales were found to have a high reliability in this study, research suggests that a scale should at least entail three items (Tabachnik & Fidell, 2001; MacCallum et al., 1999). The scale of Paul et al. (2016) may have therefore provided a more acceptable measurement tool for the two variables, as subjective norms is measured through four items and perceived behavioral control through seven items. Thus, the adaption of a scale entailing more than two items, may have resulted in higher reliability scores.

Next to that, the actual overt behaviour of using the metaverse for fashion brand interaction was not tested in this study. Although the TPB suggests that the higher the behavioral intention is the more likely the individual is to perform the behaviour (Ajzen & Madden, 1986), no direct conclusions can be made regarding that those who have a high behavioral intention of using the metaverse for fashion brand interaction will actually display this behaviour. Future studies could therefore adopt a longitudinal study design which allows for the establishment of a cause-and-effect relation (Solem, 2015). In such a study design, it would thus be possible to examine if people with high behavioral intention of using the metaverse for fashion brand interaction will actually do so in the future.

Furthermore, this study entails limitations regarding the sample. 86.8% of the respondents were below the age of 30. Based on the findings of Fox and Connolly (2018), suggesting that older adults tend to be more critical and less willing to adopt a new technology, the results of this study may be subject to a more open-minded and technology friendly sample of respondents. Therefore, the results are likely to differ with an older sample of respondents. To investigate this assumption, future research could test the same conceptual framework on an older sample of respondents and could compare the results to this study. This might be especially relevant to marketers as it would grant insights into whether and how the predictors of forming an intention to use the metaverse for fashion brand interaction vary across different generations. Similar generalizable limitations can be seen through the nationality proportion in this sample. Although the number of individual nationalities is relatively high ($N = 42$), 42.9% of respondents are German. Hofstede (1991) suggests that the

willingness of adopting new technologies has cultural foundations and that Germans are relatively positive in doing so. Comin & Hobijn (2003) compared 23 different countries with advanced economies on their level of technology adoption. Germany was number eight, placing right at the end of the upper third of countries. This suggests that Germans are likely to be relatively positive towards adopting to new technologies and thus the results are likely to differentiate across countries which are less technology friendly.

Conclusion

This study provides insights into which factors influence the intention of using the metaverse for fashion brand interaction, and may thus be of relevance for marketers in the field of the metaverse. The results suggest that attitudes, subjective norms and perceived behavioral control each have a significant positive relationship with the behavioral intention of using the metaverse for fashion brand interaction. In the context of this study, attitude had a significant mediating role between the relationship of the cognitive, affective and conative component and the intention of using the metaverse in order to interact with fashion brand interaction. Only the affective component was found to have no significant relationship with attitudes and thus suggests that the consumers intention of using the metaverse for fashion brand interaction is not influenced by affectionate decisions. Instead, increasing the awareness of how consumers can benefit from fashion brand interaction through the metaverse, compared to current means of interaction (latent barriers), and providing insights into how the metaverse provides a useful digital space for consumer-fashion brand interaction (perceived usefulness), have been found to be the most significant influential factors on the respondent's attitude towards using the metaverse for fashion brand interaction.

References

- Ajzen, I. (2002). Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior¹. *Journal of Applied Social Psychology*, 32(4), 665–683.
<https://doi.org/10.1111/j.1559-1816.2002.tb00236.x>
- Ajzen, I. (1993). Attitude theory and the attitude-behaviour relation. In *New directions in attitude measurement*, 41-57. essay, Walter de Gruyter
- Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and human decision processes*, 50(2), 179-211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Ajzen, I. and Fishbein, M. (1980). *Understanding Attitudes and Predicting Social Behavior*. Englewood Cliffs.
- Ajzen, I., & Madden, T. J. (1986). Prediction of goal-directed behavior: Attitudes, intentions, and perceived behavioral control. *Journal of experimental social psychology*, 22(5), 453- 474. [https://doi.org/10.1016/0022-1031\(86\)90045-4](https://doi.org/10.1016/0022-1031(86)90045-4)
- Álvarez-Risco, A., Del-Aguila-Arcentales, S., Rosen, M. A. & Yáñez, J. A. (2022). Social Cognitive Theory to Assess the Intention to Participate in the Facebook Metaverse by Citizens in Peru during the COVID-19 Pandemic. *Journal of Open Innovation: Technology, Market, and Complexity*, 8(3). <https://doi.org/10.3390/joitmc8030142>
- Amed, I., André, S., Balchandani, A., Berg, A., & Rölkens, F. (2022). (rep.). *The State of Fashion 2023 Holding Onto Growth as Global Clouds Gather*. McKinsey. Retrieved March 22, 2023, from <https://www.mckinsey.com/industries/retail/our-insights/state-of-fashion>.
- Bagozzi, R. P. (1981). Attitudes, intentions, and behavior: A test of some key hypotheses. *Journal of Personality and Social Psychology*, 41(4), 607–627.
<https://doi.org/10.1037/0022-3514.41.4.607>
- Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist*, 37(2), 122–147. <https://doi.org/10.1037/0003-066x.37.2.122>
- Barrera, K., & Shah, D. (2023). Marketing in the metaverse: Conceptual understanding, framework, and research agenda. *Journal of Business Research*, 155(3), 1–19.
<https://doi.org/10.1016/j.jbusres.2022.113420>
- Bennett, P. D., & Harrell, G. D. (1975). The role of confidence in understanding and predicting buyers' attitudes and purchase intentions. *Journal of Consumer Research*, 2(2), 110-117. <https://doi.org/10.1086/208622>

- Bonfield, E. H. (1974). Attitude, social influence, personal norm, and intention interactions as related to brand purchase behavior. *Journal of Marketing Research*, 11(4), 379. <https://doi.org/10.2307/3151284>
- Breckler, S. J. (1984). Empirical validation of affect, behavior, and cognition as distinct components of attitude. *Journal of Personality and Social Psychology*, 47(6), 1191–1205. <https://doi.org/10.1037/0022-3514.47.6.1191>
- Breckler, S. J., & Wiggins, E. C. (1989). Affect versus evaluation in the structure of attitudes. *Journal of Experimental Social Psychology*, 25(3), 253–271. [https://doi.org/10.1016/0022-1031\(89\)90022-X](https://doi.org/10.1016/0022-1031(89)90022-X)
- Breia, R. (2022). *15 Fashion Brands Leveraging The Metaverse*. Sensorium. Retrieved January 17, 2023, from <https://sensoriumxr.com/articles/fashion-brands-in-the-metaverse>.
- Bruner, G. C., & Kumar, A. (2005). Explaining consumer acceptance of handheld internet devices. *Journal of Business Research*, 58(5), 553–558. <https://doi.org/10.1016/j.jbusres.2003.08.002>
- Cheung, S.-F., & Chan, D. K.-S. (2000). The role of perceived behavioral control in predicting human behavior: A meta-analytic review of studies on the theory of planned behavior. <http://doi.org/10.13140/RG.2.2.31093.01766>
- Chohan, U. W. (2021). Non-fungible tokens: Blockchains, scarcity, and value. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3822743>
- Chou, S.-F., Horng, J.-S., Sam Liu, C.-H., & Lin, J.-Y. (2020). Identifying the critical factors of customer behavior: An integration perspective of marketing strategy and components of attitudes. *Journal of Retailing and Consumer Services*, 55(3). <https://doi.org/10.1016/j.jretconser.2020.102113>
- Cohen, J. (1988). *Statistical Power Analysis for the behavioral sciences*, 2, Lawrence Erlbaum Associates.
- Comin, D., & Hobijn, B. (2003). Cross-country technology adoption: Making the theories face the facts. *Journal of Monetary Economics*, 51(1), 39–83. <https://doi.org/10.2139/ssrn.892588>
- Crites, S. L., Fabrigar, L. R., & Petty, R. E. (1994). Measuring the affective and cognitive properties of attitudes: Conceptual and methodological issues. *Personality and Social Psychology Bulletin*, 20(6), 619–634. <https://doi.org/10.1177/0146167294206001>

- Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science*, *35*(8), 982–1003. <https://doi.org/10.1287/mnsc.35.8.982>
- Day, G. S. (1972). Evaluating models of attitude structure. *Journal of Marketing Research*, *9*(3), 279–286. <https://doi.org/10.2307/3149538>
- Donat, E., Brandtweiner, R., & Kerschbaum, J. (2009). Attitudes and the digital divide: Attitude Measurement as instrument to predict internet usage. *Informing Science: The International Journal of an Emerging Transdiscipline*, *12*, 37–56. <https://doi.org/10.28945/427>
- Duan, H., Li, J., Fan, S., Lin, Z., Wu, X., & Cai, W. (2021). Metaverse for social good. *Proceedings of the 29th ACM International Conference on Multimedia*. <https://doi.org/10.1145/3474085.3479238>
- Etikan, I., Musa, A. S., Alkassim, S. R. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, *5*(1), 1–4. <https://doi.org/10.11648/j.ajtas.20160501.11>
- Eagly, A. H., & Chaiken, S. (1993). *The psychology of Attitudes*. Wadsworth Cengage Learning.
- Fazio, R. H., Zanna, M. P., & Cooper, J. (1978). Direct experience and attitude-behavior consistency: An information processing analysis. *Personality and Social Psychology Bulletin*, *4*(1), 48–52. <https://doi.org/10.1177/014616727800400109>
- Fishbein, M. (1966). The Relationship between Beliefs, Attitudes, and Behaviour. In *Cognitive Consistency*. 199–223. Academic Press Inc.
- Fox, G., & Connolly, R. (2018). Mobile Health Technology Adoption Across Generations: Narrowing the digital divide. *Information Systems Journal*, *28*(6), 995–1019. <https://doi.org/10.1111/isj.12179>
- George, D., & Mallery, P. (2003). *SPSS for windows step-by-step: A simple guide and reference*, *4*(11). Taylor and Francis Group.
- Glasman, L. R., & Albarracín, D. (2006). Forming attitudes that predict future behavior: A meta-analysis of the attitude-behavior relation. *Psychological Bulletin*, *132*(5), 778–822. <https://doi.org/10.1037/0033-2909.132.5.778>
- Godin, G., & Kok, G. (1996). The theory of planned behavior: A review of its applications to health-related behaviors. *American Journal of Health Promotion*, *11*(2), 87–98. <https://doi.org/10.4278/0890-1171-11.2.87>

- Greenwald, A. G. (1968). Cognitive Learning, Cognitive Response to Persuasion, and Attitude Change. In *Psychological Foundations of Attitudes*. 147-170. Academic Press Inc.
- Han, H., Hsu, L.-T. (Jane), & Sheu, C. (2010). Application of the theory of planned behavior to Green Hotel choice: Testing the effect of environmental friendly activities. *Tourism Management*, 31(3), 325–334. <https://doi.org/10.1016/j.tourman.2009.03.013>
- Hansen, F. (196). Consumer Choice Behavior: An Experimental Approach. *Journal of Marketing Research*, 6(4), 436-43. <https://doi.org/10.2307/3150078>
- Harding, J., Kutner, B., Proshansky, H., & Chein, I. (1954). Prejudice and ethnic relations. In *Handbook of social psychology*. 1021-1061. essay, Addison-Wesley
- Hatami, H., Hazan, E., Khan, H., & Rants, K. (2023). *A CEO's guide to the metaverse*. McKinsey & Company. Retrieved March 7, 2023, from <https://www.mckinsey.com/capabilities/growth-marketing-and-sales/our-insights/a-ceos-guide-to-the-metaverse>
- Hayes, A. F. (2017). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford publications.
- Heiman, A., Hildebrandt, L. (2018). Marketing as a risk management mechanism with applications in agriculture, resources, and Food Management. *SSRN Electronic Journal*, 10(1). <https://doi.org/10.2139.3141831>
- Heiman, A., Ferguson, J., & Zilberman, D. (2020). Marketing and Technology Adoption and Diffusion. *Applied Economic Perspectives and Policy*, 42(5) 1–10. <https://doi.org/doi:10.1002/aepp.13005>
- Hofstede, G., 1991. *Cultures and Organisations—Intercultural Cooperation and its Importance for Survival*. McGraw-Hill.
- Hollensen, S., Kotler, P., & Opresnik, M. O. (2022). Metaverse – the new marketing universe. *Journal of Business Strategy*, 44(3), 119-225. <https://doi.org/10.1108/jbs-01-2022-0014>
- Holmes, F. (2021). The Metaverse Is A \$1 Trillion Revenue Opportunity. Here’s How To Invest... Retrieved Jan 12, 2023 from <https://www.forbes.com/sites/greatspeculations/2021/12/20/the-metaverse-is-a-1-trillion-revenue-opportunity-heres-how-to-invest/?sh=736dffc64df9>
- Huddleston, T. (2022). ‘This is creating more loneliness’: The metaverse could be a serious problem for kids, experts say. CNBC. Retrieved March 26, 2023 from <https://www.cnbc.com/2022/03/26/metaverse-creating-loneliness-kids-experts-say.html>

- [://www.cnbc.com/2022/01/31/psychologists-metaverse-could-be-a-problem-for-kids-mental-health.html](https://www.cnbc.com/2022/01/31/psychologists-metaverse-could-be-a-problem-for-kids-mental-health.html).
- Hung, S.-Y., Ku, C.-Y., & Chang, C.-M. (2003). Critical factors of WAP services adoption: An empirical study. *Electronic Commerce Research and Applications*, 2(1), 42–60. [https://doi.org/10.1016/s1567-4223\(03\)00008-5](https://doi.org/10.1016/s1567-4223(03)00008-5)
- Jain, V. (2014). 3D Model of Attitude. *International Journal of Advanced Research in Managment and Social Sciences*, 3(3), 1-12.
- Joy, A., Zhu, Y., Peña, C., & Brouard, M. (2022). Digital Future of luxury brands: Metaverse, Digital Fashion, and non-fungible tokens. *Strategic Change*, 31(3), 337–343. <https://doi.org/10.1002/jsc.2502>
- Juster, F. Thomas. (1964). *Anticipations and purchases: An Analysis of Consumer Behavior*. Princeton University Press.
- Kaiser, F. G., & Wilson, M. (2019). The Campbell Paradigm as a behavior-predictive reinterpretation of the classical tripartite model of attitudes. *European Psychologist*, 24(4), 359–374. <https://doi.org/10.1027/1016-9040/a000364>
- Katz, J. E., & Rice, R. E. (2002). *Social consequences of internet use: Access, involvement, and interaction*. MIT Press.
- Kelley, S., & Mirer, T. W. (1974). The simple act of voting. *American Political Science Review*, 68(2), 572–591. <https://doi.org/10.2307/1959506>
- Kim, M.-S., & Hunter, J. E. (1993). Relationships among attitudes, behavioral intentions, and behavior. *Communication Research*, 20(3), 331–364. <https://doi.org/10.1177/009365093020003001>
- Kothandapani, V. (1971). Validation of feeling, belief, and intention to act as three components of attitude and their contribution to prediction of contraceptive behavior. *Journal of Personality and Social Psychology*, 19(3), 321–333. <https://doi.org/10.1037/h0031448>
- Kunreuther, H., Meyer, R., Zeckhauser, R., Slovic, P., Schwartz, B., Schade, C., et al. (2002). High stakes decision making: Normative, descriptive, and prescriptive considerations. *Marketing Letters*, 13(3), 259–268. <https://doi.org/10.1023/A:1020287225409>
- Lee, L.-H., Braud, T., Zhou, P., Wang, L., Xu, D., Lin, Z., Kumar, A., Bermejo, C., & Hui, P. (2021). All one needs to know about metaverse: A complete survey on technological singularity, virtual ecosystem, and research agenda. *Journals of Latex Class Files*, 14(3), 1–2. [https://doi.org/ https://doi.org/10.48550/arXiv.2110.05352](https://doi.org/https://doi.org/10.48550/arXiv.2110.05352)

- Lee, H.-M., Song, H.-J., Lee, C.-K., & Reisinger, Y. (2017). Formation of festival visitors' environmentally friendly attitudes: Cognitive, affective, and conative components. *Current Issues in Tourism*, 22(2), 142–146.
<https://doi.org/10.1080/13683500.2017.1381668>
- Lin, H. F. (2006). Understanding behavioral intention to participate in virtual communities. *CyberPsychology & Behavior*, 9(5), 540–547. <https://doi.org/10.1089/cpb.2006.9.540>
- MacCallum, R. C., Widaman, K. F., Zhang, S., & Hong, S. (1999). Sample size in factor analysis. *Psychological Methods*, 4(1), 84–99. <https://doi.org/10.1037/1082-989X.4.1.84>
- Matthews, B. & Ross, L. (2010). Chapter 3: Questionnaires. *Research methods: A practical guide for the social sciences* 200-217. Harlow: Pearson.
- Milmo, D. (2021). Enter the metaverse: The Digital future Mark Zuckerberg is steering us toward. Retrieved October 28, 2021 from <https://www.theguardian.com/technology/2021/oct/28/facebook-mark-zuckerberg-meta-metaverse>
- Mughal, H. A., Thøgersen, J., & Faisal, F. (2021). Purchase intentions of non-certified organic food in a non-regulated market: An application of the theory of planned behavior. *Journal of International Food and Agribusiness Marketing*, 35(1), 110–133. <https://doi.org/10.1080/08974438.2021.1970686>
- Oleksy, T., Wnuk, A., & Piskorska, M. (2022). Migration to the metaverse and its predictors: Attachment to virtual places and metaverse-related threat. *Computers in Human Behavior*, 141. <https://doi.org/10.31234/osf.io/j7mxh>
- Ostrom, T. M. (1969). The relationship between the affective, behavioral, and cognitive components of attitude. *Journal of Experimental Social Psychology*, 5(1), 12–30. [https://doi.org/10.1016/0022-1031\(69\)90003-1](https://doi.org/10.1016/0022-1031(69)90003-1)
- Palomo-Lovinski, N. (2008). Extensible dress. *Clothing and Textiles Research Journal*, 26(2), 119–130. <https://doi.org/10.1177/0887302x07310078>
- Paul, J., Modi, A., & Patel, J. (2016). Predicting green product consumption using theory of planned behavior and reasoned action. *Journal of Retailing and Consumer Services*, 29, 123–134. <https://doi.org/10.1016/j.jretconser.2015.11.006>
- Perlin, K., & Goldberg, A. (1996). Improv: A System for Scripting Interactive Actors in Virtual Worlds. *Association for Computing Machinery*. 205-215.
<https://doi.org/10.1145/237170.237258>

- Periyasami, S., & Periyasamy, A. P. (2022). Metaverse as future promising platform business model: Case study on fashion value chain. *Businesses*, 2(4), 527–545.
<https://doi.org/10.3390/businesses2040033>
- Porter, C. E., & Donthu, N. (2006). Using the technology acceptance model to explain how attitudes determine internet usage: The role of perceived access barriers and demographics. *Journal of Business Research*, 59(9), 999–1007.
<https://doi.org/10.1016/j.jbusres.2006.06.003>
- Revels, J., Tojib, D., & Tsarenko, Y. (2010). Consumer intention to use Mobile Services Survey. *Australian Marketing Journal*, 18(2), 74–80. <https://doi.org/10.1037/t13073-000>
- Rogers, E. M. (1995). *Diffusion of innovations: modifications of a model for telecommunications* (4th ed.). Springer.
- Rosenberg, M. J., & Hovland, C. I. (1960). Cognitive, affective, and behavioral components of attitudes. *Attitude Organization and Change*. essay, Yale University Press.
- Ryan, M. J., & Bonfield, E. H. (1975). The Fishbein extended model and consumer behavior. *Journal of Consumer Research*, 2(2), 118. <https://doi.org/10.1086/208623>
- Schaller, T. K., & Malhotra, N. K. (2015). Affective and cognitive components of attitudes in high-stakes decisions: An application of the theory of planned behavior to hormone replacement therapy use. *Psychology & Marketing*, 32(6), 678–695.
<https://doi.org/10.1002/mar.20809>
- Schepers, J., & Wetzels, M. (2007). A meta-analysis of the technology acceptance model: Investigating subjective norm and moderation effects. *Information and Management*, 44(1), 90–103. <https://doi.org/10.1016/j.im.2006.10.007>
- Schuman, H., & Johnson, M. P. (1976). Attitudes and behavior. *Annual Review of Sociology*, 2(1), 161–207. <https://doi.org/10.1146/annurev.so.02.080176.001113>
- Seligman, C., Kriss, M., Darley, J. M., Fazio, R. H., Becker, L. J., & Pryor, J. B. (1979). Predicting summer energy consumption from homeowners' attitudes. *Journal of Applied Social Psychology*, 9(1), 70–90. <https://doi.org/10.1111/j.1559-1816.1979.tb00795.x>
- Solem, R. C. (2015). Limitation of a cross-sectional study. *American Journal of Orthodontics and Dentofacial Orthopedics*, 148(2), 205.
<https://doi.org/10.1016/j.ajodo.2015.05.006>

- Sparks, P., Guthrie, C. A., & Shepherd, R. (1997). The dimensional structure of the perceived behavioral control construct. *Journal of Applied Social Psychology, 27*(5), 418–438. <https://doi.org/10.1111/j.1559-1816.1997.tb00639.x>
- Spatz, B. A., Thombs, D. L., Byrne, T. J., & Page, B. J. (2003). Use of the theory of planned behavior to explain HRT decisions. *American Journal of Health Behavior, 27*(4), 445–455. <https://doi.org/10.5993/AJHB.27.4.16>
- Sugar, W., Crawley, F., & Fine, B. (2004). Examining teachers' decisions to adopt new technology. *Educational Technology and Society, 7*(4), 201–213.
- Tabachnick, B. G., Fidell, L. S., & Osterlind, S. J. (2001). *Using multivariate statistics* (4th ed.). Allyn and Bacon.
- Taylor, S., & Todd, P. A. (1995). Understanding Information Technology Usage: A test of competing models. *Information Systems Research, 6*(2), 144–176. <https://doi.org/10.1287/isre.6.2.144>
- Teo, T. (2009). The impact of subjective norm and facilitating conditions on pre-service teachers' attitude toward computer use: A structural equation modeling of an extended technology acceptance model. *Journal of Educational Computing Research, 40*(1), 89–109. <https://doi.org/10.2190/EC.40.1.d>
- Terry, D. J., & O'Leary, J. E. (1995). The theory of planned behaviour: The effects of perceived behavioural control and self-efficacy. *British Journal of Social Psychology, 34*(2), 199–220. <https://doi.org/10.1111/j.2044-8309.1995.tb01058.x>
- Tiganis, A., Grigoroudis, E., & Chrysochou, P. (2023). Customer satisfaction in short food supply chains: A multiple criteria decision analysis approach. *Food Quality and Preference, 104*(3), 1–9. <https://doi.org/10.1016/j.foodqual.2022.104750>
- Toraman, Y. (2022). User acceptance of metaverse: Insights from technology acceptance model (TAM) and Planned Behavior Theory (PBT). *EMAJ: Emerging Markets Journal, 12*(1), 67–75. <https://doi.org/10.5195/emaj.2022.258>
- Waltemate, T., Gall, D., Roth, D., Botsch, M., & Latoschik, M. E. (2018). The impact of avatar personalization and immersion on virtual body ownership, presence, and emotional response. *IEEE Transactions on Visualization and Computer Graphics, 24*(4), 1643–1652. <https://doi.org/10.1109/tvcg.2018.2794629>
- Wicker, A. W. (1969). Attitudes versus actions: The relationship of verbal and overt behavioral responses to attitude objects. *Journal of Social Issues, 25*(4), 41–78. <https://doi.org/10.1111/j.1540-4560.1969.tb00619.x>

- Williams, R. (2021). Gucci's Robert Triefus on testing Luxury's allure in the Metaverse. Retrieved March 22, 2023, from <https://www.businessoffashion.com/articles/luxury/the-state-of-fashion-2022-bof-mckinsey-gucci-roberttriefus-metaverse-virtual-nft-gaming/>.
- Worthington, R. L., & Whittaker, T. A. (2006). Scale development research: A content analysis and recommendations for best practices. *The counseling psychologist, 34*(6), 806-838. <https://doi.org/10.1177/0011000006288127>
- Yuen, A. H. K., & Ma, W. W. K. (2008). Exploring teacher acceptance of e-learning technology. *Asia-Pacific Journal of Teacher Education, 36*(3), 229–243. <https://doi.org/10.1080/13598660802232779>

Appendix

Survey

Survey QR code/link:



https://erasmusuniversity.eu.qualtrics.com/jfe/form/SV_aYquAenfobr8aDs

Dear respondent,

Thank you for your interest in this research and for taking the time to fill in this survey.

During the survey you will be questioned about your opinion about fashion brands increasingly moving into the space of the metaverse. The metaverse acts as a digital continuation of our physical life, which has found a high adoption across different sectors, especially in the fashion industry. Do not worry if you are not very familiar with the metaverse, as this is not relevant at all for this research.

The purpose of this study is to investigate the adoption process of the metaverse into our daily lives. The survey will take approximately 5-10 minutes to fill in. Please answer each question carefully and honestly, as your subjective opinion is very valuable for this research. There are no right or wrong answers.

CONFIDENTIALITY OF DATA

All research data remain completely confidential and are collected in an anonymous form. You will not be able to be identified. There are no foreseeable risks or discomforts associated with participating in this research.

VOLUNTARY

If you now decide not to participate in this research, this will not affect you anyhow. If you decide to cease your cooperation while filling in the questionnaire, this will in no way affect you either. You can cease your cooperation without giving any reasons.

FURTHER INFORMATION

If you have questions about this research, in advance or afterwards, you can contact the responsible researcher, Jonathan Schwahn, email: 523032js@eur.nl. If you want to invoke your rights or if you have a question concerning privacy about this study, you can contact Erasmus University's DPO (Data Protection Officer) at fg@eur.nl.

If you have read the information above and freely consent to participate in this study, please click on the "I agree" button to start the questionnaire.

I agree (1)

I do not agree (2)

Note. The respondents who have chosen "I do not agree" were redirected to the end of the survey.

To begin with, I would like to know whether you have ever used the metaverse?

- Yes (1)
- No (2)

Next to that, I would like you to subjectively rate your level of familiarity about the metaverse.

- Extremely unfamiliar (4)
- Slightly familiar (5)
- Moderately familiar (6)
- Very familiar (7)
- Extremely familiar (8)

Below you will find a broad definition of the metaverse:

The metaverse is a virtual environment which allows for the interplay of the physical and digital world, thus acting as a “continuum of extended reality”. It allows for the interaction of individuals through the usage of digital personalized avatars and offers users to immerse themselves in this digital world. Thereby the options of operability and scalability of the metaverse are almost unlimited.

Now I would ask you to state with which of the following 11 brands you interact/follow the most through social media channels. You can only choose one brand, so if you follow multiple, choose the one with which you interact the most. If you Interact/follow none of them, please choose "none of the above".

- Gucci (1)
- Louis Vuitton (2)
- Burberry (3)
- Nike (4)
- Givenchy Parfums (5)
- Dior (6)
- Forever 21 (7)
- Zara (8)
- Dolce and Gabbana (9)
- Ralph Lauren (10)
- Balenciaga (11)
- None of the above (12)

Note. After the respondents have selected a brand, they were redirected to a video and description which showed the brands activities in the metaverse. To see these videos, scan the qr code or use the survey link (see beginning of the appendix) – then fill out the survey to this point and choose a brand.

Note. The respondents which have chosen “none of the above” were redirected to the end of the survey.

You will now be asked some demographic questions.

What is your gender?

- Male (1)
- Female (2)
- Non-binary / third gender (3)
- Prefer not to say (4)

What is your nationality?

▼ Afghanistan (1) ... Zimbabwe (1357)

What is your age?

▼ 18 (1) ... 80 (63)

What is your highest obtained educational degree?

- Less than high school degree (1)
- High school graduate (2)
- Bachelor's degree (3)
- Master's degree (4)
- Doctoral degree (5)
- Professional degree (6)

Now you will be asked about your perception towards interacting with fashion brands through the metaverse.

Please evaluate to what extent you agree to the following statements.

Interacting with fashion brands through the metaverse is...

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
good for me (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
useful for me (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
interesting for me (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
easy (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
time-saving (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
relaxing (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
inexpensive (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
something only young people do (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
safe (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Note. This table measured the cognitive component of attitude towards interacting with fashion brands through the metaverse.

Next, you will be asked about your emotions towards interacting with fashion brands through the metaverse.

To what extent do you agree to the following statements?

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
I am afraid of technical things (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I always rely on well-tried things in my life (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is just fun to try new things (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Technology makes life easier (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Today everything changes so fast that I cannot get along with it (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Note. This table measured the affective component of attitude towards interacting with fashion brands through the metaverse.

Furthermore, you will be asked about your reactions towards interacting with fashion brands through the metaverse.

To what extent do you agree to the following statements?

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
Interacting with fashion brands through the metaverse is too laborious (to learn) (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I do not know how to use a computer and/or smartphone (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am not interested in interacting with fashion brands through the metaverse (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interacting with fashion brands through the metaverse is not useful for me (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have no time to interact with fashion brands through the metaverse (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interacting with fashion brands through the metaverse is too (cost) expensive (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I do not know what the metaverse is (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Note. This table measured the conative component of attitude towards interacting with fashion brands through the metaverse.

Moreover, you will be asked about your overall opinion towards interacting with fashion brands through the metaverse.

To what extent do you agree to the following statements?

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
I am positive towards using the metaverse to interact with fashion brands (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It makes sense to interact with fashion brands through the metaverse (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
People should adopt to using the metaverse in order to interact with fashion brands (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Note. This table measured the respondent's overall attitude towards interacting with fashion brands through the metaverse.

Additionally, you will be asked about how you think other people would react when you use the metaverse to interact with fashion brands.

To what extent do you agree with the following statements?

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
People who influence my behaviour would encourage me to participate in the metaverse in order to interact with fashion brands (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
People who are important to me would encourage me to participate in the metaverse in order to interact with fashion brands (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Note. This table measured the respondent's subjective norm towards interacting with fashion brands through the metaverse.

Next, you will be asked to what extent you would feel comfortable using the metaverse to interact with fashion brands.

To what extent do you agree with the following statements?

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
I would be able to participate in the metaverse in order to interact with fashion brands (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am in control of my participation in the metaverse in order to interact with fashion brands (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Note. This table measured the respondents perceived behavior control when using the metaverse to interact with fashion brands.

Lastly, you will be asked about how you would feel using the metaverse to interact with fashion brands in the future.

To what extent do you agree to the following statements?

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
I intend to use the metaverse in order to interact with fashion brands in the next few months (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I predict that I would use the metaverse in order to interact with fashion brands in the next few months (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I plan to use the metaverse in order to interact with fashion brands in the next few months (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Note. This table measured the respondent's intention of using the metaverse in order to interact with fashion brands.

Thank you for participating in this survey!