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# Experiential Value, Satisfaction, and Social Virtual World Continuance: An Empirical Investigation in Second Life

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**Abstract:** Social virtual worlds (SVW) base their success on continued usage. However, there is a paucity of investigation on SVW continuance. Especially, hedonic value beyond purely utilitarian concerns should be taken into consideration in understanding SVW continuance. In this study, drawing on a satisfaction-based perspective and the notion of experiential value from the consumer behavior literature, we developed a research model regarding the role of experiential value (including both utilitarian and hedonic value) in predicting SVW users' continuance intention through satisfaction. In order to empirically test the proposed model and hypotheses, data were collected using a questionnaire survey from real users of Second Life, one of the most popular and typical SVWs in the world, and analyzed via LISREL 8.70. Theoretical and practical implications are discussed.

## 1. Introduction

In recent years, Internet-based social virtual worlds (SVWs) have attracted global attention from both academia and practitioners. SVWs are a three-dimensional immersive virtual environments "wherein customers use their virtual representatives (i.e., avatars) to interact with, and within, these environments for various purposes" (Zhou et al. 2012). One of the most typical SVWs in the world is Second

Life (SL) ([www.SecondLife.com](http://www.SecondLife.com)), a virtual environment (within which real-life experiences can be attained) that has a wide range of artificial domains with user avatars encompassing aspects of visualization and a sense of presence, as well as text and audio interaction. Different from online games that are normally purely entertainment driven, SVWs are always designed with various functions and values, open up many new possibilities for applications in various domains, and have become important tools for both organizations and individuals to do education, business endeavors, entertainment, communicating and collaborating, among many other socio-economic activities (Mennecke et al. 2008; Zhou et al. 2011). Just like many other information technologies, the long-term viability and eventual success of an SVW depend largely on continuous post-adoption SVW usage (Deng et al. 2010). On the one hand, the benefit or value of an SVW can only be achieved when there are a significant number of persistent participants who adopt and continue using the SVW (Zhou et al. 2010). On the other hand, for many companies and organizations that are using an SVW, understanding why residents are using the SVW is crucial to attract potential customers and generate long-term profitability. Although it is important to identify what factors affect residents' decision to continue using an SVW, to the best of our knowledge, there is a paucity of specific investigation of SVW continuance.

The body of research on information technology

continuance has generally established satisfaction as an important factor leading to continuous usage. Being predominantly concerned with the instrumental or utilitarian value whereby information technologies are seen as providing useful functionalities, these studies have focused mainly on the cognitive sources of satisfaction and continuance usage, such as perceived usefulness and perceived ease of use (Bhattacharjee 2001b; Davis 1989; Davis et al. 1989). These cognition-oriented behavioral models are thought to be insufficient to understand SVW continuance, as they heavily on productivity-oriented or instrumental factors, which may be important for mandatory usage of a productivity-oriented technology (e.g., word processor) in an organizational setting where cost of adoption and usage for it is borne by the organization and where most users are employees of the organization. In such settings, personal affective experience factors may not be important (Kim et al. 2007). However, in the context of SVWs where residents normally participate voluntarily for personal purposes and the cost of usage is borne by the individuals, SVW residents are not only technology users but also service customers (Deng et al. 2010). In such settings, both utilitarian value and hedonic value are believed to be important. Therefore, there is a need for investigators to place more emphasis on hedonic value beyond purely utilitarian concerns in the SVW continuance literature.

In this study, we adopt a satisfaction-based perspective and the concept of experiential value from consumer behavior literature, in order to develop a conceptual model to explain SVW continuance. The model is tested empirically with data collected from real users of SL. The remainder of the paper is organized as follows. We first review prior relevant work in the literature, followed by a presentation of the research and hypotheses. Then, we discuss the research methodology and report the results of data

analysis. Finally, we conclude with the theoretical and practical implications of the study.

## 2. Theoretical Background and Hypotheses

### 2.1 User Satisfaction

The past few years have seen an increasing number of studies that have been performed to explain information system (IS) continuance. This body of research has emphasized user satisfaction as a central construct in measuring user attitude about information technologies and predicting user behavior or behavioral intention (Deng et al. 2010). *Satisfaction* refers to favorable feelings toward a service in question (Seddon 1997). Satisfaction is a central factor predicting continuance intention in the IS continuance model (Bhattacharjee 2001b), one of the most successful models to understand continued usage of information systems in behavioral IS research. Based on the expectation-confirmation theory, the IS continuance model presumes that individuals' intention to continue using an IS is predominantly determined by satisfaction and perceived usefulness, both of which are derived from the degree to which user expectations about the IS are confirmed. Satisfaction is a function of confirmation and expectation. Expectation provides a baseline level against which confirmation is assessed by users to determine their evaluative response or satisfaction. The better the expectations are met, the more useful the IS appears to the users, and the more satisfied the users are.

The uses and gratifications (U&G) paradigm also theorizes user satisfaction as a critical factor in motivating individuals' usage of media. U&G paradigm is used to explain the reasons that people choose a specific medium over alternative communication media, and to elucidate the psychological needs of people who use a particular medium. As a media use paradigm from mass communications research that focuses on individual use and choice of

media (Katz et al. 1974), this paradigm suggests that people use certain types of media to satisfy their needs. In other words, users' decisions to use a medium are determined by the functions for which the medium serves its users. U&G has been successfully demonstrated as a useful lens to understand user motivations in various IT-related settings, including email (Dimmick et al. 2000) and the Internet services (Stafford et al. 2004), among others. This fact suggests that U&G paradigm is relevant to a broad range of information technologies, and can be applied to explain users' underlying motivations and decisions to use a new technology whenever this technology enters the stage of mass communication (Elliott et al. 1987). Further, U&G is suggested to be useful to explain the continued usage of social media (Dholakia et al. 2004; Sangwan 2005; Stafford et al. 2004). Conceptualized by some scholars as a form of social media (Kaplan et al. 2010), SVWs represent a new form of Internet-based services that offer a rich interactive and immersive environment in which active users join for various purposes. A SVW may not have its predefined goals or missions, but normally, users have their own purposes they want to satisfy by participating in a specific SVW. In this sense, the U&G paradigm is a relevant and useful lens for investigating SVW users' motivations.

A large number of studies demonstrates the role of satisfaction as a direct antecedent of continuance intention (Bhattacharjee 2001b; Hong et al. 2006; Jones et al. 2006; Thong et al. 2006). Specifically, in an online service setting, satisfaction positively impacts on continuance intention (Bhattacharjee 2001a; Chea et al. 2008; Kim et al. 2009). As SVWs are a special type of online services, it is likely that individual users' satisfaction will influence their continuance intention positively. We thus propose:

H1: A SVW user's satisfaction is positively associated with his or her continuance intention.

## 2.2 Experiential Value

One concern of using the IS continuance model to interpret SVW continuance is that the model is a cognition-oriented framework that relies on users' cognitive beliefs to predict usage behaviors (Kim et al. 2007). However, in the context of SVW services, residents are not only technology users but also service consumers. As technology users, they are more concerned with instrumental values (e.g., usefulness), while as service customers, they also pay attention to affective or emotional values. In this sense, the cognition orientation of the IS continuance model may be limited to comprehensively explain users' continuance intention in the context of SVWs due to the work and play motif in these settings (Vogel et al. 2008).

To address the insufficient power of cognitive models in explaining SVW continuance, we draw on the consumer behavior literature and integrate the notion of experiential value with the perspective of satisfaction. We propose in general that experiential value serves as a determinant of satisfaction and SVW continuance, as it reflects users' general perception of the value or benefits of using an SVW, derived from their past usage experience. These perceived benefits or values of using an SVW are critical predictors of user satisfaction, as demonstrated in prior studies (Bhattacharjee 2001b; Caro et al. 2007; Chea et al. 2008; Hassenzahl 2001; Hong et al. 2006; Hsu 2006; Oliver 1993; Thong et al. 2006). The impact of perceived benefits on satisfaction is in essence consistent with the U&G paradigm which posits that users' gratifications (i.e., satisfaction) are derived from their perception of the extent to which their needs are fulfilled by using a system (i.e., perceived benefits). The more a user's needs are fulfilled, the more he will get satisfied (Au et al. 2008).

Online experiential value is defined by Mathwick et al. (2001) as "a perceived, relativistic prefe-

rence for product attributes or service performances arising from interaction within a consumption setting that facilitates or blocks achievement of customer goals or purposes” (p. 53). It basically has two different dimensions or components, namely, utilitarian value and hedonic value (Mathwick et al. 2001; Wetzels et al. 2009). Utilitarian value, also called extrinsic benefit in some cases (Mathwick et al. 2001), refers to cognitive evaluation of the utility of using a system in terms of purpose fulfillment and problem solving (Babin et al. 1994a). Utilitarian value is conceptually similar with perceived usefulness (Davis 1989; Davis et al. 1989), performance expectation (Venkatesh et al. 2003), and IS performance (Au et al. 2008). In some cases, perceived usefulness is used as a surrogate or measurement of utilitarian value (Hsieh et al. 2008; Venkatesh et al. 2001). A large number of studies suggest a positive impact of utilitarian value on user satisfaction (Bhattacharjee 2001b; Chea et al. 2008; Cheung et al. 2009; Hassenzahl 2001; Hong et al. 2006; Oliver 1993; Thong et al. 2006). Therefore, we propose:

H2: A SVW user’s perception of utilitarian value is positively associated with his or her satisfaction.

In addition to utilitarian value, researchers have noticed the salience of hedonic value in consumer behavior. While utilitarian value represents extrinsic value and cognitive evaluation, hedonic value captures the intrinsic value and affective evaluation. Hedonic value refers to a user’s positive emotions or feelings towards using a system, representing an overall judgment based on the usage experience itself (Babin et al. 1994b). Hedonic value has multiple sources and dimensions, including enjoyment, escapism, and entertainment (Mathwick et al. 2001; Wetzels et al. 2009). Wetzels et al. (2009) demonstrate the construct validity of hedonic value as a higher order reflective factor, as well as its nomological validity in predicting attitudinal and behavioral e-loyalty.

Many scholars have noticed the importance of hedonic value in the adoption and usage of IS. Some researchers have acknowledged the difference in user acceptance models for utilitarian and hedonic IS, and established an acceptance model of hedonic IS by integrating an affective factor (i.e., perceived enjoyment) into the original technology acceptance model (Van der Heijden 2004). Specifically, referring to the literature on hedonic consumption, research models are proposed to explain SVW acceptance from a hedonic perspective (Holsapple et al. 2007). Similarly, in the IS continuance literature, there is an increasing concern of integrating utilitarian and hedonic factors and studying the interplay between cognition and emotion. Affective or pleasant-oriented (i.e., hedonic) factors such as perceived enjoyment (Thong et al. 2006), affect (Chea et al. 2008), pleasure and arousal (Caro et al. 2007) are integrated into the IS continuance model to predict users’ continuance intention. Specifically, in the context of online services such as SVWs which can be treated as “dual” systems (Chesney 2006), it is important to integrate factors that are beyond utilitarian value into the IS continuance model, in order to get a more comprehensive understanding of online service continuance. This is because Internet-based services provide not only utilitarian value but also hedonic value (Stafford et al. 2004), both of which are components of experiential value (Mathwick et al. 2001). Similar with utilitarian value, hedonic value is suggested to impact positively on satisfaction. Thus, we propose:

H3: A SVW user’s perception of hedonic value is positively associated with his or her satisfaction.

The research model of this study is shown in Figure 1. In general, our model implies that satisfaction mediates the effects of utilitarian value and hedonic value on continuance intention. However, prior research has suggested direct effects of various perceived benefits on continuance intention, in the ab-

sence of satisfaction (e.g., Lin and Bhattacharjee 2008). In order to check whether perceived benefits impact on continuance intention over and above satisfaction, we take into account not only the hypothesized relationships but also the direct effects of perceived benefits (utilitarian, hedonic, and social) on continuance intention. Specially, we explicitly control

for the relationships between experiential value and continuance intention in testing the research model. Lack of such direct effects will add to the validity of our claim that satisfaction has played a mediating role between perceived benefits and continuance intention.

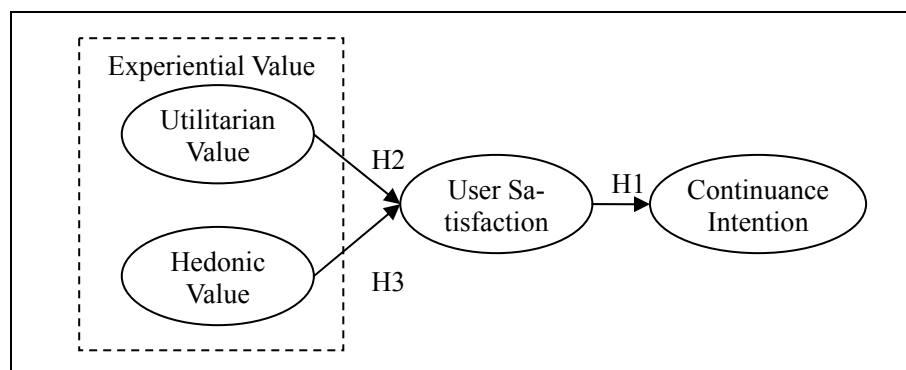


Figure 1. Research Model

### 3. Methodology

The theoretical model above was assessed through online surveys of individual users of SL, which has been suggested in previous research as representing a “typical” social virtual world (Davidson 2008). As one of the Internet’s largest user-created, 3D virtual world communities, SL was opened to the public in 2003 and has since attracted a very large number of registered users (also known as residents) and active users, constituting a valuable source of data for academic research. Taking this into consideration, this empirical study is conducted in SL focusing on SL users.

#### 3.1 Data Collection

An online questionnaire survey containing questions about all the constructs was posted on QuestionPro ([www.questionpro.com](http://www.questionpro.com)), a widely used online survey service website, and activated for access from all over the world. Real users of SL were asked to report their beliefs, feelings and intentions toward SVW usage. QuestionPro has the function of pre-

venting repetitive submission of the questionnaire from the same respondent based on hyperlinks and IP addresses. Invitation messages were distributed to as many SL users as possible through multiple channels, including: emails, SL forums, SL “in-world” messages, Facebook and Twitter posts. To encourage a higher response rate, we used economic incentives and managed several rounds of reminders.

A total of 464 valid responses were received for data analysis. Among the 464 respondents, 43.1% were male and 56.9% were female. Respondents’ mean age is about 35; mean work experience is 15.17 years. About 30% were aged between 21 and 30, and 6.9% aged 56 or above. 31.9% had 5 years’ work experience or below, 11.6% had more than 30 years’ work experience. A quarter of the respondents held a certification of high school or below, while nearly 60% held undergraduate degrees or above. Regarding real life occupation, 22.4% were business manager or employees, 5.2% worked for government, 30.6% were teaching staff and students, and 9.7% were un-employed or retired. In addition, we collected in-

formation about the respondents' usage experiences with SL. In terms of the length of residence in SL, 48.7% of the respondents had one year experience with SL or below, while only 12.5% had 3 years' experience or more. Most of the respondents used SL heavily. Only 8.6% of the respondents used SL less than once per week, while 63.6% used SL once per day or more. Only 11.2% of the respondents stayed in SL for one hour or below each time they used it, while 73.1% stayed for two hours or more. In general, while our sample is balanced across various demographic features, it primarily reflects the opinions of experienced and heavy users. The sample appears to fit the objective of the study: investigating repeated

use intention.

**3.2 Measures**

All of the constructs were modeled in this study as first-order reflective constructs with multiple items adapted from previous research (see Table 1). All measures were pretested prior to use on a sample of SL users. Nineteen items in total were generated. The four items of satisfaction were measured using seven-point semantic differential scales, e.g., from "extremely dissatisfied" (1) to "extremely satisfied" (7). All of the other items were measured using seven-point Likert scales anchored from "extremely disagree" (1) to "extremely agree" (7).

Table 1. Measurement Scales

Utilitarian value: Adapted from (Griffin et al. 2000)
UV1: While using Second Life, I finished just the tasks I initially intended to.
UV2: I could do what I really needed to do in Second Life.
UV3: I accomplished just what I initially wanted to in Second Life.
Hedonic value: Adapted from (Griffin et al. 2000; Sweeney et al. 2001)
HV1: Compared to other things I could have done, the time spent in Second Life was truly enjoyable.
HV2: The use of Second Life gave me pleasure.
HV3: I have chosen features offered by Second Life to suit my style of use.
Satisfaction: Adapted from (Bhattacharjee 2001b)
How do you feel your overall experience with Second Life?
SAT1: Extremely dissatisfied / satisfied
SAT2: Extremely displeased / pleased
SAT3: Extremely frustrated / contented
SAT4: Extremely terrible / delighted
Continuance intention: Adapted from (Bhattacharjee 2001b)
CI1: I intend to continue using Second Life rather than discontinue its use in the next few months.
CI2: I expect my use of Second Life to continue in the next few months.
CI3: If I could, I would like to continue my use of Second Life in the next few months.

**4. Data Analysis and Results**

This study used a structural equation modeling (SEM) technique via LISREL 8.7 to examine the measurement model and structural model in sequence (Hair et al. 1998). The results of data analysis were double

checked with an additional analysis procedure via AMOS and PLS. As these additional analyses indicated similar results to those from the LISREL analysis, for the sake of brevity, we primarily report on the results of the LISREL analysis in this paper.

#### 4.1 Measurement Model

To assess the psychometric properties of the measures, a LISREL-based confirmatory factor analysis (CFA) was performed. As the first item of utilitarian value (UV1) had a poor loading (0.27) and a high error variance (0.93), we removed it from later analysis following the practice in prior research (Thatcher et al. 2004). After that, all of the constructs in the model were of good reliability, and had good convergent and discriminant validity. As shown in Table 2, composite reliability (CR) and average variance extracted (AVE) values for all of the constructs exceeded 0.70 and 0.50, respectively, demonstrating good construct reliability (Fornell et al. 1981; Thatcher et al. 2002-3); all of the t-tests of item loadings were significant ( $t > 1.96$ ;  $p < 0.05$ ), indicating high convergent validity for all of the indicators (Gefen et al. 2005).

The constructs also exhibited sufficient discriminant validity (Table 3) as the square root of AVE for each construct was higher than 0.70 and greater than all of the correlations between constructs (Gefen et al. 2005). To further validate discriminant validity,

we compared the  $\chi^2$  of the original measurement model with its ten latent variables against the alternative measurement models with only four latent variables “where every possible combination of two constructs was examined, thus considering every possible pairwise discriminant validity check” (Gefen et al. 2003). The results indicated that the  $\chi^2$  of the original model was significantly better than any possible combination of any two latent variables (the details of the analysis are omitted here due to the page number limitation but are available from the correspondent author upon request), further validating adequate discriminant validity of all constructs.

The overall fit of the measurement model was evaluated using multiple fitness indices, including  $\chi^2$ , goodness of fit index (GFI), Adjusted GFI (AGFI), normed fit index (NFI), non-normed fit index (NNFI), comparative fit index (CFI), and root mean square error of approximation (RMSEA). As shown in Table 4, the measurement model fits well with the data in general (Bentler et al. 1980; Hair et al. 1998; Segars et al. 1993).

Table 2. Confirmatory Factor Analysis Results Using LISREL

Construct	Item	$\lambda$	$\theta$	T-value	Notes
Utilitarian Value (CR=0.80, AVE=0.67)	UV2	0.91	0.17	18.78	$\lambda$ represents item loading; $\theta$ represents standard error; $CR = \frac{(\sum \lambda)^2}{(\sum \lambda)^2 + \sum (\theta)}$ represents composite reliability; $AVE = \frac{(\sum \lambda^2)}{(\sum \lambda^2) + \sum (\theta)}$ represents average variance extracted.
	UV3	0.72	0.49	14.98	
Hedonic Value (CR=0.86, AVE=0.68)	HV1	0.85	0.28	21.92	
	HV2	0.88	0.23	22.91	
	HV3	0.74	0.46	17.82	
Satisfaction (CR=0.93, AVE=0.77)	SAT1	0.89	0.21	24.27	
	SAT2	0.91	0.17	25.19	
	SAT3	0.82	0.32	21.41	
	SAT4	0.89	0.21	24.11	
Continuance Intention (CR=0.96, AVE=0.88)	CI1	0.92	0.16	25.69	
	CI2	0.98	0.04	28.98	
	CI3	0.92	0.15	25.95	



Table 3. Correlation Matrix with Square Root of the AVE in the Diagonal

	UV	HV	SAT	CI
Utilitarian Value (UV)	<b>0.82</b>			
Hedonic Value (HV)	0.60**	<b>0.83</b>		
Satisfaction (SAT)	0.52**	0.72**	<b>0.88</b>	
Continuance Intention (CI)	0.33**	0.62**	0.52**	<b>0.94</b>

Notes: \* p<0.05; \*\* p<0.01.

Table 4. Overall Fits of the Measurement Model and Structural Model

Fit Index	Measurement Model	Structural Model	Recommended Criteria
d.f.	48	50	
$\chi^2$	152.47	214.92	As small as possible (Segars et al. 1993)
GFI	0.95	0.93	>0.90 (Segars et al. 1993)
AGFI	0.92	0.89	>0.80 (Segars et al. 1993)
NFI	0.98	0.97	>0.90 (Bentler et al. 1980)
NNFI	0.98	0.97	>0.90 (Bentler et al. 1980)
CFI	0.99	0.98	>0.90 (Bentler et al. 1980)
RMSEA	0.07	0.08	<0.08 (Hair et al. 1998)

#### 4.2 Structural Model: Hypothesis Testing

Overall, the structural model fits well with the data (Table 4). Multicollinearity is not a major concern as the squared correlations between constructs in the correlation matrix did not exceed 0.8 and variance inflation factors in the collinearity diagnostics did not exceed the accepted threshold of 3.33 (Diamantopoulos et al. 2006). Also, common method variance was assessed with a post hoc Harman’s Single-Factor Test, which provided no evidence for common method variance (Malhotra et al. 2006; Podsakoff et al. 2003).

As shown in Figure 2, 30% of the variance in continuance intention is explained by the model, and 54% of the variance in user satisfaction is explained by utilitarian value and hedonic value. In particular, both utilitarian value ( $\beta=0.13$ ,  $t=2.52$ ,  $p<0.05$ , **H2** supported) and hedonic value ( $\beta=0.65$ ,  $t=11.64$ ,  $p<0.01$ , **H3** supported) have significantly positive impacts on user satisfaction, which in consequence

influences continuance intention significantly and positively ( $\beta=0.55$ ,  $t=12.23$ ,  $p<0.01$ , **H1** supported).

#### 4.3 Test of Mediation

To establish the mediating role of user satisfaction between experiential value (utilitarian and hedonic) and continuance intention, we used nested model comparisons following the procedures suggested in prior research (Qureshi et al. 2009). As shown in Table 5, we compared the fits statistics for a full model (base), which includes all of direct and indirect effects, to two constrained models (Model-1 and Model-2) described below. To test the mediating effect of user satisfaction on utilitarian value  $\rightarrow$  continuance intention, Model-1 was created by constraining the coefficient between utilitarian value and continuance intention to “zero.” Model-1 was then compared to the base model. Model-1 shows acceptable fit (GFI=0.95, AGFI=0.92, NFI=0.98, NNFI=0.98, CFI=0.99, RMSEA=0.07). The nested

model comparison indicated that the addition of this constraint did not significantly deteriorate the model ( $\Delta\chi^2=1.50$ ,  $df=1$ ,  $p>0.1$ ) compared to the base model, meaning that the presence of the utilitarian value  $\rightarrow$

continuance intention path did not provide any additional information. Hence, user satisfaction fully mediates the relationship between utilitarian value and continuance intention.

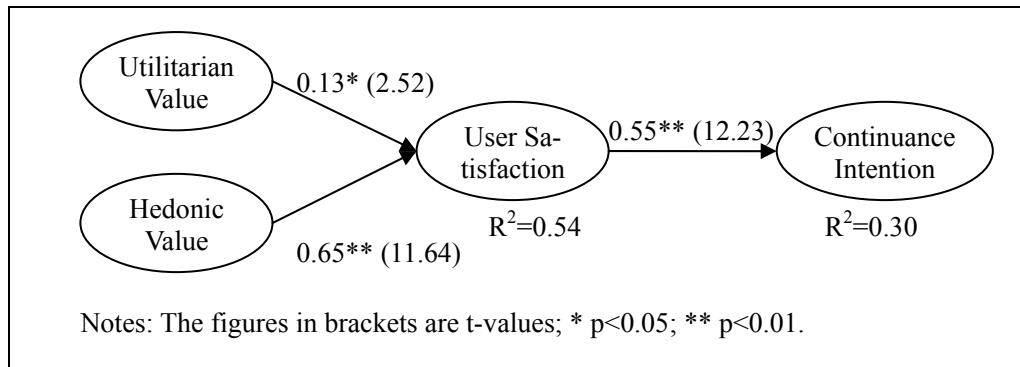


Figure2. Structural Model Assessment

Table 5. Test of Mediation: Nested Model Comparison

	<b>Base Model</b>	<b>Model-1</b>	<b>Model-2</b>
Satisfaction $\rightarrow$ continuance intention ( $\beta_1$ )	0.18 **	0.17 **	0.49 **
Utilitarian value $\rightarrow$ satisfaction ( $\beta_2$ )	0.13 *	0.14 **	0.13 *
Utilitarian value $\rightarrow$ continuance intention ( $\beta_3$ )	-0.09	@	0.10
Hedonic value $\rightarrow$ satisfaction ( $\beta_4$ )	0.64 **	0.64 **	0.65 **
Hedonic value $\rightarrow$ continuance intention ( $\beta_5$ )	0.54 **	0.49 **	@
$\chi^2$	152.47	153.97	210.50
d.f.	48	49	49
GFI	0.95	0.95	0.93
AGFI	0.92	0.92	0.89
NFI	0.98	0.98	0.97
NNFI	0.98	0.98	0.97
CFI	0.99	0.99	0.98
RMSEA	0.07	0.07	0.08
$\Delta\chi^2$	--	1.50	58.03
p-value	--	>0.1	<0.01

Notes: @ signifies path was constrained to “zero”; \*  $p<0.05$ ; \*\*  $p<0.01$ .

To test the mediating effect of user satisfaction on hedonic value  $\rightarrow$  continuance intention, Model-2 was created by constraining the coefficient between hedonic value and continuance intention to “zero.”

Model-2 was then compared to the base model. Although the fit indices for Model-2 were acceptable (GFI=0.93, AGFI=0.89, NFI=0.97, NNFI=0.97, CFI=0.98, RMSEA=0.08), the nested model compar-

ison indicated that the addition of this constraint significantly deteriorated the model ( $\Delta\chi^2=58.03$ ,  $df=1$ ,  $p<0.01$ ) compared to the base model. The analysis thus suggested that user satisfaction partially mediates the relationship between hedonic value and continuance intention.

## 5. Discussion

### 5.1 Implications

The study contributes to the literature on IS continuance in general, and studies of SVWs in particular. Our research model provides a comprehensive understanding of the roles of experiential value in predicting SVW users' satisfaction and continuance intention. The results shed lights on further investigations on SVWs and their continuance. Especially, our research finding suggests the importance of hedonic value in SVW usage. Prior research has extensively investigated the effect of utilitarian value (e.g., perceived usefulness) on users' intention to continue using an information system, but paid less attention to hedonic value. The results in this study indicate that, apart from utilitarian value, hedonic value also has positive effect on user satisfaction and continuance intention (either directly or indirectly) of SVW users. This makes good sense because, as a typical Web 3.0 service, SVWs provide users not only functionalities supporting instrumental applications (which enhances utilitarian value), but they also provide users with experiences of immersion (which enhances hedonic value). In general, the result implies that people are motivated to participate in SVWs by various motivations; as a special type of online service, SVWs have attracted a large number of users with various purposes and concerns not only because of the features and functions they provide to the users for fulfilling functional values such as education, learning and business, but also because users come in-world for playfulness and aesthetics that they can achieve by using this service.

Further, we find that user satisfaction has partially mediated the effect of hedonic value on conti-

nuance intention, whereas the effect of utilitarian value on continuance intention has been completely mediated by satisfaction. This finding suggests that various components of experiential value impact differently on SVW users' continuance intention either directly or indirectly. For example, it is plausible to argue that, relative to utilitarian value, hedonic value is a deeper-level user perception that parallels user satisfaction and has a direct effect on intention. It is also possible that other deeper-level feelings (e.g., delight), apart from satisfaction, will mediate the effect of hedonic value (Chitturi et al. 2008).

The study has some implications for practice as well. The findings provide hints to SVW companies on how to attract different users to continue participating in worlds. Given the typicality of SL, our research findings can benefit SVW operators in general. For example, our study suggests the important role of hedonic value in encouraging SVW users' persistent usage. Hedonic value highlights the managerial importance of providing these users with holistic optimal experiences or flow experience (Csikszentmihalyi 1990; Koufaris 2002). Users who have such experiences in their usage are highly likely to go back for continued use.

### 5.2 Limitations and Future Research

A potential bias in this study is that we have only collected the beliefs, opinion, intention, and behaviors from SVW users, but no information from the perspective of non-users (or who used to be users but then became non-users). However, in order to get a comprehensive understanding of SVW success, it is important to understand not only why users would like to continue using but also why people discontinue. Therefore, further studies could investigate non-users or users' intention and behavior of discontinuance, resistance or withdrawal to better understand this issue.

One possible threat to internal validity in this study is that only cross-sectional data were used for analysis. The use of cross-sectional data can only

conclude correlations rather than causal relationships. In this study, as all causal relationships proposed were based on well-established theories which provide clear causal relationship between constructs, therefore, in general, the threats of internal validity are not serious. Future research can use longitudinal design to further validate the causal relationships in this study.

In addition, this study shows potential threats to external validity because all data were collected in a single SVW, namely, SL. However, as SL is one of most popular and typical SVW in existence, this threat has been controlled to some extent. In addition, scholars have acknowledged similarities between SL and other SVWs such as HiPiHi, Active Worlds and Blue Mars in terms of purpose, place, platform, population, and profit model, among others (Messinger et al. 2008; Novak 2009). This evidence provides preliminary support for generalizing the findings in this study to other SVWs. In order to further validate the external validity of the research findings in this study, future research should replicate the study in other SVWs.

## 6. Conclusion

SVWs are becoming more popular and important for individuals and organizations. However, there is a lack of knowledge understanding SVW success and sustainability. This study investigates the role of experiential value in predicting SVW users' satisfaction and continuance intention. Individual continued usage of SVWs is not single-faceted. From a lens of experiential value, SVW users are motivated not only by utilitarian value but also by hedonic value. In the context of SVWs, various components of experiential value play different roles in predicting user satisfaction and continuance intention in terms of mechanisms and degree. Researchers and practitioners can benefit from such a study by building a clear understanding of the role of experiential value in SVWs continuance.

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