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To cite this article: Daniëlle N. M. Bleize & Marjolijn L. Antheunis (2019) Factors influencing purchase intent in virtual worlds: a review of the literature, Journal of Marketing Communications, 25:4, 403-420, DOI: [10.1080/13527266.2016.1278028](https://doi.org/10.1080/13527266.2016.1278028)

To link to this article: <https://doi.org/10.1080/13527266.2016.1278028>



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Published online: 12 Jan 2017.



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# Factors influencing purchase intent in virtual worlds: a review of the literature

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## ABSTRACT

Previous empirical studies have identified several factors that seem to play a role in determining purchase intent in virtual worlds; three-dimensional online environments in which users interact while represented by their avatars. So far however, a clear overview of these factors is lacking, and the question that remains is what factors affect purchase intent most. Therefore, this study aims to create an overview of factors that influence users' purchase intent in virtual worlds, and to subsequently identify the most influential factors. To conduct this review, relevant literature was gathered using a variety of search engines and keywords. An article had to explicitly study factors influencing purchase intent in virtual worlds in order to be included in this review. This search method resulted in a selection of twelve relevant articles that were used for further analysis. Results show that perceived enjoyment, social influence, customization and ease of use are important factors that influence purchase intent in virtual worlds. Enjoyment of the virtual world, beliefs and attitudes of others, avatar customization, and easy-to-use virtual world applications can thus increase users' willingness to purchase products in the virtual world. Practical implications as well as limitations and suggestions for future research are discussed.

## ARTICLE HISTORY

Received 20 April 2016  
Accepted 24 December 2016

## KEYWORDS

Virtual worlds; purchase intent; Second Life; advertising; marketing

## Introduction

Over the past few years, virtual worlds have become increasingly popular (Barnes, Mattson and Hartley 2015). These three-dimensional online environments simulate the real world (Barnes 2007) and two main types of virtual worlds can be distinguished. On the one hand there are virtual social worlds, and on the other there are virtual game worlds, with the main difference being a lack of self-representation (the extent to which users can represent themselves) and self-disclosure (the extent to which users can disclose personal information) in virtual game worlds compared to virtual social worlds (Kaplan and Haenlein 2010). Within virtual worlds, users can do many things: they can build their own avatars, go and watch a movie, grab a coffee, buy and own land, create customizable objects, interact with other users, and buy, trade, and sell virtual goods using local currency (Barnes 2007). Some users

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are even successful enough to make 'real-life' money by selling their own virtual products in virtual worlds and receiving actual money in the real world. (Kaplan and Haenlein 2010).

The growth in popularity of virtual worlds has led to the development of a multitude of three-dimensional online environments. *Second Life*, one of the most popular virtual worlds, currently has 900,000 active monthly users, a virtual economy worth more than \$500 million (Weinberger 2015), and is still growing with 10,000 new users daily ('Second Life Statistics – 2016 Update', Voyager 2016). *World of Warcraft*, that holds the Guinness World Record for most popular Massively Multiplayer Online Role Playing Game (MMORPG; Activision Blizzard 2016) has 5.5 million active subscriptions as of September last year ('WoW Subscription Numbers', Statista 2015) and has grossed more than \$10 billion in the US (Douglas 2012).

What may explain virtual worlds' success is that they allow companies to sell virtual products to real-life people. Virtual worlds are rich media that can generate high feelings of presence and interactivity, which makes them excellent platforms for commercial development and allows for unique ways of marketing (Lui, Piccoli, and Ives 2007). Many brands have already acknowledged the importance of virtual worlds and have since established brand presence. Prominent brands present in virtual worlds include *Philips*, *Adidas*, *Heineken*, and *Toyota*. By setting up virtual flagship stores, advertising in virtual malls (e.g. billboards) and sponsoring interactive events, brands can make use of the marketing potential of virtual worlds (Kaplan and Haenlein 2009a) in order to sell their virtual products to users. Most unique about these marketing techniques in virtual worlds is that users can experience products before (or without) purchasing them in their real-lives, possibly generating more favorable attitudes toward brands and increasing users' intent to purchase products in the virtual world (Kaplan and Haenlein 2009a; Schlosser 2003).

The ultimate goal of every commercial company is to increase sales. In order to sell more products, brands need to find and employ the most successful marketing strategies, which include conquering newer marketing channels such as virtual worlds. Getting a grasp of the factors that influence users' intent to purchase products in virtual worlds can help brands with establishing the most effective strategy. Previous research has identified a number of factors that influence purchase intent in virtual worlds. For example, Guo and Barnes (2012) found that advancement in the game (i.e. the extent to which users seek to increase their game level or goals in the game through the use of virtual products), customization (i.e. to what extent users can customize their avatars or can manipulate the virtual world) and perceived enjoyment of the virtual world play an important role in determining purchase intent of in-game products of users in *World of Warcraft*. In *Second Life*, factors such as effort expectancy (i.e. users' expectations of the benefits of purchasing virtual products compared to the efforts or costs required), performance expectancy (i.e. users' expectations of how virtual products may help them to perform better in the game), perceived value (i.e. users' assessment of the value of a virtual product, in terms of monetary value or non-monetary effort), have been identified as influencing the extent to purchase products in the virtual world (Guo and Barnes 2011). Telepresence (i.e. users' experiences of feeling intensely present or immersed in the virtual world, although the environment in fact is very remote and artificial), social presence (i.e. feeling personally connected with other users in the virtual world), and flow (i.e. how compelling users find the virtual world and how involved they are within it) also seem to be important determinants for purchase intent in virtual worlds (Animesh et al. 2011).

Although ample research has been conducted on virtual worlds, there is no clear overview yet of the factors that influence users' intent to purchase products within virtual worlds. By

giving an overview of these factors in different types of virtual worlds, we are able to determine how players' purchase intent can be increased, also allowing marketers in this field to develop effective marketing strategies. For researchers interested in virtual world marketing as well as brands aspiring to increase sales, an overview of these factors is necessary. Therefore, the goal of this literature review is to provide an overview of the factors that influence purchase intent in virtual worlds, and to subsequently identify the most influential factors.

### **Defining virtual worlds**

The term 'virtual world' has been used in previous research in many different contexts with many different meanings (Barnes 2007; Kaplan and Haenlein 2009b; Kock 2008; Lui, Piccoli, and Ives 2007). In order to avoid misunderstandings regarding the meaning of the term, Bell (2008) came up with a single definition. Based on prior influential definitions, Bell (2008) designed a combined definition that focuses on the key elements of virtual worlds. He defines a virtual world as 'a synchronous, persistent network of people, represented as avatars, facilitated by networked computers' (2).

Virtual worlds are synchronous in communication because users have a sense of 'common time' that allows for the coordination of activities (Bell 2008). Communication is thus ongoing and there is virtually no delay in interaction. Virtual worlds are also persistent (Bell 2008), because they cannot be paused and continue to exist after a user has stopped playing. Unlike games such as *Super Mario World*, virtual worlds are not 'turned off' when a user leaves the game. Within the virtual world, people are represented as avatars, which are digital representations controlled by people in real-life. Depending on the type of virtual world, a digital representation can be very similar to the actual user, somewhat different, or completely different (e.g. a cat or a wizard). Bell (2008) explains that avatars function as puppets. The user himself controls the actions of the avatar, but it is the avatar that executes these actions.

In line with Bell's definition of a virtual world, there are three key characteristics of virtual worlds that differentiate them from other social media and provide a further understanding of the meaning of virtual worlds (Kaplan and Haenlein 2009b). First, users can interact with others in real-time, so-called synchronous communication. Second, they allow users to create avatars that are customized digital representations of themselves. Third, users can explore the virtual world in three dimensions. These three characteristics are consistent with the definition provided by Bell (2008) and this definition of virtual worlds will thus be employed in this review.

Users can typically perform a wide variety of activities within virtual worlds. They can often create virtual content, such as houses and gardens (Kaplan and Haenlein 2009a), buy land, join communities and groups and interact with others using instant messaging, body gestures or voice (audio) communication (Barnes 2007). Some virtual worlds have their own virtual currency, whereas in others, the economy is based on real currency. For example, the virtual world *Habbo Hotel* has its own virtual currency: *Habbo Coins*. This world revolves around a hotel theme, where users have private guest rooms that they can decorate with furniture. They can then explore the hotel world, visit others' rooms and interact with others. Many years after its launch in 1999, *Habbo Hotel* still has about 280 million registered users (Barnes, Mattsson, and Hartley 2015). *Active Worlds* is a virtual world that emphasizes building sophisticated virtual environments for others to visit (Dickey 2005; Kaplan and Haenlein

2009b). In this virtual world, users can also shop in virtual reality stores using real currency. A different virtual world, *RuneScape*, allows users to create a human avatar, complete quests (in-game missions to find virtual objects or people in order to increase in-game level or skills) and train their avatar in various skills such as fighting, cooking, mining, fishing, and magic – all while exploring the virtual world of *Gielinor* (Messinger et al. 2009). The economy in *RuneScape* revolves around in-world trading and coins that can be bought with real currency.

Virtual worlds thus allow users to basically do everything that is possible in real-life and more; talking to others, watching a movie, going out for lunch, and slaying dragons (Barnes 2007). Subsequently, they allow users to create, buy and sell virtual products using real currency or virtual currency developed for the world (Guo and Barnes 2011). Some users are even successful enough to make real-life money by conducting business in virtual worlds such as *Second Life* (Kaplan and Haenlein 2010). However, not all virtual worlds offer their users the same possibilities. Therefore, a distinction between two types of virtual worlds must be made: virtual social worlds and virtual game worlds.

According to Kaplan and Haenlein (2010), both virtual social worlds and virtual game worlds score very high on social presence. This means that virtual worlds are intimate and immediate (synchronous) and allow users to influence each other's behavior. Furthermore, both types of virtual worlds score high on media richness, indicating that a multitude of information can be transmitted through the medium and can effectively be processed by others (Lui, Piccoli, and Ives 2007). In fact, the main difference between these two types of virtual worlds is that in virtual game worlds, users have to behave according to set rules in the context of the game – which limits self-representation and self-disclosure opportunities – whereas in virtual social worlds, users can behave more freely as there are virtually no rules restricting interactions (Kaplan and Haenlein 2010). This implies that different marketing strategies may be required of marketers to obtain fruitful outcomes.

### **Commercial development in virtual worlds**

The high degree of social presence and media richness in virtual worlds, makes them excellent venues for corporate use, because users feel more 'present' in the virtual world and perceive more cues in their virtual surrounding than they do on other online communication platforms (Kaplan and Haenlein 2010). This thus allows for enhanced modes of marketing that touch on experiences in real-life, such as virtual stores or events. The often already implemented systems for in-world trading and online virtual stores add to virtual worlds' relevance for the business market (Lui, Piccoli, and Ives 2007). It thus seems to be evident that virtual worlds can be important for marketing.

As of yet, many prominent brands have already established brand presence in virtual worlds. Brands such as *Adidas*, *Mercedes Benz*, *Microsoft*, and *Calvin Klein* have created billboards and advergames, been on the virtual radio, organized interactive events, established brand flagship stores and much more (Atli and Can 2015). These brands have already recognized the importance of virtual worlds as channels to communicate with consumers and to share their products with potential buyers. Virtual worlds enable enhanced modes of marketing, making them unique, interesting and important channels for commercial development (Barnes, Mattsson, and Hartley 2015).

Some users even consider *Second Life* as an extension of their real-life (Kaplan and Haenlein 2009a), which illustrates how high perceived social presence can actually be, and how virtual worlds can become integrated in individuals' personal lives. Companies can thus create consumer experiences that are very alike to what they experience in real-life. The ability of virtual worlds to simulate shopping experiences that consumers have in real-life, may subsequently help to enhance product knowledge, product attitude and purchase intent of consumers in the virtual world (Lui, Piccoli, and Ives 2007). A study by Li, Daugherty, and Biocca (2002) has shown that 3D advertising can enhance presence, and subsequently positively influences product knowledge, brand attitude and purchase intent of users. Furthermore, Schlosser (2003) conducted a series of experiments in which she showed that object interactivity – which allows users to directly manipulate objects in a virtual world – in advertisements, leads to higher in-game purchase intentions than when the same information is delivered passively.

Virtual worlds thus allow for enhanced marketing and can therefore be of great value for marketers. In their paper on virtual social worlds, Kaplan and Haenlein (2009b) identify three different ways in which companies can market in virtual worlds such as *Second Life*: setting up flagship stores, advertising in virtual malls or buildings (e.g. virtual billboards) and sponsoring events in the virtual world (e.g. musical performances, movies, and videos). In a study on flagship brand stores within virtual worlds, Haenlein and Kaplan (2009) showed that there is a significant positive relationship between consumers' attitudes toward flagship stores in *Second Life*, and their attitudes toward the brand in real-life, illustrating that presence in virtual worlds can support companies' marketing strategies. Potential marketing in virtual worlds thus includes opening virtual stores, advertising in public spaces, organizing events, but also product placements of objects, appearing on the radio and interactive techniques such as advergames (Barnes 2007).

All in all, virtual worlds in general offer a very diverse range of marketing techniques. Moreover, most virtual worlds already have a firm basis for commercial development in the form of in-world trading systems using either real or virtual currency, making it all the more interesting for brands to include virtual worlds in their marketing mix. However, the question that remains, is *what exactly affects consumers' intent to purchase virtual products?* Without understanding why consumers buy, brands will struggle with determining their most effective marketing strategy. Therefore, an understanding of the factors that influence purchase intent of virtual products in virtual worlds is needed.

### ***Theory on purchase intent and its antecedents***

Several important theories illustrate how the intent to purchase products in virtual worlds is influenced (Guo and Barnes 2007). First, the Theory of Planned Behavior (TPB; Ajzen 1991) is an influential theory in the field of marketing communication and consumer behavior that links the beliefs that individuals have, to their behavior. TPB describes that a consumer's behavioral intention is determined by three factors: attitude toward the behavior, subjective norms, and perceived behavioral control (Ajzen 1991). According to this theory, a predefined positive or negative attitude that consumers have toward purchasing virtual products in the virtual world, influences their purchase intent. Furthermore, the norm that is set by others (so whether others do or do not purchase virtual goods) and the perception of how easy it is to buy products in the virtual world, influence purchase intent as well.

Second, the Technology Acceptance Model (TAM; Davis 1989) also focuses on factors that influence behavioral intentions. Although TAM has its origins in information systems, the theory is also used in the field of marketing communications to explain consumer behavior (e.g. George 2002; Guo and Barnes 2009). TAM differs from TPB in that it identifies different factors as influencers of a behavioral intention. TAM focuses on two factors – perceived usefulness and perceived ease of use – that together determine an individual's behavioral intention (Davis 1989). In the case of purchase intent in virtual worlds, perceived usefulness describes the extent to which an individual believes that purchasing products in the virtual world will enhance his or her performance in the game, whereas perceived ease of use refers to how effortful individuals think purchasing virtual products is (Davis 1989). More specifically, perceived usefulness refers to users' beliefs about whether purchasing virtual products will help them perform better in the game, for example purchasing a sword that increases their combat skills. Perceived ease of use, in contrast, refers to users' beliefs about whether the benefits of purchasing virtual products outweigh the efforts made to do so.

Third, in accordance with both the TPB and the TAM, the Unified Theory of Acceptance and Use of Technology (Venkatesh et al. 2003) revolves around three important factors that determine behavioral intention. Based on various constructs, Venkatesh et al. (2003) identified these three factors: performance expectancy, effort expectancy, and social influence. In the context of virtual worlds, performance expectancy refers to the extent to which users believe that purchasing virtual products will help them to perform better in the game, similar to perceived usefulness in the TAM. Effort expectancy on the other hand, describes how easy individuals perceive purchasing virtual products in the virtual world to be, as does the ease of use construct. Finally, social influence refers to users' beliefs about whether others think they should or should not purchase virtual products.

Fourth, the Theory of Consumption Values (Sheth, Newman, and Gross 1991) explains – contrary to the three theories described in the previous section – how consumers choose products and brands based on five consumption values (functional, emotional, social, epistemic, and conditional) that together determine why we buy things. The first value, functional value, is related to functions of the product, for example the functionality of a virtual item such as a desk in a virtual world (to put things on). Emotional value refers to characteristics of the product that affect consumers' feelings. Acquiring a chair that is similar to one that someone has in real-life, can increase users' affect. Characteristics of a product or brand that create connections between consumers and the product/brand are social values, as friends or other users may purchase the same virtual products. Furthermore, epistemic values are related to characteristics that elicit feelings of curiosity in consumers, for example how purchasing furniture can be enjoyable. Finally, conditional values are characteristics that create value only under specific circumstances (Ho and Wu 2012), for example that purchasing new furniture allows users to invite other avatars to their home. Together, these values can be used to describe, explain and predict consumer behavior.

Finally, Flow theory (Csikszentmihalyi 1990; Domina, Lee, and MacGillivray 2012) explains how people can get completely immersed in an activity to the point where they are unaware of anything happening around them. According to Flow theory, shopping in virtual environments – or in this case: in virtual worlds – can elicit a state of flow, in which consumers keep on browsing and eventually purchase products. Flow theory originally consisted of nine dimensions, but is often measured using less constructs. Koufaris (2002) measured flow using three influential constructs: perceived enjoyment, perceived control, and perceived



concentration. Perceived enjoyment refers to the extent to which a virtual world is perceived as enjoyable or fun, perceived control is the level of users' control over the virtual world, and perceived concentration describes how intense users' focus is on a certain task.

All of the factors described by these theories seem to play a role in determining purchase intent in virtual worlds. However, as of yet, a review of the empirical research on the factors that influence purchase intent in virtual worlds, has not been provided. Therefore, the research question of this literature review is: What factors influence purchase intent in virtual worlds and which factors are most influential?

## Literature search and procedures

In order to conduct a review, relevant literature was gathered, studied, and compared. Different digital search options were used to find this literature. First, the search engines of Google Scholar, Web of Science, Science Direct, Wiley Online Library, and WorldCat Discovery of Tilburg University were used to collect relevant articles. The keywords that were used were 'virtual worlds purchase intent,' 'virtual worlds purchase intent factors,' 'advertising virtual worlds,' 'virtual game worlds advertising,' 'virtual social worlds advertising,' 'virtual worlds buying,' and 'virtual worlds brand attitude.' Second, more relevant articles were sought via the reference lists of the articles that were found initially.

To be included as relevant in this literature review, an article had to explicitly study factors that influence purchase intent in virtual worlds. This requirement led to a selection of a total of twelve relevant articles which will be used for the further analysis (see Appendix 1 for an overview).

## Results

This literature review aimed at providing an overview of the empirical research on the factors that determine users' purchase intent in virtual worlds. Twelve studies have been conducted that focus on the factors that influence users' intent to purchase virtual products in virtual worlds (see Appendix 1). The results of these studies will be used to answer the research question.

One of the first studies on the factors that influence purchase intent in virtual worlds, was an exploratory study conducted by Guo and Barnes (2009). The study employed four focus groups in a semi-structured interview format. Participants were recruited from various popular virtual worlds in China, including *World of Warcraft*, *Zhengtu*, and *Popkart*. The key determinants mentioned by participants were analyzed, assessed, and eventually categorized according to three overarching themes.

The first theme that the researchers identified encompassed motivations to purchase virtual items in virtual worlds. Perceived enjoyment, character competency (i.e. how competent the users' avatar is in terms of game level or in-game achievements), and the requirements of quest systems (i.e. what users need to do to complete a quest or goal in the game) were determinants of how motivated users are to pursue purchasing items in virtual worlds. The second theme represented why players purchase items in virtual worlds – or in other words – what concretely affects their purchase intent. Key factors mentioned here were effort expectancy, performance expectancy, quality of the virtual world (i.e. quality of the content in the game and quality of the purchasing platforms), social influence, personal real

resources (i.e. users' own resources in terms of time and money), and virtual item resources (i.e. extent to which virtual items are available or affordable). The third and final theme identified was what things players are most concerned with when purchasing products in virtual worlds. Important determinants identified for this concern were social influence, trust and perceived profit-making opportunities.

Ho and Wu (2012) empirically investigated various types of virtual worlds. They asked users of role-playing games (that focus largely on social interactions between users) and users of war-strategy games (that focus on strategic interactions) to fill in an online questionnaire in order to study their intent to purchase products in virtual games. Their data indicated that the two types of game users are influenced by different factors. Price utility (i.e. how reasonable users perceive the price of virtual products to be), esthetics and social relationship support seemed to increase purchase intent in role-playing games, whereas purchase intent in war-strategy games was determined by satisfaction with the game, identification with the character and character competency.

A recent study that also focused on various types of virtual worlds is the study by Hamari (2015). He investigated users' willingness to purchase virtual goods. Three respondent groups were asked to participate in the study: social virtual world users (*Habbo Hotel*), first-person shooters, and social networking gamers. The results showed purchase intent was positively influenced by subjective norms and attitude toward buying virtual goods. This study furthermore showed that, across all respondent groups, enjoyment of the game in fact reduced users' intent to purchase virtual goods, but increased the willingness to play more of the game at the same time.

Unlike Ho and Wu (2012) and Hamari (2015), other researchers solely studied users' intent to purchase virtual products in virtual social worlds. Jin (2009) found that individual differences between consumers played a role in determining purchase intent in a virtual social world. She conducted an experiment in *Second Life* in which the effects of the modality of presentation (text vs. audio) and consumers' product involvement (high vs. low) on product attitude, purchase intent and perceived interactivity of the virtual world were examined. The results illustrated that high product involvement positively influenced attitude, intent to purchase virtual goods in the virtual world and perceived interactivity. The more a consumer was involved with a product, the higher the consumer's intent to purchase virtual products thus was.

Shelton (2010) studied user motivations for playing *Second Life* and addressed how these motivations influenced both virtual and real-world purchasing behavior and the type of products purchased. A web-based questionnaire was used to measure users' motivations and purchase intent in the virtual world as well as intent to purchase products in real-life. A trichotomy was made based on user differences in motivations for using *Second Life*. The study showed that identity-motivated users emphasize customization, fantasy and role-playing and these users are more likely to purchase apparel and appearance products. For social/entertainment motivated users, escapism, relationships, relaxation, and socialization are important determinants. These users purchase more recreational/entertainment products. Finally, achievement-motivated users are more focused on advancement/challenge and competition and thus are more likely to purchase business products. The study thus showed that different determinants are relevant in determining the intent to purchase different products. Furthermore, this study illustrated that various motivations predict to what extent users intent to buy products in the virtual world. Moreover, the study also

showed that these patterns are the same for the intent to purchase these products in real-life. User motivations thus affect purchase intent both inside and outside the virtual world.

As a follow-up to their exploratory study, Guo and Barnes (2011) empirically investigated purchase behavior in *Second Life*. They conducted a survey with various factors as independent variables and intent to purchase virtual products and actual purchase as dependent variables. Results showed that purchase intent was positively influenced by extrinsic as well as intrinsic motivators. The three extrinsic motivators identified were effort expectancy, performance expectancy, and perceived value and these positively influenced purchase intent. In addition, two intrinsic motivators, perceived enjoyment and customization, positively influenced purchase intent as well, whereas advancement in the game negatively influenced purchase intent. Contrary to what they found in their exploratory study (Guo and Barnes 2009), social influence did not seem to predict purchase intent in the virtual world.

In accordance with Guo and Barnes (2009) exploratory study and other research, Domina, Lee, and MacGillivray (2012) found that users' perceived enjoyment and perceived control are strong, positive predictors of purchase intent in *Second Life*. However, no significant effect of perceived ease of use on purchase intent was found, thus the researchers could not conclude that ease of use influenced purchase intention in *Second Life* as well.

Contrary to the findings by Domina, Lee, and MacGillivray (2012) in *Second Life*, Mäntymäki and Salo (2011) did find a significant effect of perceived ease of use on purchase intent in *Habbo Hotel*, a game very popular among teenagers. By conducting a survey among users in the virtual world, Mäntymäki and Salo (2011) found that purchase intent was positively predicted by the continuous use intention that users had. This intention was predicted by both perceived enjoyment and perceived usefulness, which were in turn influenced by perceived aggregate network exposure (perceived presence of other users) and perceived ease of use. Thus, an easier-to-use virtual world and a larger perceived network size made the virtual world more enjoyable and useful, made it more likely that users would continue to use the virtual world and thus increased purchase intent. A second, more recent study on *Habbo Hotel*, also conducted by Mäntymäki and Salo (2013), revealed that purchase intent in the virtual world was primarily predicted by perceived network size. Furthermore, consistent with other studies, perceived enjoyment and perceived usefulness were positively related to purchase intent. A third relevant factor identified by the researchers was challenges in availability of the virtual world (for example due to quality of the Internet connection), which was (surprisingly) positively related to purchase intent.

The desire that people have for online self-representation is another factor called upon by researchers to influence purchase intent (Kim, Chan, and Kankanhalli 2012). According to Kim, Chan, and Kankanhalli (2012), self-efficacy (i.e. users' beliefs in their ability to control their own behaviors), self-presentation norms (i.e. social 'rules' in the group regarding self-representation, according to which users are expected to behave), and involvement in the virtual worlds *Habbo Hotel* and *Cyworld* significantly affect users' desire for self-presentation, which in turn predicts users' intent to purchase virtual products. Building on survey data, they confirmed both these claims.

Shang, Chen, and Huang (2012) examined users' reasons for purchasing symbolic virtual products (items solely used for decoration) in a Taiwanese virtual world called *iPart*. Both emotional and social values appeared to be important reasons for purchasing these products, but the effect was largest for emotional value. Additionally, the researchers' data showed a link between anonymity and purchasing behavior: users who were anonymous purchased

solely for emotional reasons, whereas users who were non-anonymous purchased products for emotional as well as social reasons.

Finally, most of the studies in our review focused on virtual social worlds. However, Guo and Barnes (2012) also studied purchase intent in a virtual game world: *World of Warcraft*. Like in their 2011 study on *Second Life*, they administered an online questionnaire through the virtual world. Their study showed that advancement in the game and customization of the avatar are strong predictors for purchase intent. Furthermore, perceived enjoyment, perceived value, effort expectancy, and perceived social status also positively influenced purchase intent.

## Conclusions

The aim of this review was to provide an overview of the factors that influence intent to purchase virtual products in virtual worlds, and to subsequently identify the most influential factors. Current research has identified four overarching factors that are of importance. Of the twelve studies discussed in this review, seven examined and identified perceived enjoyment as a factor that positively influences the intent to purchase virtual products in virtual worlds. A major reason why many users participate in virtual worlds is thus entertainment. Users seek entertaining, exciting, relaxing activities that might even help them escape from reality. They want to be engaged in something they actually enjoy and it is important that they can experience fun and enjoyment while in the game. As explained by Flow theory (Domina, Lee, and MacGillivray 2012), a highly enjoyable game can elicit a state of flow in which consumers get so immersed that they are no longer aware of anything happening around them. Like how you can lose track of time while shopping for clothes online, virtual world's users can keep playing and playing the game, and are subsequently more likely to purchase products in the virtual world. Enjoyment thus seems to be the most important thing that users look for in virtual worlds. Moreover, the more they enjoy the game, the more willing they are to actually purchase products in the game (Guo and Barnes 2011).

A second important factor is social influence. Ten studies investigated the role of social influence, of which seven found significant, positive effects. These studies show that social influence, subjective norms, relationships, and social values influence users' intentions to purchase virtual products. The beliefs that users hold about other users' attitudes toward buying products in virtual worlds, influences their willingness to purchase these products themselves. The more positive users perceive others to be, the more positive their own purchase intent will be (Hamari 2015). These findings are in line with various theoretical models, such as the TPB (Ajzen 1991) and the UTAUT (Venkatesh et al. 2003), which have illustrated that other people around us can play a great role in influencing behavior. In accordance with these theories, social influence thus proves to be a factor to take into account when trying to sell virtual products in virtual worlds.

Customization is a third important factor, identified in four out of four studies that took this factor into account. Within virtual worlds, users create avatars with which they subsequently 'live' in the game. Whether it is in virtual social worlds (Shelton 2010) or in virtual game worlds (Guo and Barnes 2012), users seem to find it important that they are able to create a unique identity for their character. Customization is part of this process, because it enables users to provide their avatars with specific clothing, looks or attributes they want them to wear. Esthetics of the avatar are thus of importance (Ho and Wu 2012). Consumers'

need for self-expression can explain the importance of the customization factor. In accordance with the Theory of Consumption Values (Sheth, Newman, and Gross 1991), users can attach emotional value to their characters and can find their character's appearance important as it functions as an extension of their online self. Being able to customize their character thus allows users to have unique experiences in the virtual world.

Finally, ease of use influences purchase intent as well. The more logical, easy to use and flawless in virtual worlds are, the more likely users will be to purchase products in the virtual world. If there is a high degree of ease associated with purchasing virtual products, users' purchase intent will increase (Guo and Barnes 2009). Apart from ease of use, related concepts such as usefulness, effort expectancy, and performance expectancy influence users' intent to purchase products in the virtual world. If users believe that purchasing a product will enhance their performance – for example by making them more skilled warriors with a new shield or more interesting interaction partners with new clothing – and that this will take them little effort, they are more likely to purchase virtual products (Guo and Barnes 2009; Mäntymäki and Salo 2013). As the TAM (Davis 1989) and the UTAUT (Venkatesh et al. 2003) describe, perceived usefulness, perceived ease of use, effort expectancy, and performance expectancy thus influence users' intentions to purchase products in a virtual world.

### ***Practical implications***

Marketers with aspirations to increase sales can make use of this review to help them develop the most effective strategy when it comes to selling virtual products in virtual worlds. In order to design such an effective strategy, marketers should focus on enabling users to experience fun and enjoy themselves while being present in virtual worlds. This is most likely to increase their willingness to purchase products. Additionally, marketers should take the influence of social influence into account, since other users' beliefs and attitudes play a great role in determining users' willingness to purchase products in virtual worlds. Moreover, customization of users' characters should be facilitated, since this allows users to fulfill their need for self-expression and offers them the chance to have a unique experience in the virtual world. Finally, an easy, straightforward way of purchasing products in the virtual world should be facilitated, because this will increase users' willingness to purchase a virtual product and eventually increases the chance that users actually make a purchase. This can be done, for example, by creating an interactive brand presence in which users can interact both with a large variety of virtual products and with other users while exploring these products, users may then experience more enjoyment and recognize the broad possibilities for avatar customization, which can positively affect their intent to shop in the virtual world.

### ***Limitations and suggestions for future research***

A limitation of our review is that it focuses solely on studies that examined the influence of several factors on the intent to purchase virtual products in virtual worlds, and did not focus on actual purchasing behavior. We chose to do so because reviewing studies on both purchase intent and actual purchase in virtual worlds would not have allowed us to create a concise overview, because of the unresolved relationship between these two variables. However, given the tenuous link between them, it could be the case that certain factors positively affect purchase intent, but eventually do not influence actual purchase, possibly

allowing for different conclusions regarding what marketing strategies will be most effective in virtual worlds. Therefore, we consider it important for future research to examine the relationship between both purchase intent and actual purchasing behavior in virtual worlds – for example by combining self-report measures on purchasing intent with actual purchasing data from the virtual world –, but also, and perhaps even more important, to study the link between purchase intent in virtual worlds and purchase behavior in the real world. Moreover, more research on the relationship between purchase intent and purchase behavior in general is needed.

While reviewing the studies, it became evident that most studies examined purchase intent in virtual social worlds. Three studies looked at various types of social worlds, whereas only one study focused on investigating purchase intent solely in a virtual game world (Guo and Barnes 2012). So far, research on virtual game worlds is thus limited, although it seems like other factors might play a role in determining purchase intent in virtual game worlds (vs. virtual social worlds). For example, Guo and Barnes (2012) identified advancement in the game as an important motivator for users to purchase virtual products. Virtual game worlds are more restricted when it comes to rules in the game and focus largely on achieving progress in the game. Therefore, it might be more important for users of virtual game worlds to achieve specific goals (possibly by means of purchasing virtual products) than it is for users of virtual social worlds. Because these two types of virtual worlds can clearly be distinguished, follow-up research could aim at highlighting the differences in these worlds regarding the factors that influence purchase intent.

Finally, future research on the determinants of purchase intent in virtual worlds should also examine contextual factors, such as price and advertising strategy, as these might elicit stronger or weaker purchasing intentions. The current literature on the impact of purchase intent in virtual worlds almost completely focuses on personal factors, which are very important as is apparent from this literature review. However, to be conclusive on the impact of personal determinants versus situational or contextual determinants, empirical research on the impact of situational determinants of purchase intent in virtual worlds is needed.

## Disclosure statement

No potential conflict of interest was reported by the authors.

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**Appendix 1. Studies on factors influencing purchase intent in virtual worlds**

Authors	Sample	Country	Theoretical Framework and Method	IV/Moderator/CV	DV	Main Results
Guo and Barnes (2009)	N = 24	China	TRA TAM TT	Enjoyment Curiosity Character competency	IMP FREQ MOT	The findings were presented in terms of three core themes Theme 1: <i>Why virtual world residents pursue virtual items (MOT)</i> Perceived enjoyment, character competency and the requirements of quest systems significantly contribute to increasing consumers' interest in pursuing virtual items Theme 2: <i>Why players obtain virtual items through purchasing them in virtual worlds (PI)</i> Effort expectancy, performance expectancy, the quality of the virtual world, social influence, personal real resources, and virtual item resources are identified as important factors influencing virtual item purchase behavior Theme 3: <i>The aspects players are most concerned about when making a specific purchase (AP)</i> Social influence, trust, and perceived profit-making opportunities influence AP
Jin (2009)	N = 48	USA	SPRT ELIM	The requirements of the quest system Effort expectancy Performance expectancy The quality of the virtual world Perceived critical mass Social influence Concentration Habit Online purchase awareness and skills Personal real resources Virtual item resources Perceived information asymmetry Trust Perceived profit-making opportunities Modality (text vs. audio) Product involvement	PA	High product involvement positively influences PA, PI, and INT Text modality (vs. audio) resulted in greater source credibility, informational value and social presence
Shelton (2010)	N = 209	USA	Experiment U&G	Source credibility Informational value Social presence Customization	PI INT PI	Customization, fantasy, and role-playing have a positive influence on the purchase of apparel and appearance products

(Continued)


**Appendix 1.** (Continued)

Authors	Sample	Country	Theoretical Framework and Method	IV/Moderator/CV	DV	Main Results
				Fantasy		
			Survey	Role-playing Escapism Relationship Relaxation Socialization Advancement		Escapism, relationship, relaxation, and socialization have a positive influence on the purchase of recreation/entertainment products Advancement/challenge and competition have a positive influence on the purchase of business products
				Challenge Competition Effort expectancy		
Guo and Barnes (2011)	N = 250	UK	TAM		PI	In-world PI is positively influenced by effort- and performance expectancy, perceived value, perceived enjoyment, and customization. Advancement in the game negatively influences PI
				Performance expectancy Perceived value Perceived enjoyment Advancement Customization Social influence Habit		
			TPB TCT UTAUT Survey		AP	
Mäntymäki and Salo (2011)	N = 2481	USA	TAM	Attitude toward social virtual worlds	PI	PI is influenced by the perceived presence of other users (perceived aggregate network exposure) Continuous use intention also positively predicts PI
			TNE MM Survey	Perceived enjoyment Perceived usefulness Perceived aggregate network exposure Perceived ease of use Continuous use intention Consumer independent judgment making Consumer novelty seeking Perceived concentration Perceived control Perceived enjoyment Ease of use		
Domina Lee, and MacGillivray (2012)	N = 119	USA	FT TAM Survey		PI	Perceived control and perceived enjoyment are strong, positive predictors for PI

Authors	Sample	Country	Theoretical Framework and Method	IV/Moderator/CV	DV	Main Results
Guo and Barnes(2012)	N = 253	UK	TCT UTAUT Survey	Effort expectancy Performance expectancy Perceived value Perceived enjoyment Advancement	PI AP	Advancement and customization are strong predictors of PI  PI was also positively influenced by perceived enjoyment, perceived value, effort expectancy, and perceived social status
Ho and Wu (2012)	N = 523	Taiwan	TCV  Survey	Satisfaction with the game  Identification with the character Character competency Price utility Functional quality Playfulness Esthetics	PI	Price utility, esthetics, and social relationship support increase PI in role-playing games  Satisfaction with the game, identification with the character, and character competency increased PI in war-strategy games
Kim, Chan, and Kankanhalli (2012)	N = 414	World	SEPT  Survey	Social self-image expression Social relationship support Game type Online presentation self-efficacy VC involvement Online self-presentation norms Desire for online self-presentation	PI	Game type moderates the relationships between character competency, price utility and social relationship support, and PI  In both virtual social worlds (Cyworld and Habbo), the desire for online self-presentation positively influences PI Women have a stronger PI than men
Shang, Chen, and Huang (2012)	N = 421	Taiwan	TCV  Survey	Social value Emotional value Motivation for self-presentation Perceived social presence	PI	Online presentation self-efficacy, online self-presentation norms, and involvement in the virtual world have significant effects on the desire for online self-presentation Both emotional and social value are important reasons for users to buy products in virtual worlds The effect was larger for emotional value Non-anonymous users buy virtual items for both social and emotional reasons, whereas anonymous users only buy for emotional reasons

(Continued)



### Appendix 1. (Continued)

Authors	Sample	Country	Theoretical Framework and Method	IV/Moderator/CV	DV	Main Results
Mäntymäki and Salo (2013)	N = 1045	Finland	UTAUT TAM SPT SCTTPB TNE IDT SDT MT Survey	Perceived telepresence Anonymity Perceived usefulness Perceived enjoyment Perceived network size Social presence Perceived ease of use Self-efficacy Availability	PI	PI is primarily predicted by perceived network size Perceived enjoyment, perceived usefulness, and challenges in availability were also positively related to PI
Hamari (2015)	N = 2791	Finland	TRA Survey	Perceived enjoyment Continuous use intention Subjective norms Attitude toward buying	PI	PI is positively influenced by subjective norms and attitude toward buying virtual goods

Note: AP = Actual Purchase; CV = Control Variable; DV = Dependent Variable; FREQ = Frequency of references to each factor; IMP = Importance of the factors; INT = Perceived Interactivity; IV = Independent Variable; PA = Product Attitude; PI = Purchase Intent; ELM = Elaboration Likelihood Model (Petty, Cacioppo, and Schumann 1983); FT = Flow theory (Csikszentmihalyi 1990); IDT = Innovation Diffusion Theory (Valente 1995); MM = Motivational Model; MT = Motivation Theories (Calder and Staw 1975); SCT = Social Cognitive Theory (Bandura 1977); SDT = Self-Determination Theory (Deci 1975); SEPT = Self-Presentation Theory (Goffman 1959); SPRT = Social Presence Theory (Short, Williams, and Christie 1976); TAM = Technology Acceptance Model (Davis 1989); TCT = Transaction Cost Theory (Coase 1937); TCV = Theory of Consumption Values (Sheth, Newman, and Gross 1991); TNE = Theory of Network Externalities (Katz and Shapiro 1985); TPB = Theory of Planned Behavior (Ajzen 1991); TRA = Theory of Reasoned Action (Fishbein and Ajzen 1975); TT = Trust Theory (McKnight, Choudhury, and Kacmar 2002); UTAUT = Unified Theory of Acceptance and Use of Technology (Venkatesh et al. 2003); U&G = Uses and Gratifications model (Blumler and Katz 1974).