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Uncovering the Motives for the Continuous Use of Social Virtual Worlds

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UNCOVERING THE MOTIVES FOR THE CONTINUOUS USE OF SOCIAL VIRTUAL WORLDS

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Abstract

Social virtual worlds (SVWs) have become increasingly important environments for social interaction, especially for the younger generations. For SVWs to be economically sustainable, attracting new users and retaining the existing ones existing users is a paramount issue. This calls for understanding of the reasons why people engage in social virtual worlds. This study investigates the motives for continuously engagement in SVWs and develops a research model grounded on the decomposed theory of planned behavior. The model is empirically tested with a data collected from Canadian active Habbo goers using PLS. Surprisingly, perceived behavioral control and subjective norm were found more important determinants of continuous use intention than attitude. The results indicated that hedonic motives were the main determinant of attitude. However, altogether only 21.9 % of attitude was explained by utilitarian, hedonic and social outcomes. As a result, the study revealed that rather relying on generic items in measuring attitude and the beliefs regarding the utilitarian and social outcomes, the characteristics of SVW context should be reflected in the operationalisations of the constructs.

Keywords: social virtual worlds, continuous use, decomposed theory of planned behaviour

1 INTRODUCTION

Social virtual worlds (SVWs) have become increasingly prominent spaces for spending free time as well as in terms of social interaction, particularly for the younger generations. In addition, SVWs offer new business opportunities for both individuals but also for commercial and non-profit organizations. For example, automotive manufacturers utilize Second Life to present their products and universities have established virtual classrooms and campuses. (Messinger et al., 2009.) Moreover, according to Linden Labs, the value of monthly user-to-user transactions conducted in Second Life has been soaring rapidly, yielding a value of nearly 50 million USD in the second quarter of 2009.¹

SVWs can be categorized as a subset of virtual worlds used in relation to game worlds. Yet, in contrast to games, there are no narrative goals or tasks to be accomplished. Apart from the element of game immersion, SVWs could be compared to virtual communities; “social aggregations that emerge from the net when enough people carry on those public discussions long enough, with sufficient human feeling, to form webs of personal relationships in cyberspace” (Rheingold, 2000). In contrast to mere ‘traditional’ online communities, SVWs contain graphic elements e.g. avatars and a 3D virtual space in which the users can move around.

Most virtual worlds are aimed at people under 30 years old. Moreover, there is also a variety of youth-oriented social virtual worlds such as Webkinz, Poptropica and Club Penguin. In this paper, we empirically investigate Habbo, which has almost 13 million monthly unique visitors in 31 local portals, making it the world’s largest SVW designed for teens. Habbo collects no access fee but offers virtual furniture for decorating user-generated virtual rooms, and voluntary memberships that allow members additional benefits not available to non-subscribers. All these can be bought with Habbo credits, virtual currency purchased with real-life money.

Thus, as with several other online services (Bhattacharjee, 2001a; 2001b; Gefen, 2002; Reichheld, 2000), attracting and retaining existing users i.e. customer loyalty is a paramount issue to the success of SVWs. Therefore, in this paper we particularly investigate the motives of continuous SVW engagement. As a result, the purpose of this paper is to answer the question: why do users continuously engage with social virtual worlds?

2 THEORETICAL BACKGROUND AND RESEARCH MODEL

2.1 Continuous IS use and the decomposed theory of planned behaviour

The technology acceptance and post-adoption behaviour have attracted prominent and extensive coverage within IS research (Agarwal & Prasad, 1997; Bhattacharjee, 2001a; 2001b; Karahanna et al., 1999; Kim & Son, 2009; Venkatesh & Brown, 2001). However, little information is available on expanding the understanding of continuous use intention of youth-oriented SVWs. In practise, we focus on Habbo, which is primarily favoured by millions of teenagers - a group that has so far passed relatively unnoticed in the IT adoption and post-implementation literature. (cf. e.g. Davis et al., 1989; Mathieson, 1991; van der Heijden, 2004; Venkatesh & Bala, 2008; Venkatraman & MacInnis, 1985.) Therefore, to provide empirical information on relatively new and unexplored SVWs and their users, we identify a set of factors that could explain the continuous engagement in Habbo. Thus, rather than investigating the initial acceptance, we focus on continuous use (see. e.g. Bhattacharjee, 2001a; Hsieh et al., 2008; Limayem et al., 2007).

¹ The Second Life Economy - Second Quarter 2009 in Detail, <https://blogs.secondlife.com/community/features/blog/2009/08/12/the-second-life-economy--second-quarter-2009-in-detail> (Retrieved Sep 1 2009)

Theory of planned behaviour (TPB) (Ajzen, 1991; 2005) has been selected to serve as a theoretical foundation since it goes beyond the beliefs proposed in the technology acceptance model (TAM) or theory of reasoned action (TRA) (Davis, 1989; Fishbein & Ajzen, 1975). Moreover, the advantage of TPB is in its ability to reflect social influence and the effects of control the individual has in a specific situation. Further, TPB has also shown its adaptability to study IT acceptance by those who already have experience with the technology at homes (Taylor & Todd, 1995a; Venkatesh & Brown, 2001). The theory assumes that individuals take available information into account and consider the consequences of their actions (Ajzen, 2005). TPB posits that the best predictor of the individual's behaviour is behavioural intention, which is determined by attitudes (ATT), subjective norms (SN), and perceived behavioural control (PBC). Accordingly, the first three hypotheses are postulated as follows:

H1: Attitude positively affects the continuous use intention.

H2: Subjective norm positively affects the continuous use intention

H3: Perceived behavioural control positively affects the continuous use intention.

While gaining considerable empirical support, TPB has also received criticism for relying on unidimensional belief constructions. For example, after disaggregating beliefs into multidimensional constructs Taylor and Todd (1995a; 1995b) noted that their approach was able to make a distinction between the qualitatively different cognitive dispositions. (see also Shimp & Kavas, 1984.) In addition, decomposition of beliefs tackled the problem of theoretically applying the appropriate set of beliefs across variety of settings. To examine technology acceptance and post-adoption behaviour both Taylor and Todd (1995a; 1995b) and Hsieh et al. (2008) (see also Venkatesh & Brown, 2001) drew belief constructs from prior literature rather than elicited them from the respondents themselves (Davis, 1989) as recommended by social psychologists. (Ajzen, 2005; Fishbein & Ajzen, 1975.) Taylor and Todd (1995b) assumed that the elicitation method misrepresented the results. (see Davis, 1989; Mathieson, 1991.) Venkatesh and Brown (2001) went as far as to purport that re-eliciting the anticipated beliefs in each technological setting was not an absolute prerequisite at all. Therefore, we will exemplify the TPB and draw beliefs constructs from prior literature. The research model is presented in Figure 1.

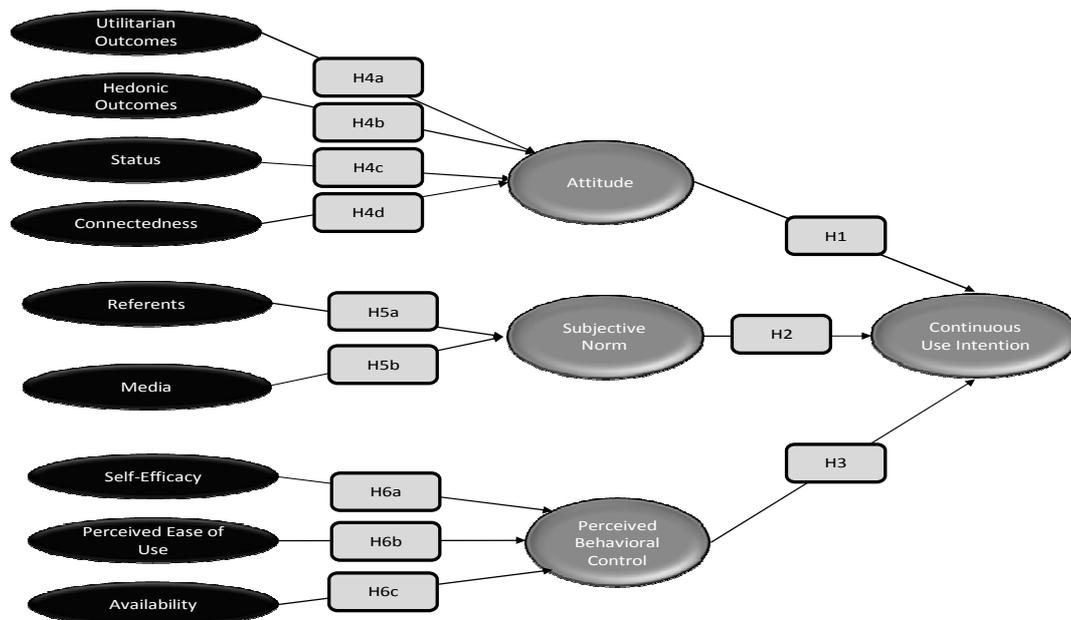


Figure 1. The research model

2.2 Attitudinal belief structure

Taken the wealth of evidence to support the use of well-grounded and thoroughly tested constructs, it is also important to keep in mind that the usage context of an IT artefact remains to have a noticeable relevance in explaining the user behaviour (see e.g. Benbasat & Zmud, 2003). This is especially true in the stream of virtual world research. For example, while Yee's (2006) categorisation of players and their beliefs (i.e. achievement, social interaction, immersion) about playing massively multiplayer online games (MMOGs) is conceptually similar to the list (i.e. achievement, social interaction, exploration, and competition) theorised by Bartle (2003). Applying one or other of these two approaches to any given IT setting would be challenging since they are both narrowly linked to specific characteristics of games. This is perhaps not surprising, given that both Yee and Bartle have established their analyses merely in current MMOGs and past MUDs (Multi-User Dungeons; predecessors of MMOGs) (Bartle, 2003; Ryan et al., 2006), rather than in theoretically rich psychological perspectives on motivation. The advantage of using the latter approach is in its ability to differentiate motives to extrinsic and intrinsic (see e.g. Deci & Ryan, 1980; Deci & Ryan, 2000; Vallerand, 1997), an extensively applied dichotomy in IT adoption literature. (Davis et al., 1992; Hirschman & Holbrook, 1982; Hsieh et al., 2008; van der Heijden, 2004; Venkatraman & MacInnis, 1985.)

Grounding on Hsieh et al. (2008), extrinsic motivation (here: utilitarian outcomes) approximates the concept of perceived usefulness (Davis et al., 1989; Davis, 1989), a consistent determinant of IT usage. Although Davis (1989) initially defined perceived usefulness as "the degree to which a person believes that using a particular system would enhance his or her job performance," it can be assumed that pleasure-oriented post-adoption behaviour of SVWs is not driven by strong productivity but instrumental value as to effectively communicate and develop social identity (Bagozzi & Dholakia, 2002). Therefore, within this study, utilitarian outcomes implies to beliefs about using Habbo as an instrument of social interaction. Unfortunately, it can be extremely difficult to differentiate communication from intrinsic motivation since it is readily attributable to the IT artefact. Yet computer-mediated communication itself occurs between the users, indicating that it is characteristic of human beings, not of Habbo. As a result, it is hypothesized that:

H4a: Utilitarian outcomes positively affect the attitude to continuously use an SVW.

In his empirical investigation, van der Heijden (2004) found perceived enjoyment to be a more powerful determinant of acceptance intention than perceived usefulness or ease of use. In addition, Teo et al. (1999) empirically showed that intrinsic incentives had a significant effect on using computer and internet. In the post-adoption context, users are assumed to obtain, at least in part, pleasure through appealing environmental characteristics. Nevertheless, more salient is the need for maintaining the concentration and curiosity, as well as satisfying the entertainment purposes (Ahn et al., 2007; Igarria et al., 1994). Due to the leisure-driven use context of SVWs, and since the target group of Habbo is teenagers, the hedonic outcomes can be assumed to be important and hence, it is hypothesized:

H4b: Hedonic outcomes positively affect user's attitude towards the SVW.

SVWs provide not only a tool for communication and enjoyment, but also for gaining social status. For example, users of Habbo can show other users their interests, decorate their private rooms and via customizable animated avatars take part in activities, events, games and competitions created by the operator or the users themselves. Social status is conferred on individuals as a result of adopting and using a technological innovation (Moore & Benbasat, 1991; Rogers, 2003; Venkatesh & Brown, 2001). Unlike utilitarian outcomes applied here, status is perceived here as a goal rather than an instrument: using Habbo does not require social status, it is something that is built by Habbo. Therefore, status is separated from utilitarian outcomes and hypothesized as follows:

H4c: Status positively affect user's attitude towards the SVW.

In order to retain their users, social interaction is a crucial part of SVWs because individuals have a need for relatedness (Baumeister & Leary, 1995; Deci & Ryan, 2000). It has brought together individuals both offline and but online (Bagozzi & Dholakia, 2002; Chiu et al., 2006; Hagel & Armstrong, 1997; Rheingold, 2000; Wellman & Gulia, 1999). In social virtual worlds users may spend considerable time maintaining existing friendships and making new ones in a search for companionship, support, and affiliation, (Baumeister & Leary, 1995; Lee & Robbins, 1995; Wellman & Gulia, 1999). As much as the need for relatedness is characteristic of human beings, it is also linked to connectedness, an attribute intrinsic to the IT artefact. Hence, we hypothesize the following:

H4d: Connectedness positively affects user's attitude towards the SVW.

Taken together, attitudinal beliefs about continuously using SVWs are a combination of four theoretical dimensions 1) experiences pursued for its own sake, 2) instrumentality, 3) extrinsic outcomes, and 4) attributes inherent to the IT artefact. Consequently, we have chosen enjoyment to represent a hedonic outcome. Communication, in turn, reflects the instrumentality of an IT artefact, whereas status is, according to prior research (Venkatesh & Brown, 2001), an important goal over and above enjoyment. Lastly, connectedness serves as a social clue to attract the users to engage in a particular SVW.

2.3 Normative belief structure

In contrast to attitudinal beliefs, normative beliefs are understood as the individual's perception of social pressure by the important others (referents) with whom he or she is willing to comply and engage in the behaviour (Ajzen, 2005; Karahanna et al., 1999; Rice et al., 1990). In order to decrease uncertainty concerning the adoption of an innovation also in homes an individual is likely to communicate within his or her social network (Katz, 1980), and thereupon, referents such as friends, family members, and peers have proven to influence subjective norms (Childers & Rao, 1992; Hsieh et al., 2008; Karahanna et al., 1999). In addition, Rogers (2003) noted that normative influence from secondary sources of information (i.e. mass media) was influential particularly in early adopters' behaviour (see also Venkatesh & Brown, 2001). It is thus expected that the information in the mass media becomes influential for those already experienced with using SVWs (Karahanna et al., 1999).

H5a: Referents' influence positively affects subjective norm.

H5b: Secondary sources of information (media) positively affect subjective norm.

2.4 Behavioural control belief structure

Perceived behavioural control (PBC), originating from Bandura's (1977) concept of perceived self-efficacy, intends to take into account the presence or absence of control beliefs that either facilitate or constrain carrying out the behaviour. Following Hsieh et al. (2008), PBC is here decomposed into three essential determinants of belief controls: self-efficacy (SE), perceived ease of use (PEOU), and availability (AVA).

Perceived self-efficacy is defined as "people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affects their lives" (Bandura, 1994, 71). In IT adoption settings perceived self-efficacy strives to measure the individual's confidence toward executing the given behaviour (Compeau & Higgins, 1995). For example, one's strong sense of self-efficacy enhances the accomplishment of the behaviour (ibid) and hence:

H6a: Self-efficacy positively affects PBC.

Similarly to Ajzen (1991), Davis (1989) built the construct of perceived ease of use on Bandura's research, and posited that "an application perceived to be easier to use than another is more likely to be accepted by users" (Davis, 1989, 320). This view with an increasing body of support has been widely acknowledged in IT adoption and usage behaviour research (see e.g. Katz & Aspden, 1997).

However, PEOU has also been found to have somewhat inconsistent effect on IT usage, particularly after the initial acceptance and with experienced users (Venkatesh et al., 2003). Further, in testing TAM, Davis et al. (1989) noted that PEOU has only an indirect effect on intention after the users had already gained experience. One reason for this may lie in the existing research frameworks: as opposed to the assumption that PBC concerns the ease or difficulty of performing a given behaviour (Ajzen, 1991), PEOU was positioned as an antecedent of attitude in both these studies. Alternative approaches with supporting empirical data in household IT adoption context (see e.g. Hsieh et al., 2008; Venkatesh & Brown, 2001) consistent with that of Ajzen (1991), have linked PEOU with PBC. Thus, PEOU has been placed as an antecedent of PBC:

H6b: Perceived ease of use positively affects PBC.

Taylor & Todd (1995c) divided control beliefs to self-efficacy and facilitating conditions, i.e. time, and availability of the required technology. Here, it is assumed that the availability of an SVW represents a barrier for the young users who may not have an access available when needed. In addition, parents may control and limit their children's computer usage.² Therefore, it is postulated:

H6c: Challenges in availability negatively affect PBC.

3 EMPIRICAL RESEARCH

3.1 Data collection & measurement

The data was collected with an online survey which was published in the Canadian Habbo portal. In contrast to e.g. Second Life, Habbo users log on to the local portal that has its own specific content. Hence, the user experience is to some extent portal-specific. In total, the online survey was opened 1654 times. A total 1203 usable responses were received. Thus, the response rate was approximately 73 percent. As Habbo is targeted for teenagers, only the respondents aged between 13 and 17, i.e. the most common age group, were analyzed. 4.6 per cent of males and 5.3 of females were under 13 years old whereas 11.3 of males and 12.5 per cent of females were older than 18. Moreover, since the aim was particularly to investigate active users, members with less than six months of experience with Habbo were excluded from the analysis. Finally, to ensure the best possible quality of the final sample, only the 682 responses completed fully were included in the analysis. Of the final sample, 43.4 % were females. 14 was the largest age category for males and 15 for the female respondents.

The survey contained worded items on a 7-point Likert-scale anchoring from strongly agree to strongly disagree, adapted from existing measures, mainly from IS. The measurement items with references to literature are presented in Appendix 2. Attitude was measured using a semantic scale adapted from Ajzen (1991). Each construct was modelled as reflective, except referents' influence that was viewed as an explanatory combination of its items and thus treated as a formative construct. (see Hsieh et al., 2008.) The data was analyzed using partial least squares (PLS) with SmartPLS M3 software. (Ringle et al., 2005.) PLS was selected primarily due to ability to handle formative constructs. (Chin, 1998; Sosik et al., 2009.)

The convergent validity was evaluated based on three criteria: 1) all indicator factor loadings should be significant and exceed 0.7, 2) composite reliabilities should exceed 0.80, and 3) average variance extracted (AVE) by each construct should be greater than the variance due to measurement error (AVE > 0.50). (Fornell & Larcker, 1981) The factor loadings exceeded 0.8 and were significant at .001 level. Thus, all reflective measures met the criteria for convergent validity. Discriminant validity was investigated by examining whether the square root of AVE for each construct was higher than the

² (Lenhart (2008) Teens, Online Stranger Contact & Harassment: What the data tell us: <http://www.pewinternet.org/Presentations/2008/Teens-Online-Stranger-Contact--Harassment.aspx>).

squared correlation between it and all other constructs (Fornell & Larcker, 1981). The statistics for convergent and discriminant validity are presented in Appendix 1.

3.2 Results

Interestingly, many of the hypothesized paths were found either insignificant or weak. The hedonic, utilitarian and social outcomes explained only 21.9 % of the variance in attitude. The path from attitude to continuous use intention was below 0.2 which according to Meehl (1991) can be considered a threshold for a significant path coefficient. Altogether, the R^2 for the dependent variable, continuous use intention was only 24.5 %. The summary of the results can be found from Figure 2.

After having tested the structural model, we conducted a post hoc analysis to investigate the potential influence of age, gender and the length of prior Habbo experience by controlling their impact on the latent variables. The impacts of the control variables had on some of the latent constructs were expected. For example, age was found to have a weak negative effect on hedonic outcomes and media influence which is not surprising since teens are the target group of Habbo. Similarly, the respondents were found to feel increasingly disconnected from other users when gaining experience with Habbo. None of the paths from the control variables to latent construct exceeded the 0.2 threshold and most of them were not statistically significant.

We also examined the risk for common method bias (CMB) using Harmon's single-factor test. The results indicated that CMB is not a major source of the variations in the observed variables. However, Harmon's test is known to be conservative in detecting biases and therefore the results do not provide full certainty that the results are completely free from CMB.

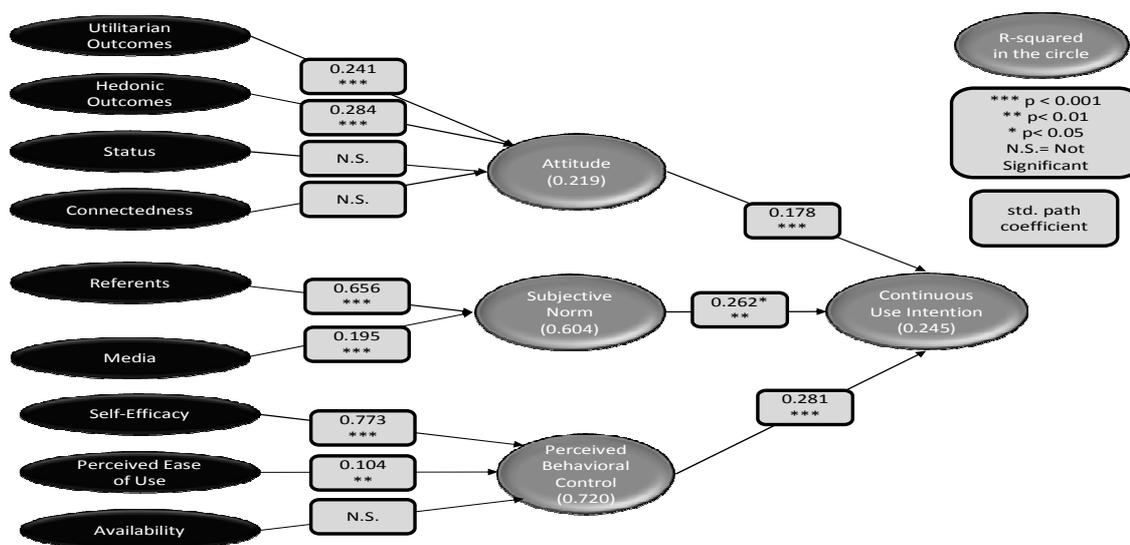


Figure 2. Results

4 DISCUSSION

4.1 Findings

The results showed that attitude, subjective norms, and perceived behavioral beliefs shaped only 25 percent of the variance in the Habbo users' continuous use intention. Above all, and contrary to our expectations derived from prior studies (e.g. Hsieh et al. 2008), attitude was less influential to

continued use intention than subjective norms. A post hoc analysis revealed that when paths from attitudinal beliefs were directly connected to continuous use intention, the explanatory power increased to 41.4 percent. This indicates that attitude fails to fully mediate the effect of hedonic and utilitarian outcomes. In addition, there seems to be a need for an alternative belief elicitation approach, since status or connectedness had no significant influence on attitude or continuous use intention. This may be a result of the operator's decision to hide the users' real identities behind nick names and forbid sharing personal information that connects the users to real persons. The users may feel that Habbo has a proper mechanism to display status only inside the world. Similarly, although connectedness is attributable to community, separating virtual identities from real does not support it in the long run. After all, connectedness is grounded on regular and proximal contacts that cannot perhaps be localized into a single SVW. (see Baumeister & Leary 1995.)

Subjective norm, in turn, was primarily affected by the referents' influence. In total, while the selected normative belief constructs explained as much as 60 percent of the variance in subjective norm, social influence influenced relatively little the continuous use intention. One reason for this could be that subjective norm does not capture the aggregate personal network exposure or perceived critical mass (cf. e.g. Hsieh et al. 2008.) The idea behind this is that a person is likely to continue using an SVW if he or she perceives that most of his or her peers are using it. Although measuring the personal network exposure was however out of the scope of this paper, it should be taken into account in the future as we believe it would provide more information on social influence.

Self-efficacy and PEOU explained 72 percent of the variance in perceived behavioral control. Availability had no effect on PBC. Taken together, this indicates that being able to use Habbo is generally not a major problem for the respondents.

The fact that the data provided sufficient support only for 6 out of 11 hypotheses (i.e. H2, H3, H4a, H5a and H6a), clearly calls for refinement of the research model. Rather than simply abandoning the decomposed TPB, we believe that the domain specific characteristics of youth-oriented SVWs should be better taken into account along with theoretical justification when including attitudinal belief construct into the research model. As a result, re-conceptualising attitude appears to be a natural path to significantly improve our research model.

4.2 Limitations and further research

First of all, the empirical data was collected from the users of only one SVW from one country. The field of SVWs is heterogeneous both in terms of the array of services as well as the demographic, sociographic and cultural background of the users. As Habbo is primarily targeted at teenagers, the respondents were mostly teens. Additionally, due to the self-selection of the respondents, the data is potentially biased towards active users. However, since the aim was to investigate active users of Habbo, the data collection method can be considered appropriate.

Moreover, as argued by Taylor (2006), people play games in various ways. SVWs do not have narratives and thus, the users are free to choose how to actually use the SVW. Hence, the idea of a generic user is not particularly suitable for SVWs. For these reasons, the results from a study conducted among users of one SVW cannot be directly and entirely generalized to other ones. As a result, further studies investigating the users of more than just one SVW could elaborate on other reasons for using SVWs as well as the differences between different user groups and SVWs. In this sense, a natural path for further research would be to test the research model with data from other Habbo portals.

The present paper has focused on investigating only one aspect of post-adoption behavior, the continuous use intention. However, as argued by Kim and Son (2009), there are also other important post-adoption behaviors to be examined. For example, Habbo generates revenue through selling virtual items and premium memberships. Thus, investigating also the purchasing behavior would be appropriate.

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	C.R	AVE	ATT	AVA	CUI	CON	HED	Media	PBC	PEOU	Ref	SE	SN	STA	UTI
ATT	,959	,852	,923												
AVA	,927	,864	,077	,930											
CUI	,941	,799	,326	-,063	,894										
CON	,950	,862	-,110	,351	-,228	,929									
HED	,962	,865	,428	-,022	,609	,299	,930								
Media	,941	,841	,257	,335	,203	,144	,261	,917							
PBC	,943	,847	,231	-,201	,346	,193	,378	-,046	,920						
PEOU	,914	,726	,282	-,107	,403	,244	,493	,056	,589	,852					
Ref	n/a	n/a	,309	,182	,351	,003	,381	,528	,062	,169	n/a				
SE	,945	,851	,208	-,203	,341	,209	,381	-,104	,844	,623	,021	,923			
SN	,962	,927	,318	,235	,345	-,009	,414	,542	,094	,185	,759	,029	,910		
STA	,931	,819	,211	,268	,181	-,094	,331	,501	,001	,118	,503	-,019	,546	,905	
UTI	,948	,786	,415	,055	,479	,222	,628	,356	,232	,383	,536	,234	,558	,457	,887

Appendix 1. Convergent and discriminant validity (square roots of AVEs in the main diagonal)

ATT1	All things considered, using Habbo is...	(Ajzen, 1991)
	Extremely bad...good	
ATT2	Extremely dissatisfying...satisfying	
ATT3	Extremely displeasing...pleasing	
ATT4	Extremely terrible...delightful	
UTI1	Helps me to stay in close touch with my friends	(Bagozzi & Dholakia, 2002; Davis et al., 1989; Venkatesh & Brown, 2001)
UTI2	Helps me to stay in close touch with people I know.	
UIT3	Helps me to make new friends more efficiently.	
UTI4	Helps me to communicate easier with people I know.	
UTI5	Comes in handy for my communication.	
HED1	It is enjoyable to use Habbo.	(Davis et al., 1992; Igbaria et al., 1994; Venkatesh & Brown, 2001)
HED2	It is fun to use Habbo.	
HED3	It is entertaining to use Habbo.	
HED4	It is pleasant to use Habbo.	
CONN1	I don't feel related to anyone in Habbo. (reversed coding)	(Lee & Robbins, 1995; Lee & Robbins, 1998; Venkatesh & Brown, 2001)
CONN2	I catch myself losing all sense of connectedness with Habbo. (reversed coding)	
CONN3	I don't feel a sense of participation with anyone in Habbo. (reversed coding)	
STA1	People who use Habbo have more prestige than those who do not. (the level of respect regarded by others)	(Lee & Robbins, 1995; Lee & Robbins, 1998; Venkatesh & Brown, 2001)
STA2	Using Habbo improves my status among those who are richest and smartest.	
STA3	Using Habbo improves my status among those who are the most meaningful to me.	
SN1	People who influence me think I should use Habbo.	(Ajzen, 1991)
SN2	People who are important to me think I should use Habbo.	
SN3	People who are important to me use Habbo.	
MED1	I feel pressure from media and commercials to use Habbo.	(Venkatesh & Brown, 2001)
MED2	I feel encouraged by media and commercials to use.	
MED3	I feel persuaded by media and commercials to use Habbo.	
PBC1	I have the resources, knowledge, and ability to use Habbo.	(Ajzen, 1991)
PBC2	I can use Habbo.	
PBC3	I know how to use Habbo.	
SE1	I feel comfortable using Habbo on my own.	(Bandura, 1977; Bandura, 1997; Compeau & Higgins, 1995)
SE2	I can easily operate in Habbo on my own.	
SE3	I feel comfortable using Habbo even if there is no one around me to tell how to use it.	
PEOU1	I find Habbo easy to use.	(Davis et al., 1989; Davis, 1989; van der Heijden, 2004)
PEOU2	Using Habbo to communicate with others is clear and understandable.	
PEOU3	Navigation through the menus and toolbars in Habbo is easy to do.	
PEOU4	It is easy to learn how to use all that is provided in Habbo.	
AVA1	I don't always get to use Habbo because my parents won't allow me.	(Hsieh et al., 2008; Taylor & Todd, 1995b)
AVA2	I cannot use Habbo when I want to.	
CUI1	I intend to continue using Habbo during the next three months.	(Hsieh et al., 2008)
CUI2	I intend to continue using Habbo frequently during the next three months.	
CUI3	I intend to revisit Habbo shortly.	
CUI4	I will keep on using Habbo in the future.	
REF1	My family thinks I should use Habbo.	(Hsieh et al., 2008)
REF2	My relatives think I should use Habbo.	
REF3	My friends think I should use Habbo	
REF4	People I communicate with most often think I should use Habbo.	

Appendix 2. Operationalizations of the constructs