How avatars help enhancing self-image congruence

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Abstract: Most users prefer to use avatars to escape from the real-world difficulties and to create their virtual worlds in where they feel more free and controllable. In this sense, virtual worlds reflect the expected personality traits. In parallel, this study focuses on consumers and their avatar using behaviours across self-image congruence theory by examining the congruence among avatars, participants' personality traits, and product-related self-image. This study analyses the responses of 403 individuals collected by an online questionnaire. The study results highlight that male avatars are more attractive than female and anthropomorphic avatars, and consumers mostly prefer male avatars even their genders are female. This study contributes to a better theoretical understanding of consumers' avatar using behaviours from the standpoint of self-image congruence theory. It also complements other studies on the topic of avatars and self-image congruence by providing different methods and ideas that can lead to further research.

Keywords: avatars; online consumer behaviour; self-image congruence; virtual worlds.

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1 Introduction

Virtual worlds have gained vital importance in the economic, social, and behavioural science (Bainbridge, 2007). Bainbridge (2007) states that a virtual world refers to an electronic environment that visually mimics physical spaces where people can interact with virtual actors and objects. Nowadays, many people communicate with each other simultaneously within virtual worlds to do business, socialise, or have fun. The tech M&A advisory firm Digi-Capital claims that virtual world market can be worth $30 billion by 2020. Additionally, KZero has declared that 171 million people would be using virtual worlds and 28 million people would be willing to pay for virtual world hardware and software by 2018 across the world. They have also estimated that there will be 4.8 million early adopters of virtual worlds in this year.

In virtual worlds, people create their avatars to represent themselves by deciding on their shapes and forms. An avatar can be called as a "virtual ego" and can be defined as ''user embodiment in a collaborative virtual environment'' (see http://www.vrs.org.uk/virtual-reality-games/what-are-virtual-worlds.html). Avatars are also useful tools for consumers. Aaker (1999) states that consumers connect with brands that are typically

made human-like via anthropomorphising, personification, or user imagery. In this sense, consumers use avatars to enhance their real self and to gain an ideal self-concept in their purchasing behaviour (Peterson, 2006) and it brings out the need for a better understanding the consumers.

In this regard, this research aims to investigate role of avatars in virtual worlds in the context of consumer self-image. It investigates whether avatars are useful tools to enhance the self-concept of individuals or not. This study varies from previous studies by focusing on the testing of congruence between participants' avatars and their self-images. Furthermore, consumers' self-image congruence is not only analysed in the context of virtual worlds, but it is also scrutinised in the context of consumer buying behaviour. For this purpose, two cola brands have been chosen (Coca-Cola and Pepsi) to assess the avatar-brand and self-image congruence. Coca-Cola and Pepsi are one of the well-known brands having high penetration across Turkey. Turkish people consume 2.6-billion-liter coke in a year, and the market shares of Coca-Cola and Pepsi are 32.3% and 6.9%, respectively in Turkey (see https://www.statista.com/statistics/216911/market-share-of-soft-drink-companies-in-turkey).

The study begins with the literature survey about virtual worlds, avatars, self-concept, and self-image congruence. In the next parts, research methodology and hypotheses, and study findings are introduced. In the last part, study implications and limitations are presented, and future directions are discussed.

2 Literature review

2.1 Avatars in virtual worlds

Historically, the descent of a deity to the earth in an incarnate form has been named as an avatar in Hinduism (Lin and Wang, 2014). Today a name, voice, a photo, or an animation that is any form of representation symbolises a user's identity is considered as a user's avatar. Avatar refers to the digital self-representation of participants in virtual worlds (Lin and Wang, 2014). Furthermore, it refers to "picons" (personal icons) that they belong to a person and identify her or him.

The use of the term avatar was expressed in 1985 by Richard Garriott. He used the term for the computer game Ultima IV: Quest of the Avatar for the Apple II (Lohle and Terrel, 2014). After that many virtual worlds emerged. One of them was Second Life which was launched in 2003 by Linden Research. In a very brief time, Second Life has become a virtual world in where millions of people have started to interact and enjoy together (see http://www.lindenlab.com/about). Nowadays, Second Life residents are 44.474.726 on January 4th, 2016 (see https://danielvoyager.wordpress.com) and its economy have a GDP of around $500 million in 2015 (Korolov, 2015).

Barnes and Mattsson (2008) search the Real-Life brands' value in Second Life. They recommend that it is a new communication channel and marketers should be aware of that this channel has distinctive characteristics. Kohler et al. (2009) also point out that avatars provide benefits for marketers and they investigate whether avatars contribute new product development or not. They find that utilisation of avatars during the development of a new product is a more efficient and useful way (Kohler et al., 2009). In this sense, many real-world companies (e.g., Adidas, American Apparel, Dell, Disney,

IBM, Nike, MTV, Reuters, and Toyota) have also appeared in Second Life (Bélisle and Bodur, 2010) to target their virtual consumers and diffuse their new campaigns.

In the literature, there are studies that focus on avatars from different perspectives. Aboujaoude (2011) and Suler (2000) focus on consumer behaviours within the context of avatars. They reveal that some factors influence identity management in cyberspaces and they can be a guide for avatar creation processes (see Table 1).

Table 1 Factors that have effect on online personality

Factor that influences online identity creation	*Factors traits*
Level of dissociation or integration	A person's identity is multifaceted that may be dissociated, enhanced or integrated online.
Positive and negative valence/demeanour of users	Individuals negative aspects can be acted out or worked through in cyberspace
Fantasy or Reality level of users	This implies a persons' online identity real as in real life, or it can be hidden or imaginary.
Consciousness awareness and control level of user	Users are differed from each other to they seek consciousness or emotions in their online attitudes
The social media traits	Every social media has different personality traits

Source: Adapted from Suler (2000, pp.455–460)

In another study, Jin and Bolebruch (2009) find that spokes-avatars provide compelling product information and send rich and interactive messages to consumers. They prove that avatars have a positive impact on the consumers' product involvement, attitude toward the product, and enjoyment of the online shopping experience. They also reveal that advertising messages provided by 3D spokes-avatars are more efficient in the improvement of product involvement and attitude toward the product. Additionally, they infer that interacting with a human-like spoke-avatar is more informative than those who interact with a non-human spokes-avatar.

Holzwarth et al. (2006) show that avatars can increase the effectiveness of a web-based sales channel because consumers are more satisfied with presented avatars. Additionally, they point out that avatars can be useful for all kind of products even they require low or high involvement. On the other hand, expert avatars are found as more useful if high participation is required because these avatars are perceived more credible whereas attractive ones are perceived likable (Holzwarth et al., 2006). In a similar study, Wang et al. (2007) investigate the effects of avatars on the persuasiveness of online sales, and they find that consumers' persuasiveness of online sales can increase with avatars.

Furthermore, Dunn and Guadagno (2012) investigate consumers' expectations from an avatar regarding personality traits and tendency to be a friend with a simple avatar (i.e., customised cartoon representations of the self) in online channels. Authors focus on whether participants reflect their real personality traits in their avatars. They indicate that individual differences such as self-esteem, gender, and personality can guide avatar customisation.

Additionally, Jin and Bolebruch (2009) investigate avatar-based marketing effect on consumers' brand evaluation in virtual worlds. They find that if consumers are more exposed to physical presences of brands and spokes-avatar in virtual worlds, consumers' brand-self connection and beliefs about the spokes-avatar credibility also increase.

Additionally, Jin and Sung (2010) investigate the roles of spokes-avatars' personalities regarding source credibility, brand attitude and consumers' feelings of presence. They figure out that consumers' who interact with competent spokes-avatars tend to show greater source expertise and trustworthiness, a more positive attitude towards the brand, higher satisfaction with the retailer, and greater online shopping intentions than consumers' who interact with exciting spokes-avatars. Gadalla et al. (2016) also test the avatar-based focus groups, and online focus groups to compare advantages and disadvantages of avatars. They find that there are not any differences between two methods and they advise the marketing researchers to use the avatar-based focus groups.

Also, Bailey et al. (2008) explore consumers' motivations in virtual worlds and try to find where avatars come from. They state that it is important to find the motivations underlying consumers' desires to generate avatars and their preferences in constructing their avatars. In their study, they propose that possible selves, openness to experience, and social comparisons are motivating powers for consumers' behaviours in virtual worlds.

In addition to these studies, there are also papers that focus on avatars from different standpoints. For example, Hooi and Cho (2013) investigate likeness of avatars to their owners' self and examines its influence on the perception of deception. They find that if an avatar looks like its owner regarding the attitude and behaviour, in turn, the deception reduces. Moreover, Bélisle and Bodur (2010) investigate how participants reflect their personality to their avatars. The findings show that a participant who has extraversion and agreeableness personality traits tends to use avatars. Additionally, Fong and Mar (2015) use Big Five inventory, and they find that avatars can provide accurate information regarding extraversion, agreeableness, and neuroticism.

In another study, Nowak and Rauh (2005) focus on some personality traits regarding androgyny, anthropomorphism, credibility, homophily, attraction, and their probability of being chosen during interactions among users. The results show that individuals prefer masculine or feminine avatars. However, participants perceive masculine avatars are less attractive than feminine avatars, and they prefer human avatars that mostly match with their real genders. Additionally, the authors figure out that there is a tendency to choose androgyny avatar other than gender-based avatars. It is also found that anthropomorphism significantly influences perceptions of avatars. On the other hand, participants perceive anthropomorphic avatars more attractive and credible than other avatars, so individuals mostly prefer them (Nowak and Rauh, 2005).

Additionally, Mull et al. (2015) try to find out consumers' perceptions of using several types of 3D animated avatars including human, fantasy, animas, and humanoid salespeople regarding credibility, homophily, and attractiveness. Researchers reveal that avatar type has a significant impact on the perception of credibility, homophily, and attractiveness. They also find that human avatars are perceived the most credible, homophilous, and attractive. Moon et al. (2013) also examine the effect of a consumer's interactions with an avatar-mediated salesperson on a consumer's shopping experience and brand evaluation in a virtual store environment. Authors state that such an interaction with a salesperson and peer consumer avatars improves the consumer's social presence, enjoyment, brand attitude, and purchase intention.

Across the managerial viewpoint, it can be said that companies prefer using avatars as endorsers to increase consumer interactions, provide augmented value, and ensure more personalised services (Holzwarth et al., 2006; Jin and Bolebruch, 2009). In other words, avatars have started to offer promise as a corporate communication channel for

interactive advertising and international marketing. For example, Louis Vuitton has used Final Fantasy character (avatar) in their ads (see Figure 1). Now, more images of Final Fantasy XIII's Lightning that is wearing Louis Vuitton fashion have been released (Hemp, 2006).

Figure 1 Louis Vuitton ads

Source: Game Spot

Companies are also aware of that different markets have different preferences, so they use different avatars in different markets to serve their changing segments. For example, Ikea's avatar Anna is portrayed as a brown-haired avatar in the USA. On the other hand, she is portrayed as a blonde avatar in the UK (see Figure 2) (Bélisle and Bodur, 2010).

Figure 2 Ikea's avatar Anna

http://hbs.hugeinc.com/casestudies/ikea http://www.ikea.com/es/es/store/malaga/english

2.2 Self-concept and self-image congruence

William James is the pioneer who was focused on self-concept in 1890. He defines the self-concept as "the sum of the things like family, home, clothes, friends, dignity, bank accounts and business that one can say that these belong to me" (Todd, 2001, p.185). According to James, the self is a multidimensional concept. It consists of various

dimensions such as a "material self," "social self", and "spiritual self" (Higgins, 1987). Markus and Nurius (1986) inspired from William James, and they developed the "possible self-theory." The possible self-theory states that people have ideas of what they may become, what would like to become, and what they are afraid of becoming. In this sense, possible selves provide conceptual links between cognition and motivation.

In the past, it is observed that the self (as actual self) is considered as only one dimension (Grubb and Stern, 1971; Grubb and Hupp, 1968; Birdwell, 1968). Afterward, it is found out that a single individual may have multiple selves. This result has led researchers to conduct research about selves more deeply (Landon Jr, 1974; Gentry and Doering, 1979; Hong and Zinkhan, 1995; Madrigal, 1995; Graeff, 1996; Sirgy and Su, 2000; Ekinci and Riley, 2003; Kressmann et al., 2006; Beerli et al., 2007; Kwak and Kang, 2009; Hosany and Martin, 2012).

In this sense, self-concept can be defined across four dimensions: (1) the actual self-concept defines how an individual sees himself/herself; (2) the ideal self-concept defines how an individual wants to see himself/herself; (3) the social self-concept defines how an individual is seen by others; and (4) the ideal self-concept defines how an individual want be perceived by others (Kressmann et al., 2006).

In the literature, there are different approaches used to understand the relationship between the self-concept and consumers' behaviours. The most prominent one is the cognitive approach. It focuses on how individuals choose and interpret the information obtained when they compare themselves with the external environment (Sirgy and Samli, 1985). The cognitive approach is also accepted as a predecessor of the self-image congruence theory which is an important topic in consumer behaviours (Grubb and Grathwohl, 1967; Sirgy, 1982). It is stated that individuals consume symbolically to protect and improve their selves. They want products and brands to be congruent with their selves and to be accepted as such by the external environment. Thus, individuals both improve and protect their selves through these actions (Grubb and Grathwohl, 1967; Grubb and Hupp, 1968; Grubb and Stern, 1971).

The self-image congruence model is developed by Sirgy (1982), and Sirgy and Samli (1985). They combine the product or brand image with the self-image. In this model, the aim is to explain the degree of congruence between self-concept and product concepts. Accordingly, it is claimed that the higher the degree of congruence, the higher would be the intention to purchase.

This idea has been tested by many studies. For example, Landon Jr (1974) suggests that the relationship between self-concept and product preferences may vary depending on different forms of the self (actual, ideal) and product categories. Accordingly, consumers may prefer products not to reveal their actual identities. Therefore, there might be no relationship between the actual self and product preferences. However, consumers can reflect their ideal selves through product preferences to reach the life that they desire. In this case, a positive relationship may be revealed between the ideal self and product choices. In this context, Malhotra (1988) suggests that the actual and ideal selves play distinct roles in the product and brand preferences. In this study, it is concluded that the ideal self is very useful as it concerns the consumers' house preferences that are the symbol of their status. Similarly, it is determined that the self-image congruence is very effective as it concerns the store image (Sirgy and Samli, 1985), brand preferences, brand attitude, purchasing intention (Graeff, 1996), and satisfaction of holiday destinations (Ekinci and Riley, 2003).

Furthermore, Dolich (1969) does not find an impact of the actual and ideal self on the product or brand preferences. Similarly, Gentry and Doering (1979), Shank and Langmeyer (1994) and Madrigal (1995) find that there is either no relationship or a very weak relationship between the self-image and product or brand image. Malhotra (1988) suggests that the reasons are that some errors in the determination of the effects of product or brand with personality preferences have occurred and some mistakes that have been made in the methodology or measurements. Moreover, the product preferences might not be suitable to define the self-preferences. Therefore, while making an evaluation, the self should not be described based on the product; instead, the product must be described based on the self (Ekinci and Riley, 2003).

As mentioned above, individuals reflect their ideal selves when they create avatars. Midha and Nandedkar (2012) investigate whether Second Life users perceive any similarity between their avatars and themselves identifiability or not. They find that a virtual team member uses an avatar that represents, he/she to enhance his/her identifiability in the team.

Researchers have also investigated self-concept in virtual worlds and about avatars. Wasko et al. (2011) claim that; "in most virtual worlds, an individual assumes an identity as an avatar, and he chooses or creates a representation of self" (p.648). Sung and Moon (2011) conducted a study to test whether there is a relationship between individuals' actual selves and their avatars' self or not. They find that avatars' and owners' personality ratings are a bit different from owners' actual selves. Additionally, Aguirre-Rodriguez et al. (2015) examine consumers' perceptions of how well a brand's personality matches their view of themselves in virtual words through the existence of similar or dissimilar avatars. In addition to these studies, Messinger et al. (2008) prove that people create avatars similar to themselves but somewhat more attractive and these people say that they are more outgoing, extraverted, risk-taking, and loud than their real selves.

This study differs from previous studies by focusing on the testing of congruence between participants' avatars and their self-images to analyse whether avatars are useful tools that enhance the self-concept of participants or not. Additionally, consumers' self-image congruence is not only explained in the context of virtual worlds, but it is also scrutinised in the contexts of their buying behaviours. In the scope of the study, we have chosen two competing cola drinks (Coca Cola and Pepsi) to measure the avatar-brand and self-image congruence. Based on the literature, we hypothesise that:

H1: There are differences in the self-image congruence between avatars' real self and avatars' owners real-self.

H2: There are differences in the self-image congruence between the users' perceptions of avatars real-self on Coca-Cola and Pepsi.

3 Methodology

3.1 Data collection and measurement development

We selected Turkish consumers as targeted sample. Turkish internet users are about 46 million with a share of 58% penetration of 80 million consumers while the World

internet users reached to 3.5 billion of which 1.3% are Turkish (see http://www.internetlivestats.com/internet-users/turkey).

A questionnaire was developed for data collection. A preliminary survey was carried out with 40 university students. Items were re-examined and updated based on the results, and the final questionnaire was developed. After that, the questionnaire was distributed on "İnci Sözlük" which is a popular social network website and on its social media channels in December 2016. Finally, 403 responses were gathered.

In the first part, three questions determined the participants' tendency to have an avatar. In the second part, four questions measured the actual self-image congruence between the avatars and owners. The self-congruence was evaluated by the condensed version of Big Five personality traits named as BFI-10 (Rammstedt and John, 2007) and Aaker's brand personality traits. Personality traits were prepared on a 7-point interval scale (1: strongly disagree and 7: agree). In the third part, participants were asked about their cola preferences and their avatar preferences matching with their preferred brand. Participants were given 30 avatars that consist of man-woman, nonhuman, and object. Avatars were also divided into cool-regular types as cool guys and regular guys. Lastly, demographic questions were included to collect data about the characteristics of the participants.

3.2 Measurement of self-image congruence

To measure the self-image congruence, the absolute differences method that has been used widely is chosen (Ericksen and Sirgy, 1992). The respondents are expected to evaluate the products or brands they choose in the scope of some personalities and preferences. Then, the self-image congruence of the consumers is determined by calculating the absolute differences between the products or brands and the self-concept. The $\mathrm{SICik} = \sum_{i=1}^{n} |\mathrm{Pi} - \mathrm{Si}|$ formula is employed to calculate the absolute differences (Sirgy, 1982). According to this formula; SICik is self-image congruence, Pi is product image and, Si refers to self-image, respectively. Lower congruence scores mean a higher congruence.

4 Findings

The demographic profiles of the respondents are given in Table 2. Table 2 shows that respondents mainly comprise of males and they are mostly 18–28 years old. Moreover, 89% of the participants are single, and 82.9% of them have some college degree. Lastly, most of the participants have at least 2000 Turkish Liras monthly income. As seen in Table 3, 92.3 % of the participants play the online games, and 66 % of them have an avatar in a virtual world.

After that, six different avatar types were given to the participants, and we wanted them to choose an avatar that best fit their avatar. Avatar types include general groups as human, non-human, and object because avatars can consist of wide range types of monsters or imaginary creatures (vampires or werewolf). Additionally, some avatars mostly look like an object, but they act like a human (anthropomorphising). To cover all kind of avatars, three main groups were created. The avatar type matrix is shown in Table 4.

Table 2 Demographic profiles of respondents

Demographic profile	*Frequency*	*%*	*Demographic profile*	*Frequency*	*%*
Gender			*Education*		
Male	376	94.8	Elementary and Middle School	2	0.5
Female	27	5.2	High School	67	16.2
Age			Some College	334	82.9
18–28	359	89.1	*Income (monthly)*		
29–39	40	9.9	2000 TL	284	70.5
40–50	4	1	2000–4000 TL	74	18.4
Current Status			4000–6000 TL	21	5.2
Married	41	10.2	6000–8000 TL	9	2.2
Single	362	89.8	8000+ TL	15	3.7
Total	403	100	Total	403	100

Table 3 Participants playing online games and having avatars

	Frequency	*%*
Do you play online games?		
Yes	372	92.3
No	31	7.7
Total	403	100
Do you have an avatar in your online games or a virtual world?		
Yes	266	66
No	137	34
Total	403	100

Table 4 Avatars types

Avatar types	*Human*		*Non-human*		*Object*		*Total*	
	Frequency	*%*	*Frequency*	*%*	*Frequency*	*%*	*Frequency*	*%*
Female	29	10.9	5	0.02	–	–	34	12.7
Male	158	59.3	31	11.6	9	0.03	198	74.4
No gender	3	0.01	11	0.04	20	7	34	12.7
Total	190	71.4	47	17.6	29	10.9	266	100

Table 4 shows that participants mostly prefer Human-Male avatars (59.3%) and followed by a Non-human male (11.6%) and Human-female avatars (10.9%). To get more information about participants' avatars including their attributes, participants chose the best avatars that reflect their avatar types. In this way, domain characteristics of their avatars (i.e. cool vs. regular personality) were obtained. Table 5 includes the results. Table 5 shows that participants mostly chose the regular man (34.6%), and secondly the cool man (33.5%) and thirdly cool non-human avatar types (16.32%).

According to the findings of Nowak and Rauh (2005), most people report a preference for human avatars that match with their real gender. To see participants' avatars gender and their real gender match, Chi-Square analysis was conducted. Results

are given Table 6. The participants' gender and avatars' gender matching were analysed by considering participants gender proportions because male participants are nearly 95% of the sample. Findings show that there is a relationship between participants' gender and their avatars' gender. Female participants mostly prefer man (40.7%) and non-human avatars (37%). On the other hand, male participants prefer mostly man avatars (71.1 %). Then it can be said that participants can prefer different avatar genders on their own genders. Especially female participants don not prefer same gender avatars.

Table 5 Avatars sample

	Frequency	*%*		*Frequency*	*%*
Cool Non-Human 	43	16.2	Cool Man 	89	33.5
Cute Non-Human 	13	4.9	Regular Woman 	11	4.1
Cool Woman 	28	6.8	Regular Man 	92	34.6
Total	266	100			

Table 6 Avatar types and participants gender

Avatars types	*Woman*		*Man*	
	Frequency	*%*	*Frequency*	*%*
Non-Human	10	37	46	19
Woman	6	22.2	23	9.6
Man	11	40.7	170	71.1
Total	27	100	239	100

Note: Chi-Square: 10.471; df: 2; *p*: 0.005.

4.1 Self-image congruence

Avatars and participants' self-image congruence were investigated based on the $\text{SICik} = \sum_{i=1}^{n} |\text{Pi} - \text{Si}|$ formula. SICik is self-image congruence, Pi is avatar's image and Si refers to participants' self-image. Lower congruence scores mean a higher congruence.

Table 7 Self-image congruence

Self-image congruence	*Avatars' self-image Pi*		*Persons' self-image Si*		*Absolute mean differences SICik*	*t*	*df*	*Sig.*
	Mean Avtr	*SD*	*Mean Prs*	*SD*				
Extraverted, enthusiastic	4.14	2.020	4.32	1.891	0.184	–1.356	265	0.176
Critical, quarrelsome	4.11	1.984	3.84	1.863	0.267	2.044	265	0.042
Dependable, self-disciplined	5.30	1.661	5.45	1.419	0.150	–1.334	265	0.183
Anxious, easily upset	2.49	1.663	3.53	1.851	1.041	–8.498	265	0.000
Open to new experiences, complex	5.14	1.646	5.09	1.655	0.049	0.458	265	0.648
Reserved, quiet	2.92	1.927	3.57	1.944	0.654	–5.112	265	0.000
Sympathetic, warm	4.56	1.881	5.07	1.539	0.511	–4.258	265	0.000
Disorganised, careless	3.16	1.928	3.79	1.919	0.635	–5.515	265	0.000
Calm, emotionally stable	3.96	2.074	4.77	1.805	0.808	–6.009	265	0.000

As seen in Table 7, participants' self-image and avatars' self-images are congruent at just extraverted, enthusiastic, dependable, self-disciplined, and open to new experiences, complex personality characteristics. When other characteristics are considered, avatars' and participants' self-image differ from each other. Lower congruence is seen at the anxious, easily upset, calm, emotionally stable, and reserved, quiet characteristics. Then it can be concluded that the first hypothesis of the study is accepted. It implies that the

participants identify their avatars as having different personal characteristics from their selves. In other words, the participants create avatars reflecting their ideal self- image. Thus, the participants' and avatars' characteristics are different.

4.2 Self-image congruence based on the Coke brands

The participants were asked whether they drink cola or not and about which kind of cola and which brand they prefer. Results are in Table 8.

Table 8 Participants' Cola prefer behaviour

	Frequency	*%*
Do you drink cola?		
Yes	245	61
No	158	39
Which type of cola do you prefer?		
Diet	26	6.5
Non-Diet-caffeine Free	2	0.5
Diet-Caffeine Free	11	2.7
Non-Diet	206	51.1
Which brand do you prefer?		
Coca-Cola	270	67
Pepsi	133	33
Total	403	100

Table 9 Avatars' types based on Cola brands

Avatar types	*Coca-Cola*		*Pepsi*		*Total*	
	Frequency	*%*	*Frequency*	*%*	*Frequency*	*%*
Cute Human	44	16.3	22	16.5	66	16.4
Cool Human	83	30.7	49	36.8	132	32.8
Cute Non-human	76	28.1	42	31.6	118	29.3
Cool Non-Human	59	21.9	14	10.5	73	18.1
Animal	8	3.0	6	4.5	14	3.5
Total	270	100.0	133	100.0	403	100.0

61% of participants drink cola, and 39% of them prefer non-diet cola and 67% of prefer Coca-Cola. In this part of the study, it is aimed to be investigated whether there is a difference between two groups of participants' avatar preferences based on the brand-image. The participants were given 33 avatars, and we wanted them to choose the best representation of their avatar for their preferred cola brand. These avatars were grouped into three main group; human, non-human, animal, and two subgroups as cool and cute. Table 9 shows the groups. Avatar types can be seen in detail in Appendix A.

Table 9 shows that the participants mostly choose the cool human and cool non-human avatars for their cola brand (32.8%; 29.3%). Additionally, two brands' users firstly prefer cool human (30.7–36.8%) and then cute non-human (29.3–31.6%). The chosen human character is a man, and non-human character is a red robot. It can be said that two brands are perceived as masculine but cool products.

Moreover, participants' self-image congruence was measured according to their cola brands to see whether there is a difference between users' self-image congruence regarding two brands or not. Firstly, Coca-Cola users' self-image congruence were measured by using Aaker's brand personality scale. Table 10 shows that Coca-Cola users' self-image congruence is very high for all the items except "Tough." This result indicates that perceived image of Coca-Cola is different from participants' self-image.

Table 10 Coca-Cola users' self-image congruence

Self-image congruence	*Coca-Cola's self-image Pi*		*Persons' self-image Si*		*Absolute Mean Differences SICik*	*t*	*df*	*Sig.*
	Mean	*SD*	*Mean*	*SD*				
Down-to-earth	6.22	1.220	5.88	1.289	0.341	–4.072	269	.000
Honest	6.23	1.059	5.87	1.350	0.359	–4.475	269	.000
Wholesome	5.76	1.331	4.83	1.553	0.937	–10.15	269	.000
Cheerful	5.89	1.531	5.05	1.616	0.841	–7.358	269	.000
Daring	5.47	1.612	4.47	1.764	1.004	–9.134	269	.000
Spirited	6.48	1.456	4.95	0.903	1.530	–16.92	269	.000
Imaginative	6.44	1.240	5.96	1.148	0.481	–5.672	269	.000
Up-to-date	5.80	1.333	5.43	1.528	0.367	–4.584	269	.000
Reliable	6.50	0.908	6.24	1.156	0.252	–3.189	269	.002
Intelligent	6.66	1.136	5.81	0.753	0.848	–11.71	269	.000
Successful	6.62	1.242	5.06	.839	1.563	–17.79	269	.000
Upper class	5.05	1.717	4.08	1.967	0.970	–8.940	269	.000
Charming	6.04	1.739	4.11	1.341	1.922	–17.17	269	.000
Outdoorsy	5.94	1.671	4.49	1.443	1.459	–13.65	269	.000
Tough	4.07	1.961	3.97	2.087	0.104	–0.840	269	.402

Table 11 shows that Pepsi Cola users' self-image congruence is low in the Down-to-earth, Honest, and Up-to-date items. This implication implies that Pepsi users perceive their image and Pepsi image in the same way regarding the honesty, being down-to-earth, and being up to date. However, other characteristics are found as different regarding Pepsi's and participants' self-image perceptions. As a result, it can be concluded that the second hypothesis is also accepted.

Table 11 Pepsi Cola users' self-image congruence

Self-image congruence	*Pepsi Cola's self-image Pi*		*Persons' self-image Si*		*Absolute Mean Differences SICik*	*t*	*df*	*Sig.*
	Mean	*SD*	*Mean*	*SD*				
Down-to-earth	6.07	1.292	5.81	1.468	0.256	–1.890	132	.061
Honest	6.20	1.131	5.96	1.496	0.241	–1.759	132	.081
Wholesome	5.72	1.535	4.98	1.785	0.744	–4.695	132	.000
Cheerful	5.69	1.640	4.91	1.634	0.782	–4.776	132	.000
Daring	5.36	1.619	4.26	1.794	1.098	–6.905	132	.000
Spirited	6.42	1.442	4.81	1.009	1.609	–11.17	132	.000
Imaginative	6.51	1.229	6.08	1.210	0.436	–3.227	132	.002
Up-to-date	4.95	1.553	4.86	2.065	0.090	–.651	132	.516
Reliable	6.65	.914	6.31	1.060	0.338	–2.984	132	.003
Intelligent	6.76	1.226	5.69	.770	1.068	–9.662	132	.000
Successful	6.67	1.421	4.69	.868	1.977	–13.49	132	.000
Upper class	4.10	1.767	3.30	2.201	0.797	–4.853	132	.000
Charming	5.60	1.820	3.77	1.562	1.827	–12.08	132	.000
Outdoorsy	5.56	1.748	4.11	1.662	1.451	–8.786	132	.000
Tough	3.76	1.863	4.14	1.951	0.383	2.188	132	.030

5 Discussion

The primary results of the study indicate that participants mostly have avatars in virtual worlds, and they prefer male-human avatar characters especially they favour cool and regular male ones. Nowak and Rauh (2005) find that participants perceive masculine avatars as less attractive than feminine avatars and they mostly prefer avatars that matched with their genders. On the contrary, our findings show that male avatars are more attractive than female and anthropomorphic avatars, and the participants mostly prefer male avatars even their genders are female. This result may reflect cultural characteristics.

Bélisle and Bodur (2010), Dunn and Guadagno (2012), and Fong and Mar (2015) find that individuals create their avatars regarding perceived accurately characteristics like to be attractive or agreeableness. Bélisle and Bodur (2010) indicate that avatars are a proxy for people's personalities and lifestyles. Sung and Moon (2011) find that avatar's and owner's personality traits differ from each other. This paper supports previous studies, and it implies that there is not a self-image congruence between avatars and participant self-image. The results indicate that the participants use avatars to reflect their ideal self-images. In this sense, avatars can be considered as useful tools to enhance individuals' self-image.

When participants were asked to choose the best avatar that reflects their preferred cola brands, they chose cool-man and cool non-human avatar for both Coca-Cola and Pepsi brands. It might imply that consumers choose avatars according to the brands'

personality. Additionally, Coca-Cola and Pepsi are perceived as dynamic, fun, young and energetic products so; cool human and non-human (robot) avatars match with the brands' images.

The results reveal that there is a different self-image congruence between brands and people's self-image perceptions. Sirgy and Samli (1985) indicate that consumers can reflect their ideal selves through product preferences to reach the life they desire. In this case, there is a positive relationship between the ideal self and product preferences. We may say that participants benefit from cola brand images to reflect their ideal self, and avatars are useful symbolic tools for consumers to reach and reflect their ideal self-image.

Bélisle and Bodur (2010) recommend the companies to consider virtual worlds and use avatars targeting and segmenting their markets. Wood and Solomon (2008) argue the digital brand personality, and they recommend that when a marketer conveys brand personality in the digital world, he must be careful about the manipulation of marketing mix elements, particularly those communicated visually. Additionally, this study recommends that companies should utilise the avatars to support their brand personalities, to reach their target market, and they should be careful about national cultural characteristics. For example, in some markets, animal avatars may not be acceptable.

Hanus and Fox (2015) claim that virtual salesperson avatars are more persuasive, especially avatars that consumer customise. Consumers have more liking score when they interact with customised salesperson's avatars. Then it can be said that avatars provide advantages to companies to communicate with international markets that ensure standard global service quality, and building trust managing cross-cultural conflict even if there is not a face-to-face communication.

6 Conclusions and recommendations

It is obvious that people including consumers prefer to use avatars in virtual worlds to improve their real self and to gain an ideal self-concept. In parallel, this study addresses the problem of whether avatars are useful tools to enhance the self-concept and whether they play a role in virtual worlds in the context of consumer self-image or not. Thus, the study analyses congruence between users' avatars and their self-images in the context of virtual worlds additional to the context of consumer buying behaviour.

In the context of virtual worlds, the results indicate that users prefer human-male, non-human male, and human-female avatars, respectively. Additionally, they mostly prefer a regular man, cool man, and cool non-human avatar types regarding personality characteristics. The study results also state that while males choose man avatars, females prefer man and non-human avatars. When users' self-image and avatars' self-images are compared, the results highlight that some of the personality characteristics including extraverted, enthusiastic, dependable, self-disciplines, open to new experiences, and complex indicate congruency between the users' self-image and avatars' self-images. However, these both self-images also differ from each other regarding other personality characteristics.

On the other hand, in the context of consumer buying behaviour, consumers prefer cool human and cool non-human avatars for their cola brand, respectively. The mostly chosen human character is a man and non-human character is a red robot. This result

states that users perceive Coca-Cola and Pepsi as masculine but cool products. Additionally, the results show that users perceive images of Coca-Cola and Pepsi as different from their own self-images.

In summary, if brands want to reach their consumers in virtual worlds, it is recommended that they should mostly concentrate on cool human avatars and they should also consider human-male avatars to take the attention of their consumers. Additionally, they should determine the personality characteristics of avatars along with their brand strategies. In this sense, marketers can design and tailor their advertising, promotions, and product programs and offerings to better appeal to these consumers

7 Limitations and future directions

The aim of the study is to determine whether avatars have a role in enhancing self-image concept both in virtual worlds and consumer buying behaviour or not. The study is conducted in Turkey then the results cannot be generalised. Therefore, similar studies need to be done in diverse cultures. High/Low Contexts Cultures and Hofstede's methodology on cultures may be used to see whether similarities of avatar choices and uses in similar cultures are in general or not.

Additionally, this study focuses on two cola brands (Coca-Cola and Pepsi). Different product and service categories may be examined whether consumers prefer avatars as a symbol of a product personality for further research. Lastly, further research can test other psychographic variables like values or lifestyles (i.e. comparing avatars and owners' values and lifestyles).

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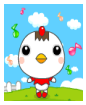
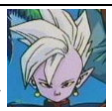
Appendix A: Avatars samples

	Coca-Cola		Pepsi			Coca-Cola		Pepsi	
	Frequency	*%*	*Frequency*	*%*		*Frequency*	*%*	*Frequency*	*%*
1 	7	2.5	1	0.7	12 	–	–	–	–
2 	20	7.4	5	3.7	13 	–		–	–
3 	4	1.4	8	6	14 	1	0.3	1	0.7
4 	2	0.7	4	3	15 	–	–	–	–
5 	9	3.2	4	3	16 	1	0.3	2	1.5
6 	42	15.5	18	13.5	17 	2	0.7	2	1.5
7 	23	8.5	9	6.7	18 	3	1.1	–	–
8 	10	2.7	5	3.7	19 	2	0.7	–	–
9 	2	0.7	2	1.5	20 	1	0.3	–	–
10 	16	5.9	–	–	21 	5	1.2	3	2.2
11 	3	1.1	3	2.2	22 	2	0.7	2	1.5

Appendix A (continued)

	Coca-Cola		*Pepsi*			*Coca-Cola*		*Pepsi*	
	Frequency	*%*	*Frequency*	*%*		*Frequency*	*%*	*Frequency*	*%*
12 	–	–	–	–	23 	1	0.3	2	1.5
13 	–		–	–	24 	2	0.7	1	0.7
14 	1	0.3	1	0.7	25 	50	18.5	22	16.5
15 	–	–	–	–	26 	15	5.5	13	10
16 	1	0.3	2	1.5	27 	1	0.3	4	3
17 	2	0.7	2	1.5	28 	13	4.8	6	4.5
18 	3	1.1	–	–	29 	2	0.7	–	–
19 	2	0.7	–	–	30 	7	2.5	5	3.7
20 	1	0.3	–	–	31 	3	1.1	3	2.2
					32 	–	–	–	–
					33 	21	7.7	8	6
Total	270	100	133	100	Total	270	100	133	100