

Unveiling the Power of Your Avatar: How User's Avatar Identification Impacts Virtual Consumption in the Metaverse.

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ABSTRACT

With the increased popularity in recent years, metaverse worlds have created additional opportunities for companies to reach customers. In these worlds, users are represented by avatars and while user's avatar identification, which refers to a cognitive connection between an individual and an avatar (Suh et al., 2011), was studied in academic literature before, the impact of avatar identification on virtual consumption, was not previously investigated and this gap left a significant aspect of virtual consumption unexplored. Our research filled this gap and combined insights from qualitative (30 in-depth interviews) and quantitative (survey of 291 participants) research of the metaverse users. Since consumption in the metaverse assumes exposing the virtual items to other users, we looked at virtual consumption through the prism of self-extension and symbolic consumption theories, where users purchase virtual goods that have symbolic meaning to make an impression on others. The results of our research indicate that current metaverse worlds' users have different self-representation strategies in the metaverse worlds, resulting in different levels of avatar identification. Furthermore, our research demonstrates that avatar identification is positively related to the intention to purchase virtual clothing/accessories through serial mediation by alerting the need for self-expression and enjoyment. This research is one of the first studies, to our knowledge, investigating the impact of avatar identification on virtual consumption and clarifying the underlying mechanism. Thus, on one side, this research significantly contributes to academic research on the topic of virtual consumption, and on the other side, it provides valuable insights for industry participants.

Keywords: metaverse, virtual consumption, avatar identification, virtual worlds

1. Introduction

The metaverse is one of the popular topics that caught attention in recent years, with companies either utilizing the metaverses for operational efficiencies or entering the metaverses to reach new customers. Initially derived from Neal Stephenson's 1992 novel "Snow Crash," the metaverse was described as a three-dimensional virtual world and a gigantic virtual universe parallel to the world in which "Meta" means virtual and abstract, and "verse" means universe (Kemec, 2022). Thus, originally, the concept of the metaverse was a separate parallel virtual world that could drastically differ from the physical world. However, currently, there is no universally accepted definition, many metaverses exist, and the concept of the metaverse varies depending on one's point of view and purpose. For example, while some platforms such as Meta Horizons and Decentraland fit the original "metaverse" concept more closely, by focusing on creating virtual worlds mainly for interactions and social context, other platforms such as Roblox, Sandbox, Fortnite, and similar ones define themselves as metaverses as well, even if their primary activity is gaming. In this article, we define the metaverse as a permanent and immersive mixed-reality world where people can

interact synchronously with other people and objects beyond the limitations of time and space by using avatars and immersion-supporting devices, platforms, and infrastructures (Kaplan & Haenlein, 2009). Our definition of the “metaverse” is close to the definition of “social virtual worlds”, which can be described as virtual worlds that emphasize interaction with other users and exploration of the virtual environment via customizable avatars (Mäntymäki & Salo, 2013). Therefore, we used the definitions of the metaverse and social virtual world interchangeably in our research. Users in the metaverse/social virtual worlds are represented by avatars, or virtual versions of users, which they create according to their preferences. Different avatar designs can have an impact on the user-avatar relationship, or avatar identification, and influence user experiences in metaverse/social virtual world platforms. A considerable amount of previous academic literature focused on avatar identification and its impact on different behavioral outcomes such as immersion (Poncin & Garnier, 2011), social interactions (Vasalou et al., 2007), communication (Takano & Taka, 2022), and motivation in the virtual worlds (Birk et al., 2016). However, up till now, academic literature has not yet properly studied the impact and the mechanism through which avatar identification could influence one of the key activities in the metaverse/social virtual worlds – virtual consumption.

The purpose of this research is to fill a gap in academic literature and investigate whether avatar identification impacts virtual consumption, such as buying clothes and accessories for avatars, and through which mechanism it does so. To reveal and test this mechanism, we looked at virtual consumption through the prism of symbolic consumption (Grubb & Grathwohl, 1967) and self-extension (Belk, 1988) theories and proposed that the ultimate goal of consumption in the metaverse/social virtual worlds is to make an impression on others by exposing the possessions that have symbolic meanings. In our research, we studied the links between self-representation strategies, avatar identification, central motivational goals of virtual consumption, and virtual consumption itself. The results of our research suggest that different self-representation strategies in metaverse/social virtual worlds impact the strength of avatar identification in those worlds. Furthermore, avatar identification has a positive impact on the intention to purchase virtual clothing/accessories through the serial mediation of self-expression and perceived enjoyment obtained from virtual clothing/accessories. The overall contribution of this study is to be one of the first research to explain the impact of avatar identification on virtual consumption using qualitative and quantitative research methods. Additionally, our research provides practical impact and insights for companies, marketers, and platform providers, by clarifying the ways of how to effectively utilize avatar and platform designs to create positive user behavior in the form of increased virtual consumption.

The rest of the article is structured as follows: the first section is the introduction with the definitions and aim of the research study; the second section presents the theoretical background, and the third to fifth sections describe the empirical research, consisting of two studies. The final section concludes with a discussion of the results, contributions, and limitations, and includes the section with additional insights, described in detail in the Appendix.

2. Theoretical Background and Key Research Concepts

2.1. Theoretical Background

To understand virtual consumption and the mechanism through which avatar identification impacts it, we have exploited the widely used in social research self-extension and symbolic consumption theories.

Self-Extension Theory

A person's self-image, or self-concept, is a person's attitude, perceptions, and evaluations of him/herself, which can significantly influence the person's behavior (Grubb & Grathwohl, 1967). Additionally, because people exist not only as individuals but also as collectivities, self-image can consist of core-self and multiple aggregate selves, such as family, group, subculture, nation, and human selves (Belk, 1988). At the same time, people have an identity, or self, for each distinct network of relationships, where the person plays a role (Stryker & Burke, 2000; Arnett et al., 2003). Thus, a person can have multiple selves, and these selves have different degrees of importance to the person and are organized hierarchically, with salient selves, which are located higher in the hierarchy, being more likely to affect the person's behavior than non-salient selves (Arnett et al., 2003).

People have different ways of expressing themselves, and one way to do it is through the things they possess (Grubb & Grathwohl, 1967; Belk, 1988). According to self-extension theory, people express their selves through possessions and use possession to extend, expand, and strengthen their sense of self through categories such as body, internal processes, ideas, experiences, and those persons, places, and things to which they feel attached (Belk, 1988). Since a person can have multiple selves with different levels of salience, when needed, the person can express and enhance any of these selves with various possessions (Belk, 2013). Thus, various possessions become tools for self-extension through which a person can express and enhance the selves that are central and important to him/her at a certain moment.

Symbolic Consumption Theory

The construction of self-image develops not as an individual process, but through the process of social experience, where a person's perception of self develops from the reactions of others, and recognition from others further strengthens the perception the person has about his/her self-image (Grubb & Grathwohl, 1967). According to symbolic consumption theory, people use goods as symbols to communicate meanings about themselves to others with the anticipation of a desired response and improved interaction process (Grubb & Grathwohl, 1967). Thus, the person uses goods that have symbolic meanings to communicate those meanings and obtain a positive reaction from the audience. In this context, goods become social tools where the symbolic meanings of these goods become means of communication between the person and significant references (Grubb & Grathwohl, 1967).

It can be summarized that in a social context, people can use possessions as tools for communicating messages about themselves to make a certain impression and receive desired feedback from the audience. To be properly communicated, these possessions need to have shared symbolic meanings that can be understood by members of the audience. In case when possessions carry information about the owner, these

possessions become means of self-extension, where through the symbolic meanings of possessions, the owner can express and enhance any of the selves that are salient for him/her at a certain moment. Additionally, similar to brands (Chernev et al., 2011), apart from messages about individual selves, possessions can communicate the group selves and be used to signal the current or desired belonging to certain groups.

2.2. Key Research Concepts

To operate in the metaverse/social virtual worlds, users create a virtual version of themselves and represent themselves through avatars. These avatars can have characteristics of their owners, be fictional characters or creatures, or represent completely different persons. By using avatars, people explore the environment, engage in gaming, and interact with other users in the metaverse/social virtual worlds. In our research, we looked at the link between a user's connection with an avatar, or avatar identification, and virtual consumption, investigating the mechanism of how avatar identification impacts virtual consumption.

Avatar Identification

Despite the fact that through avatars users can represent themselves anonymously and play different personalities, in the majority of cases, the role of the avatar in the metaverse/social virtual worlds “is not anonymity and masquerade, but its opposite: self-representation” (Hamilton, 2009, p.4). According to Belk (2013) and Mäntymäki and Salo (2013), avatars in the metaverse/social virtual worlds can be treated as a form of self-extension, where users project a version of themselves through idealization, development, and manipulation of avatars. When users create avatars, these avatars can reflect the users' physical appearances, attitudes, or other elements of user identity (Van Ryn et al., 2018). At the same time, users can experiment with self-presentation and create avatars very different from their real selves (Van Ryn et al., 2018). As a result, through creating and manipulating avatars, users can choose the self-representation strategy by selecting identities, or selves, they want to extend or by creating new identities. However, since selves are organized in the hierarchical level in the minds of users, different selves have different levels of importance for users and, as a result, users develop different levels of connection with avatars representing those selves. Additionally, the closer the avatar can represent the self, the more the user associates the avatar with him/herself, and the stronger the connection between the user and avatar. Therefore, the choice of avatars, or self-representation strategy, could impact the user-avatar connection, or avatar identification, depending on how well these avatars represent the salient selves of the user.

Avatar identification is “the cognitive connection between an individual and an avatar, with the result being that the individual regards the avatar as a substitute self or has such an illusion” (Suh et al., 2011, p. 715). Higher levels of avatar identification play a crucial role in the user experience in the virtual worlds resulting in a more full and immersive experience (Poncin & Garnier, 2012), better social interactions (Vasalou et al., 2007), better communication (Takano & Taka, 2022), and higher motivation in the virtual worlds (Birk et al., 2016). Avatar identification can be considered as a construct having three subconstructs. According to Van Looy et al. (2012), avatar identification can be divided into similarity identification - user

perception that the avatar resembles the real self, wishful identification - user perception that the avatar resembles the ideal self, and embodied presence - the degree to which the user perceives as if he/she is inside the avatar while using the virtual world platform. By having identification with avatars that have visual and behavioral features similar to the user, users can more easily create an identity for these avatars, resulting in stronger relationships with them (Kim et al., 2023) and more positive attitudes toward the avatar and platform (Suh et al., 2011). Apart from similarity identification and wishful identification, we followed Van Looy et al. (2012) approach and included in avatar identification the sub-construct of “Embodied Presence”, which relates to the feeling of presence, widely discussed in gaming literature, and suggests that user’s experience in the virtual world is impacted by the degree to which the user can experience the environment through the body of avatar.

Virtual Consumption

One of the key activities in the metaverse/social virtual worlds is the consumption of virtual goods, such as clothing/accessories for avatars. Academic literature on virtual consumption suggests that the environmental characteristics of the metaverse/social virtual worlds can impact virtual consumption (Mäntymäki & Salo, 2013; Lee & Kim, 2022; Animesh et al., 2011; Cheon, 2013). As a result, environmental characteristics impact the intention to purchase virtual items through positive user experiences such as flow, social presence and telepresence (Mäntymäki & Salo, 2013; Animesh et al., 2011), affective involvement and cognitive involvement (Huang, 2012), satisfaction (Cheon, 2013), and social connections and interactions (Zhang et al., 2017). Another branch of academic research focuses on the motivational factors of virtual consumption. Motivational factors include utilitarian, hedonic, and social factors (Mäntymäki & Salo, 2013); effort expectancy, performance expectancy, perceived enjoyment, and the customization of the character (Guo & Barnes, 2011); and users’ perceptions of usefulness, enjoyment and network size (Mäntymäki & Salo, 2013). All these factors impact the virtual world adoption and predict the purchase intention in virtual worlds.

In our research, we looked at virtual consumption through the prism of self-extension and symbolic consumption theories described above. Due to the fact that consumption in the metaverse/social virtual worlds requires a social environment and the value of virtual items can be defined only by the symbolic value of the goods that is shared between users of the virtual environment (Martin, 2008), virtual consumption can be viewed through the prism of symbolic consumption. Since symbolic consumption relies on impression management, where users pay attention to how their selves appear to others (Kang et al., 2023), it can also be linked to self-extension strategies, where virtual possessions help users enhance their avatars (means of self-extension) and represent their selves in the virtual world. By extending their selves through the avatars enhanced by possessions, users can form impressions about themselves (Belk, 1988), and possessions that have publicly recognized symbolic meanings become a medium of communication of people’s self-images to reference groups (Wang & Chang, 2014). Thus, people use virtual items as a way to express their selves and the components of selves, such as status, individuality, interests, tastes, wealth, and knowledge, by displaying these virtual items to others. Therefore, we suggest that

users in the metaverse/social virtual worlds purchase virtual items for their avatars to make an impression, communicate with others, and express their selves by exposing their virtual possessions.

3. Empirical Research

To understand the mechanism through which avatar identification impacts virtual consumption (which was limited in our research to the consumption of virtual clothing/accessories for avatars), we conducted two studies and used a multimethod approach incorporating qualitative and quantitative analysis. Study 1, which was divided into Study 1a and Study 1b, included qualitative research consisting of in-depth interviews with users of the metaverse/social virtual worlds. Insights from Study 1, in addition to established constructs in academic literature, were used as a basis for hypotheses development in Study 2, which consisted of a survey of users of the metaverse/social virtual worlds.

4. Study 1

To collect qualitative data and insights about user behavior in the metaverse/social virtual worlds, we chose to conduct in-depth interviews. For participation, the users had to be older than 18 years, use metaverse/social virtual worlds, and have experience of purchasing the virtual items in those worlds within the last 6 months. Due to the difficulty of finding participants, snowball sampling was used. We have approached the initial contacts through personal contacts as well as through platforms such as Facebook and Reddit. After conducting the interviews with initial contacts, we asked the participants to refer our study to their friends.

All the interviews were conducted by the 1st author from November 2023 to February 2024. The interviews were held on the Microsoft Teams platform, and at the end of the interviews, the participants were paid 8 EUR in Amazon vouchers for their participation. The interviews lasted around 1-hour and were transcribed. Semi-structured in-depth interviews with the use of projective and laddering interview techniques were used (the approximate questions used in the interviews can be found in Appendix 1). The research followed all the ethical standards for collecting and storing the data. The names and other identifying information of participants were changed. A total of 30 interviews were conducted (see Appendix 2 for information about the participants) and used for analysis.

4.1. Study 1a. Self-representation and Avatar Identification

The first goal of Study 1 was to collect insights about the users' self-representation strategies in the current metaverse/social virtual worlds and get a clearer understanding of the possible connection between self-representation strategies and user-avatar connection, or avatar identification.

Method

Semi-structured interviews with the help of projective techniques were used to identify the self-representation strategies in the metaverse/social virtual worlds used by participants. The participants were asked to describe their personality in the physical world, their avatar/s in their favorite metaverse/social virtual world and compare their real personality with avatar/s on the basis of physical look, personality, and choices/behavior.

Analysis and Results

Self-representation Strategies

The findings of the interviews supported the main representation strategies of the real-self, better-self, and the other-self discussed in academic literature before. However, we also outlined one more type of representation strategy (“Fantasy-self”) based on the results of interviews. Thus, the findings of the interviews identified three main representation strategies: 1) Real/better-self 2) Other-self 3) Fantasy-self.

Strategy 1: The real/better-self representation

We merged the real and better-self strategies into one strategy because even if users created avatars as a better version of themselves, they still identified themselves with these avatars very strongly and perceived these avatars as part of themselves. Most interviewees (19 out of 30) had at least one avatar that represented their real/better self. In the majority of cases, it was the first avatar created that users kept using. This avatar had the same gender, race, and similar physical, personality, and behavioral features. However, even if some interviewees had avatars as exact copies of their real selves, most respondents tried to be represented by a better version of self by modification of some of the physical, personality, or choice characteristics.

In terms of physical characteristics, the interviewees wanted their avatars to look more attractive than they are in real life. Some interviewees, while keeping their personality and behavioral characteristics the same, changed the physical look of the avatars drastically.

Kenneth: “I don't want to make an avatar that looks like me. Why? Because I'm old and ugly”.

However, in the majority of cases, the users altered just a few characteristics, while keeping the main physical characteristics that identify their real selves, such as gender or main physical features, the same. In many cases, the male interviewees tried to make their avatars look more masculine, stronger, and sportier. The female interviewees tried to make their avatars look cuter, brighter, and leaner, with different hair colors and styles. While keeping race the same, some respondents also slightly altered some physical characteristics of the race.

Ron: “I guess the skin tone is not as similar as mine. I guess it's a bit lighter. And also, it's a bit lean as compared to me in terms of the size”.

Apart from physical features, many respondents preferred to enhance their personality, making their avatars to be more confident, outgoing, and social. Through avatars, the respondents overcame the obstacles that they had in real life, such as a lack of confidence or being an introvert.

Brenda: “I think I'm way more confident in the game than I am in real life. I'm myself and I'm in a social contest online, but I'm alone in my house offline. So, I think that gives me a distance to process things and also be, you know, more confident, more social online”.

Strategy 2: The other-self representation

According to the findings, some respondents created or chose avatars that were completely different from themselves in real life. However, only 5 out of 30

respondents, had the other-self avatars as the main representation of themselves in the metaverse/social virtual worlds, while the majority of the respondents had the other-self avatars as additional avatars to their real/better-self avatars. Respondents who had the other-self strategy as the main strategy, did so intentionally, either because they specifically did not want to identify their avatars with real selves, or just wanted to try other personalities.

Adam: "For me, it's not a way to identify myself in the game but is a kind of feeling of fun when you change personalities when you can be other people, other persons".

Liam: "I want to experience what it is like to be different".

Strategy 3: The fantasy-self representation

A very different type of representation happened if the metaverse/social virtual world was the fantasy gaming world, where the user had to choose the characters to play. In these worlds, users became the characters they chose, so role-playing came into play. In some cases, while doing role-playing, the users' choice of characters somehow reflected their real personalities and preferences.

Denis: "I choose a creature that is more like me. I would never pick something aggressive. I like something more the smart creatures. So, I choose something that matches somehow me, my style, how I play".

Melissa: "Physically, my avatar does not resemble me. But according to what we just discussed, I just realized that they have something in common, common characteristics with my personality, like determination, for example".

In other cases, users chose characters that have completely different personalities from the personality of the user.

Benedict: "I'm a gentle person in real life and maybe in the game, on the other side, I'm like the evil part. I like to explore different paths to see how it would be if I did this one thing in a different way from how I did it, maybe in my life. I'm curious".

In other words, the fantasy-self strategy is something in-between the real/better-self and other-self strategies, where, even if the user was performing role-playing, he/she still had a choice whether to choose the characters that have some user's personality characteristics, such as preferences, interests, knowledge, or to choose characters with no projection of personality features.

Discussion

According to Study 1a results, users in the metaverse/social virtual worlds had three main strategies to represent themselves: real/better-self, other-self, and fantasy-self. While the real, better, and other-self strategies were discussed in the literature before, we classified fantasy-self as a separate strategy due to its distinct characteristic of role-playing. According to the findings, the majority of users had their main avatars representing their real/better-self. This aligns with previous research, which suggests that users tend to reflect their ideal selves in avatars while retaining their core identity elements (Takano & Taka, 2022). Participants who used other-self avatars did so mainly for fun and entertainment while keeping the real/better-self avatars as their primary ones. The fantasy-self strategy could be seen as something in between

real/better-self and other-self strategies, where users could choose the extent to which the fantasy character projects the real personality characteristics of the user.

While the choice of self-representation strategy was influenced by user decisions, where users choose the extent to which the avatar resembles its owner, it could also be affected by the design characteristics of the metaverse/social virtual world. For example, in fantasy metaverse/social virtual worlds, users could only select characters instead of creating avatars, limiting the extent to which users can represent their selves through avatars. Additionally, non-fantasy metaverse/social virtual worlds also vary in the degree to which users can create avatars similar to their selves, with some virtual worlds such as Meta Horizons, Decentraland, and Second Life offering the opportunity to create very realistic avatars, while others providing a limited range of available avatar features.

In sum, the user-avatar connection, or avatar identification, could depend on the extent to which the avatar represents the user's selves, which can be influenced by user self-representation strategies and the design characteristics of metaverse/social virtual worlds.

4.2. Study 1b. Motivations Behind Virtual Consumption

To identify and test in Study 2 the mechanism through which avatar identification could impact virtual consumption, the second goal of Study 1 was to collect insights about the users' motivations for virtual consumption.

Method

To identify the central motivational goals of virtual consumption, we used a goal hierarchy approach. The central concept of this approach is the notion that a goal, as a desired outcome of an action, exists within a hierarchical system and is located between its superordinate and subordinate goals (Bandura, 1986; Jung & Pawlowski, 2014). Therefore, the attributes of objects represent the means by which people achieve benefits and important personal values (Jung & Pawlowski, 2014).

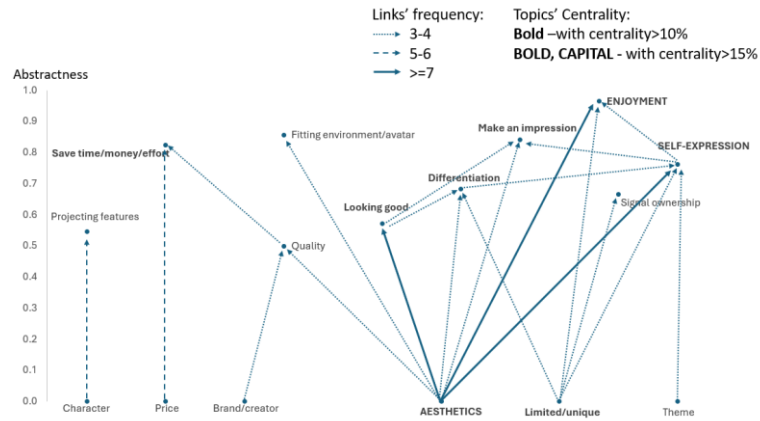
To understand the sequences of the goals and how goals are connected to each other, the means-end chain analysis (MECA) has been used. MECA is a type of analysis used by researchers to understand the way in which respondents perceive the world. It usually consists of laddering interviews to collect the data, performing content analysis to categorize the data into topics, and drawing a hierarchical goal map to generate a hierarchical structure and present the results (Jung & Pawlowski, 2014). According to traditional MECA, people's sense-making about a product is organized into three levels of abstraction: attributes, consequences, and values (Gutman, 1982). The attributes represent the observable characteristics, the consequences refer to psychological benefits, while the values refer to the abstract motivations of a certain behavior (Gutman, 1982; Jung & Pawlowski, 2014). To perform MECA and to understand the motivations behind virtual consumption and the levels of the abstraction of the concepts, we used the laddering interview technique by asking three questions: the attribute question, the consequence, and the value questions: 1. When you purchase virtual items, what feature makes virtual goods to be attractive to you? 2. Why this feature is desirable to you? 3. Why is that important to you?

To present goals in the hierarchical map, instead of using the traditional MECA approach and representing data in three strict levels of abstractness (attribute, consequence, and value), we followed the network theory MECA approach used by Jung and Pawlowski (2014). According to this approach, the abstractness level of each element can be computed to determine the position of the element in the hierarchical map. We used this approach for three reasons. First, our research had an explorative type, where the topics were not predefined. Second, the respondents had difficulties in some cases differentiating between consequences and values. Third, due to the situation when in some cases, during the coding process the topics were duplicated because consequences and values represented different sides of the same topic. Due to all these particularities, the alternative network theory MECA approach was more feasible to use.

Analysis

To perform MECA and develop a hierarchical structure, the data were analyzed on how many times each topic from each question was used as a means and as an end. After collecting the data from the interviews, content analysis was performed to categorize the text into topics. The first author performed coding using an open procedure, where the codes, or topics were not predetermined. The codes were applied to the attributes, consequences, and beliefs. A second coder recoded the data using the set of codes and topics identified by the first coder. The codes of two raters were compared and reached an inter-coder agreement of 84% (coders agreed on 184 of the 219 codes), which indicates an acceptable level of inter-coder reliability (Lombard et al., 2002; Neundorff, 2002). Afterward, the intercoder disagreements were discussed and settled resulting in a total of 219 codes grouped into 34 topics. After generating the topics, these topics were organized in the goal hierarchy map. The map was organized by calculating the out-degrees (how many times the topic served as an origin of the linkages), and in-degrees (how many times the topic served as an end of linkages) to calculate the abstractness level (ratio of the in-degrees divided by the sum of in-degrees and out-degrees) and centrality of the topic (the ratio of the in-degree plus out-degree divided by the sum of all active cells). Elements with high abstractness were considered to be the ends of linkages, while elements with low abstractness were considered to be the sources. Elements with high centrality represented the most frequent elements and key topics on the map. To see the Implication matrix, refer to Appendix 4. The hierarchical map is presented in Figure 1. To avoid complexity and enhance clarity, we applied the cut-off of 3 and included only the links mentioned at least 3 times. As a cutoff guideline, research suggests presenting linkages that correspond to more than two-thirds of all linkages in the implication matrix (Jung & Pawlowski, 2014). The selected cutoff of 3 including the links that are mentioned at least 3 times in our example represents 63% of all linkages (100 out of 158 links), so we decided to keep this level as acceptable.

Figure 1: Hierarchical Goal Map for Virtual Consumption



Results

The hierarchical goal map in Figure 1 demonstrates the most frequent topics organized in features and goals users seek in the process of virtual consumption and how these features and goals are related.

As was proposed before, the interviews revealed that one of the goals with high abstractness is the “Make an impression” goal. However, according to the map, the central goals of virtual consumption (according to centrality metrics) are “Self-expression” and “Enjoyment”, which correspond to more than 40% of linkages in the implication matrix. While “Enjoyment” is regarded as the highest abstraction goal, the most central goal of the goal hierarchy is the “Self-expression” goal, which contributes to 24% of all linkages. Many product features are connected to “Self-expression” directly or indirectly through the subgoals. Also, it is important to emphasize the interconnectedness of goals.

Discussion

If the ultimate goal of symbolic consumption is to make an impression on others through possessions that have symbolic meanings, it can be argued that possessions that bring self-expression and enjoyment (the central goals of virtual consumption revealed in Study 1b) can be used as means to make an impression, which leads to increased virtual consumption. However, while the self-expression goal can be directly related to symbolic consumption (as shown by the links between “Self-expression” and “Make an impression” goals in the Hierarchy map), the enjoyment goal does not have a straightforward connection.

In our view, enjoyment can be divided into two parts: enjoyment for personal satisfaction and enjoyment as a symbol to make an impression. Due to the fact that consuming virtual items in the virtual world equals exposing those items, virtual items that bring enjoyment can also make an impression about the item holder. Through virtual items that bring enjoyment, the user can express his/her tastes and make the avatar look fun/beautiful/ entertaining to make an impression on others, which can also result in mutual enjoyment and entertainment. Thus, we consider both self-

expression and enjoyment as means of symbolic consumption and the main motivators for the intention to purchase virtual items. Furthermore, we use self-expression and enjoyment as a mechanism through which avatar identification impacts the intention to purchase virtual clothing/accessories, a mechanism we intend to test in Study 2.

5. Study 2

Hypothesis Development

As was previously proposed, virtual consumption can be viewed through the prism of self-extension through symbolic consumption, where virtual items are purchased and exposed to make an impression on other members of the virtual community. Through avatars, users represent a certain user identity, or self, and purchase virtual items for these avatars to enhance and emphasize these selves. At the same time, according to Arnett et al. (2003), to affect a person's behavior, expressing identity, or self, needs to become important to the person, and salient selves are more likely to affect behavior than those that are less salient. Making an impression in the metaverse/social virtual world becomes important to the user when the user appreciates the network of other members of the virtual community in the metaverse/social virtual worlds. In this context, representing him/herself, through an avatar to make an impression on others becomes important to the user, where using avatars that can better represent salient selves results in a stronger user-avatar connection, or avatar identification. When a virtual self, represented through an avatar, reaches a certain level of salience, users are willing to perform identity-related behaviors. In our case, when the identification with any specific avatar increases, users are willing to invest in this avatar and purchase virtual items to enhance this self, represented through the avatar. Thus, we suggest that avatar identification has a positive impact on virtual consumption.

As suggested by the results of Study 1b, there are two central motivational goals linked to virtual consumption: self-expression and enjoyment. Therefore, we propose that virtual clothing/accessories providing self-expression or enjoyment help users enhance their selves and make an impression, resulting in virtual consumption of those items.

H1: Avatar identification is positively related to self-expression through virtual clothing/accessories

H2: Avatar identification is positively related to Perceived enjoyment through virtual clothing/accessories

As proposed before, self-expression and enjoyment are the key goals of virtual consumption. Additionally, we expect that these two goals are correlated with each other. There is a strong link between social and emotional values of the virtual goods for the users (Lehdonvirta, 2009), as well as between aesthetics and social image expression (Kim et al., 2011), which are represented by self-expression and enjoyment constructs in our study. Additionally, as we can see from the results of Study 1, the goal of "Self-expression" has links with "Enjoyment" and "Looking good" goals.

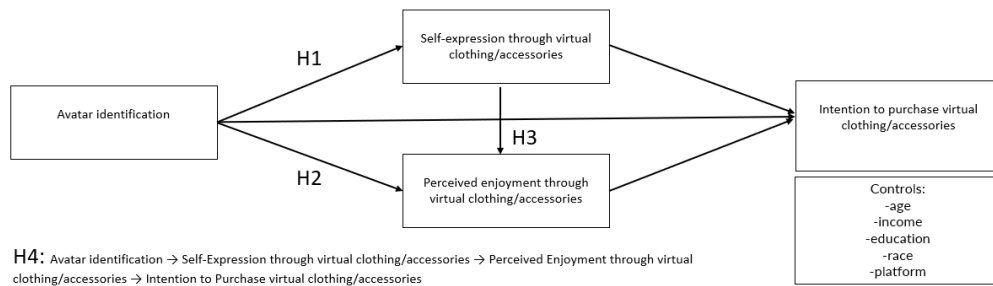
H3: Self-expression through virtual clothing/accessories is positively related to Perceived enjoyment from virtual clothing/accessories

Since “Avatar identification” is correlated with “Self-expression through virtual clothing/accessories” and “Perceived enjoyment through virtual clothing/accessories”, and since “Self-expression through virtual clothing” and “Perceived enjoyment through virtual clothing/accessories” are correlated, we expect that “Avatar identification” will impact the “Intention to Purchase virtual clothing/accessories” via serial mediation through “Self-expression through virtual clothing/accessories” and “Perceived enjoyment through virtual clothing/accessories”.

H4: Avatar identification is positively related to the Intention to purchase virtual clothing/accessories via serial mediation through Self-expression and Perceived enjoyment through virtual clothing/accessories

The conceptual model of Study 2 is presented in Figure 2.

Figure 2: Study 2 Conceptual Model



Method

To understand the impact of “Avatar identification” on the “Intention to purchase virtual clothing/accessories”, we run a Pre-study and Main study. The aim of a Pre-study was to pre-screen the respondents who used virtual items on the metaverse/social virtual worlds in the last 6 months. The goal of the Main study was to collect the data for the analysis. Both studies were run via the Prolific platform, and the data collection and data storage fulfilled ethical standards and privacy requirements. Participants for the Pre-study were recruited on the Prolific platform and completed the study in exchange for a small payment. The survey was sent only to participants in the US, UK, and Canada who claimed themselves as online gamers. 800 participants were asked if they used in the last 6 months Decentraland, Roblox, Fortnite, Sandbox, Second Life, Minecraft, Animal Crossing, Unity, Omniverse, Horizon Worlds, or other metaverse/social virtual world platforms and if they had used or purchased virtual items for their avatars (only for decorating purposes) on those platforms. Participants for the Main study were recruited from the Pre-study. We collected responses from 300 participants and used responses from 291 participants who passed through additional screening questions (were 18 years old, used/purchased virtual items on metaverse platforms, and passed the attention check questions). Participants were asked to choose their favorite metaverse/social virtual world platform and evaluate their experiences on that platform. The descriptive statistics of the respondents can be found in Appendix 5.

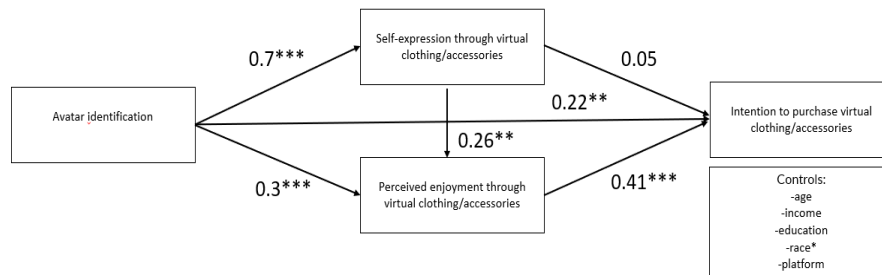
Analysis

Some construct variables with corresponding questions were taken from previous literature and adapted to the context of purchasing behavior in the metaverse/social virtual worlds, other constructs were developed by authors. The variables employed can be found in Appendix 6. All the variables' constructs can be found in Appendix 6. The data were analyzed using structured equation modeling using Stata software. We started the analysis by checking the convergent and discriminant validity of the model. After checking the validity and reliability of the measurement model, we proceeded to check the structural model.

Results

As Appendix 7 and Appendix 8 show, the model reached both convergent and discriminant validity (Cronbach alpha exceeded 0.7, composite reliabilities DG and Composite reliability rho_A exceeded 0.8, the AVE of each construct exceeded 0.5, the square roots of each AVE value have reached satisfactory levels). PLS-SEM was conducted with 5000 bootstrapping subsamples to estimate the significance of the path coefficients. The R^2 of intention to purchase virtual items was 35%, which indicates that the model as a whole has good predictive validity. The results of the structural model are presented in Figure 3.

Figure 3: Study 2 Results of PLS-SEM Analysis



* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

As expected, and as shown in the table, “Avatar identification” impacts both “Self-expression through virtual clothing/accessories” and “Perceived enjoyment through virtual clothing/accessories”; therefore, H1 and H2 are supported.

Corresponding to the results of Study 1b where Self-Expression and Enjoyment were correlated and to results from other academic literature stating the connection between social and emotional goals (Lehdonvirta, 2009; Kim et al., 2011), the results of the SEM analysis also support the positive link between “Self-expression through virtual clothing/accessories” and “Perceived enjoyment through virtual clothing/accessories”; therefore, H3 is supported.

The results of the bootstrap analysis on the impact of “Avatar identification” on the “Intention to purchase virtual clothing/accessories” through serial mediation reveal

that the indirect effect of the mediation is significant and contributes to 52% of the total effect. The split of the mediation paths is presented in Table 1.

Table 1: Mediation Analysis

Serial Mediation	Coef.	P-value	Share
<i>Direct effect (no mediation)</i>			
Avatar identification → Intention to purchase	0.22	0.007	48%
<i>Indirect effect of mediation1</i>			
Avatar identification → Self-expression → Intention to purchase	0.04	0.50	8%
<i>Indirect effect of mediation2</i>			
Avatar identification → Self-expression → Perceived enjoyment → Intention to purchase	0.08	0.01	17%
<i>Indirect effect of mediation3</i>			
Avatar identification → Perceived enjoyment → Intention to purchase	0.12	0.002	27%
<i>Cumulative Indirect effect</i>			
Indirect effect1+Indirect effect2+Indirect effect3	0.23	0.000	52%
<i>Total effect</i>			
Direct effect + Indirect effect1+Indirect effect2+Indirect effect3	0.45	0.000	100%

*Control variables are used in the analysis, but not included in the table

Just like Study 1 suggested, both Self-expression and Perceived enjoyment are key mechanisms through which Avatar identification impacts the Intention to purchase virtual clothing/accessories. As was suggested before, two constructs are highly correlated, and “Self-expression through virtual clothing/accessories” impacts virtual consumption by altering the “Perceived enjoyment through virtual clothing/accessories” construct. The cumulative indirect effect of these two mechanisms in the process of serial mediation is 52%. As a result, all four hypotheses are supported, and a summary of the hypotheses can be found in Table 2.

Table 2: Study2 Summary of Hypotheses Tests

Hypothesis	Direction of Impact	Path coefficient	p-Value	Support
H1: Avatar identification → Self-expression	Positive	0.699	0.000	Yes
H2: Avatar identification → Perceived enjoyment	Positive	0.297	0.000	Yes
H3: Self-expression → Perceived enjoyment	Positive	0.267	0.001	Yes
H4: Avatar identification → Self-expression → Perceived enjoyment → Intention to purchase	Positive	0.232	0.000	Yes

Discussion

According to the findings of Study 2, avatar identification impacts the intention to purchase virtual clothing/accessories through alerting the feelings of self-expression and perceived enjoyment obtained from the use and exposure of those items. However, as shown in Figure 3, the impact of “Avatar identification” has a stronger effect on “Self-expression through virtual clothing/accessories” than on “Perceived enjoyment through virtual clothing/accessories”. It can be explained by the

proposition that all the users who have some connection with their avatars, or avatar identification, try to impress others in the virtual space with beautiful/fun/entertaining items. This is also supported by the analysis of qualitative data from Study 1a, where users of all three self-representation strategies, including fantasy-self and other-self strategies, where users did not identify themselves fully through avatars, were purchasing virtual items for enjoyment purposes. However, by merging the results from Study 1a and Study 2, we propose that the users who genuinely try to represent themselves through their avatars, for whom the avatars are the extensions of themselves in the virtual space, and who therefore have very strong avatar identification, aim to send messages and impress others through items that provide self-expression. That is why avatar identification has a stronger impact on self-expression than on perceived enjoyment obtained from the virtual clothing/accessories.

6. Conclusions

6.1 General Discussion

This research investigated the impact of users' avatar identification on the intention to purchase virtual clothing/accessories in the metaverse/social virtual worlds. Insights from qualitative Study 1 revealed three strategies of self-representation (real/better-self, other-self, and fantasy-self) in the metaverse/social virtual world that impact the strength of avatar identification. Additionally, Study 1 revealed the virtual consumption goal hierarchy, where the central goals behind virtual consumption are obtaining self-expression and enjoyment, which correlated with each other and connected with other smaller goals. Findings from Study 2, a survey of metaverse/social virtual world users, demonstrated that higher avatar identification positively impacts the intention to purchase virtual clothing/accessories via serial mediation through alerting self-expression and perceived enjoyment obtained from the use of virtual clothing/accessories.

Through the lens of symbolic consumption and self-extension theories, we explained and clarified a possible mechanism of how avatar identification impacts the intention to purchase virtual clothing/accessories. According to our proposal, users purchase virtual clothing/accessories to make an impression on the audience in the metaverse/social virtual worlds and use features of virtual clothing/accessories that have common symbolic meanings to make this impression. These symbolic meanings are communicated either from self-expression or enjoyment obtained during the use and exposure of virtual clothing/accessories. Thus, the virtual items through which the user extends his/her selves in the metaverse/social virtual worlds work as symbolic means to make an impression and communicate either a message about the user identity (self-expression) or the emotional value of the item such as entertainment, beauty, and fun (enjoyment). Both means (self-expression and enjoyment), which are also correlated with each other, help the user to make an impression in the metaverse/social virtual worlds and induce virtual consumption.

However, not all users in the metaverse/social virtual worlds seek to make an impression through self-expression or enjoyment obtained through virtual clothing/accessories. The results of our research revealed that to have a higher

motivation to make an impression through the clothing/accessories that communicate self-expression or enjoyment, users need to build a psychological connection with their avatars, or user identification, obtained from the extent of how avatar's design characteristics resemble the users' selves.

6.2 Theoretical Contributions

Our research has several theoretical implications. First, this research is one of the first studies, to our knowledge, to investigate the impact of avatar identification on virtual consumption in the metaverse/social virtual worlds. Our research filled this gap and provided support that avatar identification makes a positive impact on virtual consumption. Second, through the lens of symbolic consumption and self-extension theories, this research deepens the understanding of the mechanism through which avatar identification impacts virtual consumption. Our study demonstrates that to make an impression on the audience, users with higher avatar identification have a higher need to obtain the symbolic meanings from virtual items (means of self-extension) and communicate self-expression and enjoyment obtained from those items, which results in a higher intention to purchase virtual clothing/accessories. Third, this research has a considerable number of qualitative insights obtained from in-depth interviews, which help in obtaining a deeper understanding of the self-representation strategies in the current metaverse/social virtual worlds, the possible connection between self-representation strategies and avatar identification, and the hierarchical goal structure providing additional insights and explanations of the mechanism impacting the virtual consumption.

6.3 Practical Implications

This research also has several practical implications. First, since many companies enter metaverse/social virtual worlds, it is important for companies and marketers to understand how platform design characteristics might impact the commercial potential that comes from user spending on those platforms. According to the results of our research, to increase users' spending on their platforms, metaverse/social virtual worlds need to provide more opportunities for users to create avatars that resemble users' physical or personality characteristics or represent users' selves. Avatars that closer represent the users' selves help users to create stronger connections with their avatars, or avatar identification, which in turn increases willingness to invest in those avatars and purchase virtual clothing/accessories. Second, by demonstrating the mechanism impacting virtual consumption, the research suggests that to induce virtual consumption, virtual clothing/accessories need to provide users of the metaverse/social virtual worlds with either opportunity for self-expression or enjoyment, which can be obtained in the majority of cases through the features of the virtual clothing/accessories such as aesthetics and limited/unique goods. On one side, companies can enhance self-expression meanings by providing virtual items that have recognizable or self-expressive brands, messages about the values of the holder, messages about the tastes/preferences of the holder (music, celebrity, etc.), themes, certain group belongings (university, city, country, social groups), etc. On the other side, companies can enhance enjoyment meanings by providing items that are aesthetically beautiful, entertaining, and fun. Furthermore,

the results show that while avatar identification has a positive correlation with both self-expression and enjoyment values, the impact of avatar identification is stronger on items with self-expression values. Therefore, for companies that provide virtual items with self-expression messages (brands, for example), it is more important to choose metaverse/social virtual world platforms where users can create higher avatar identification. These insights from the research can be utilized by companies to better design the product characteristics adjusted to the metaverse/social virtual world design characteristics and generate higher financial outcomes.

Finally, since current metaverses/social virtual worlds generate more opportunities for users to create more realistic avatars, followed by increased avatar identification, it may be suggested that users will spend more on the metaverse/social virtual world platforms in the future. This acts as an additional incentive for companies to enter the metaverses and highlights the importance of the insights from our research to be used in the platform and product design characteristics.

6.4 Additional Insights. Self-Expression in Virtual and Physical Worlds (See Appendix 9)

According to the results of our research, in virtual worlds, users seek to make an impression on others and one mechanism to do so is through expressing themselves through virtual clothing/accessories. The intriguing question that may arise is “How self-expression in the virtual world might impact the self-expression and consumption patterns in the physical world?” To answer this question, additional insights from Study 1 and Study 2 were gathered.

According to the results of explorative research in Study 1, some users of virtual worlds tended to have more functional patterns of consumption in the physical world, while satisfying their emotional and social needs through the clothing/accessories in virtual life (See Appendix 8). Furthermore, by inserting two additional dependent variables “Self-expression through physical clothing/accessories” and “Functional consumption in the physical world” into the PLS-SEM equation of Study 2 (see Appendix 9), the positive links between “Self-expression through virtual clothing/accessories” and both “Self-expression through physical clothing/accessories” and “Functional consumption in physical life” were revealed. Thus, people who want to express themselves through clothing/accessories, have a desire to do so in both worlds. Nevertheless, the means of self-expression could be different due to boundaries, rules, and standards existing in these two worlds. In fact, higher self-expression in the virtual world is related to more functional (vs. emotional/social) consumption in the physical world, suggesting that users who express themselves more in the virtual world seek to express themselves in the physical world as well, but through the less expressive means and more functional (vs. emotional/social) patterns of consumption.

6.5 Limitations and Future Research

According to our research, avatar identification positively impacts the intention to purchase virtual clothing/accessories via serial mediation. However, even if the effect of the proposed mediation is significant and corresponds to 52% of the total effect, it is still a partial mediation (the direct effect is significant). This suggests that there are

additional links, apart from motives of self-expression and enjoyment, explaining the impact of avatar identification on the intention to purchase virtual items. Thus, to better understand the role of avatar identification in the virtual consumption topic, additional research is needed. Also, while our research combines qualitative insights and quantitative survey data, the research from observational data, such as data obtained from actual metaverse websites and links of those data to users' avatars, could benefit the academic research on the topic of avatar identification.

Nevertheless, our research is one of the first steps in understanding the link between avatar identification and virtual consumption and we hope it will provide valuable insights for the industry players as well as inspiration for further academic research.

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APPENDICES

Available Upon Request