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(Full Paper)

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ABSTRACT
This study enlists four motive constructs (achievement, control, escapism, and friendship) to show significant differences exist across when applied to different VWs platforms, and shows VW platform studies need to be investigated in isolation, and not in combination. The four motive constructs differ, and in structural equation modelling they can be treated as a combined suite of input motives, and against one VW platform at a time. Such studies offer developers (and relational marketers) direction when formulating and building their VW platform's sustainable positioning modelling outcome directions.

Keywords: End-user motives, gamification, virtual world platform, sustainable positioning, achievement, control, escapism, friendship.

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INTRODUCTION
Virtual Worlds (VWs), Virtual World Communities (VWC), and Social Network Sites (SNSs) have experienced a substantive technological improvement and development in end-user engagement & gamification all over the world (Chung, Nam, & Koo, 2016; J. Guo & Gong, 2011). This has altered the boundaries, the limits, and the scope of VWC (Chung et al., 2016; T. Wang, Yeh, Chen, & Tsydypov, 2016). VWs, VWC, and SNSs each provide a unique yet different platform. Different platforms offer different types and different level of interaction between online global end-users; each does so without restrictions of boundaries, borders, time, or space (Bell, 2008; Novak, Mladenow, & Strauss, 2014).

Virtual Platforms can be defined as platforms where end-users can create and customize personal avatar in a three-dimensional (3D) form that can simultaneously explore, communicate, and interact with the surrounding environment (Nazir & Lui, 2016; Nazir, Lui, & Hamilton, 2016). Such virtual engagement is in addition to communicating with other end-user avatars (Aichner & Jacob, 2015). VWs represent a dynamic new media between virtual participants (avatars) within the virtual community platform.

VWs are becoming a part of some end-users' desires and actions. These desires and actions can generally be described as entertainment, escapism, social interaction, information sharing, achievement, friendship, personalization, and leisure time (Bartle, 2004; Chung et al., 2016; Ridings & Gefen, 2006; Yee, 2006). Marketers remain interested in understanding end-users' motives toward VWs. These new media VW channels can be crafted by marketers when pursuing the delivery of 'compelling messages' directed at avatars that individually represent each of their respective end-users (Jin, 2014).

Virtual world communities are defined as a group of online end-users who form an online relational social network, or relational community (Kannan, Chang, & Whinston, 2000). VWCs can include many forms; (1) blogs, (2) Massive Multiplayer Online-Role Playing Games (MMORPGs) and/or (3) VW environments with new emerging realities such as can be seen in Second Life (SL). End-users in VWCs can possess similar goals, interest, and/or beliefs. For example, many of these end-users share information and VW knowledge and so become further involved across varieties of their social interactions (Chiu, Hsu, & Wang, 2006). Each VW also facilities, and sets, its resourcing to appropriately support its VWC of end-user members (Chiu et al., 2006).

A VWC's sustainable positioning is geared to the VW developers and their abilities to keep their end-users motivated and interacting across their VW Platform. A VWC's sustainable positioning builds on the virtual platform retention and active participation of end-users (Bock, Ahuja, Suh, & Yap, 2015; Wang, Butler, & Ren, 2013). Many previous VW Platforms grew substantively, but failed, to retain their suite of active users, and so became obsolete over-time (Phang, Kankanhalli, & Sabherwal, 2009). For example, the VW 'SixDegrees.com' launched in 1997, and ceased operation in 2000 (Boyd & Ellison, 2007). Similarly, MySpace (the social media platform leader in 2006) has since been replaced by alternate platforms such as Facebook, Instagram, and others (Tucker, 2019). These replacement platforms remain their agility. They utilize their intelligent mining of consumers' servicing characteristics, behaviors, and values assessments, and so modify, and effectively retain their corporate sustainable positioning (Dai et al., 2014).

Bock, et al. (2015) suggests the understanding of VW end-user motives is likely important when investigating VW Platforms. Others term motives 'an intention to use', and offer varieties of approach considerations - including: attitude, risk, TAM, relative advantage, compatibility, usefulness, expertise, trustworthiness, decision-making, comparative-assessment (Jalilvand et al., 2012, Cantallops & Salvi, 2014, Ayeh, 2015, Agag & El-Masry, 2016, Pappas, 2016).

However as: (1) the above end-user motives, (2) other findings (Constantiou et al., 2012; Y. Guo & Barnes, 2011; Hassouneh & Brengman, 2014; Zhou et al., 2011), and (3) Table 1's summation, do not provide consistent approach considerations, this study now seeks clarification around VW Platform end-user motives. It seeks to contrast different VW Platform types, and to determine whether end-user motives within a particular VW Platform may offer developers insights when pursuing improvements to their particular online VW community's sustainable positioning. Such findings may extend into possibly providing some direction when developers are building a similar VW Platform.

LITERATURE REVIEW

Virtual Worlds

Each VW end-user participate in a VW appears as a 3D animated character - termed an 'avatar'. Here, the real-world, end-user's virtual-world avatar navigates within the aspects and actionable areas of the 3D VW Platform's virtual environment (Girvan, 2018).

The avatar is a constructed graphical representation made by the end-user into a 3D actionable form that then interacts with surrounding virtual objects and other contactable end-user avatars (Liu & Williams, 2008; Nah, Schiller, Mennecke, Siau, & Sattayanuwat, 2011; Tikkanen, Hietanen, Henttonen, & Rokka, 2009). These avatars can sometimes exchange IM, virtual objects and money (virtual money). They may also communicate through texting, voice chatting, display different gestures, by voice conversations and/or by actions (Girvan, 2018; Nazir & Lui, 2016, 2017; Nazir et al., 2016).

Different Virtual Worlds

Tikkanen et al. (2009) grouped existing VWs into four categories; these categories are Static Game World (SGW), Dynamic Game World (DGW), Static VWs (SVWs), and Dynamic VWs (DVWs).

Jung (2011) then classified VWs into SVWs, Mixed VWs (MVWs), and Gaming VWs (GVWs). SL, as the representative of a SVW does contain some gaming activities, but these gaming activities developed by the end-users themselves and not by the developers of SL.

At the operational end, EU, as an MVW, is a dynamic gaming virtual world that also includes a very high level of social activities and collaboration. In 2013, EU listed a moon for development, with management rights bidding started at US$150,000. The winning moon-bidder is now allowed to operate their own moon in EU (Entropia Universe, 2013; McGlaun, 2013). There are different and extensive differences between social-related and game-related activities across these differing forms of VWs. There are also different features available for creating dynamic-content and/or interactions with other end-users.

WOW, as the representative of GVWs, allow end-users as internal game avatars to just explore the landscape, fight monsters, and complete quests (Calvert, 2010). The virtual currency used on WOW is Gold. In the past, exchange Gold with real money happens illegally, outside the control of Blizzard Entertainment (the WOW game developers).

SL allows end-user avatars to meet, interact, and create individual or group activities in a manner similar to the way activities are conducted in real life, such as going to the cinema, shopping in retail malls, engaging in sport stadium activities and/or participating in education (school or university).

SL resident avatars can earn Linden Dollars by working in SL virtual jobs or by investing in real estate or buy directly by exchanging real money for Linden Dollars (using LindeX exchange market). Virtual currency is then used to purchase different VW items such as clothes and fashion, weapons, property, vehicles and pets. These items are used by the SL end-user to frame their avatar's presence, create the avatar's virtual world and to conduct virtual world business.

From 2003 to 2013, the number of VW end-users in SL grew from a virtual land size of 64 acres to 448,000 acres and expanded to more than 36 million residents. In 2014, there were over 1 million active end-users in SL, with over 1.2 million transactions each day for virtual items (Hendaoui, Limayem, & Thompson, 2008; Linden Lab, 2013). Similarly, VWs such as WOW and EU also experienced significant growth in terms of end-users and size of their respective economies (Gapper, 2006; Nazir & Lui, 2016).

Gaming Virtual World

GVW Platforms encourage team players and group formation - where combined strengths quickly complete some of the quests to win group mutual benefits. These special interest groups work together as guilds to generate competitive high profile within these VW social environments, and they mirror real-life social groups (Zhang & Kaufman, 2015). They require member engagement, commitment, and dedication. Guild players in GVWs fulfil roles within their groups such as killers, or irritants, or preservers. Guild success arises where the group balances and overall dominates across these three members roles (Zhang & Kaufman, 2015). A strong relationship of trust is often developed in such a competitive group environment (Zhang & Kaufman, 2015).

Social Virtual World

In contrast to the competitive gaming of GVWs, SVWs are designed to replicate the real-life experience, thus allowing different types of interaction between end-users along with the extended and unrestricted experience. Here, end-user avatars can craft, buy and sell products and services they can dance, drive, eat, marry, and so forth. Hence, they can live an entire virtual life (Mäntymäki & Salo, 2013; McKenna, 2019; Zhou, Jin, Vogel, Fang, & Chen, 2011).

Hassouneh and Brengman's (2014) list motives for joining SVWs as: making friends, escaping reality, being a role-player, achieving (by developing a revenue-generating business), seeking relationships and/or manipulating others. This fits within Sharma et al.'s (2013) model of VWs end-users' motives as four constructs: technology, social networking, entertainment, and revenue-making.

End-Users' Motives
Motives is an intention aspect of what drives the end-user's activity. It is connected to 'gratifications theory,' which has an impact on individual action (Basilisco & Cha, 2015).

Previous studies find different motives involve different media platforms. Roy (2009) finds a reason end-users choose to use Facebook and Myspace in the US is to 'meet friends' and to 'seek information.' As argued by Hassouneh and Brengman (2014) and Lehdonvirta (2009), many researchers either look at social media networks or VWs, without considering the difference between VWs. They describe reasons for joining SVWs as: to make friends, to escape reality, to be a role player, to achieve (for example, to create a revenue-generating business), to seek friendships, and/or to manipulate others. These constructs also fit within Sharma et al.'s (2013) model of VW end-users motives – including: technology, social networking, entertainment, and making-revenue.

Yee (2006) studied GVWs finding that the motives to join are similar to those in SVWs. Yee (2006) argues that 'achievement,' 'social', and 'immersion' are the overarching constructs that also motivate end-user's participation

Lin et al.'s (2015) study concludes that end-users of VWs are motivated by achievement values and so seek personal success. They also find that end-users with achievement motives tend to have a stronger social position, and authority, compared with other end-users. "The six achievement values, which include: advancement of wealth and status, victory, socialization ability, self-actualization, fantasy, satisfaction, and adventure, also drive end-user players to successfully meet social standards in MMORPGs" (Lin et al., 2015, P.846).

In developing the study's end-user motives, we first investigate previous research models (Table 1) that apply end-user motives to participate. This study investigates the motives encouraging VW Platform end-users to keep participating in their chosen VW. In their VW, these end-users show less concern about the platform's 'usefulness,' or its 'ease-of-use,' because these existing end-users are already familiar with their VW platform, and they are able to navigate within it, and they are able to actively use its actionable VW areas. However, they are concerned about both the VW Platform's deliverables and its participatory activities. The broad concept 'entertainment' is also difficult to classify. It too is outside the scope of responses from this study's active, competitive end-users, and so it is not included in this study. Hence, this study does not include end-user usefulness, or end-user ease-of-use, or end-user entertainment as a motive driver towards promoting end-user participation into either of the three virtual worlds (SVW, MVW, and GVWs) investigated herein.

Thus, we reduce the seven literature-supported key motives to participate (achievement, control, ease-of-use, entertainment, escapism, relationship (friendship), and useful) down to Table 1's remaining four, relevant, literature-supported, online, VW community participation motives (achievement, control, escapism, and friendship).

VWs Sustainability
Understanding end-users' motives remains important when understanding the target users of a VW, but of key importance is how these motives help build and/or develop an online community sustainable positioning (Bock et al., 2015). Thus, when pursuing the retention and growth of VW platform end-users, VW developers should maintain first enlist the above existing motive constructs, and over-time seek improvements to the motive items listed. These VW developers may even source additional/emergent motive constructs that can expand on this study's findings (see below).

Bock's (2015) study suggests that to improve an active member's experience in the VW, its developers can improve their IT infrastructure and so facilitate increased interaction and collaboration between end-users. This in-turn, can enable end-users to share their VW experience information more effectively, and so build stronger ties with each other (Bock et al., 2015; Nazir, Hamilton, & Tee, 2018). Add-ons, such as also allowing VW users to choose most appropriate collaboration tools (Bock et al., 2015), may offer further VW experience improvements.

Table.1: Grouping End-users' Motives Studies

End-users' Motives	Achievement	Control	Escapism	Relationship (Friendship)

References	Achievement	Challenge	Role Play	Self-Expression	Financial	Fantasy	Escapism	Individualism	Socializing	Relationship	Information	Friendship
Basilisco & Cha, (2015)									✓		✓	✓
Hassouneh & Brengman, (2014)	✓		✓				✓			✓		✓
Zhong, (2014)		✓				✓	✓					
Verhagen, Feldberg, van den Hooff, Meents, & Merikivi, (2012)						✓	✓					
Barnes, (2011)												
Barnes & Pressey, (2011)								✓				
Partala, (2011)				✓		✓			✓			
Yeh, Chuan-Chuan Lin, & Lu, (2011)									✓			
Zhou et al., (2011)					✓				✓			

METHODOLOGY

Instrument Development

This study investigates different end-users' motives among the different types of VWs platforms. Target participants are active end-users of SL, EU, and WOW. Hence, an online global VW platform questionnaire offers a suitable research design, and allows this study to reach global respondents within its specifically-targeted SL, EU, and WOW participatory communities.

The 2015 online questionnaire was shared globally using the online questionnaire platform called 'Survey Monkey'. The piloted, and validated questionnaire measured items were developed from constructs used in previous studies (Table 1)
The online, 5-point Likert Scale (1 = strongly disagree to 5 = strongly agree) questionnaire takes 10-15 minutes to complete. It remained active online for three months. The questionnaire URL was distributed through the SL, EU, and WOW related community platforms, including Facebook groups, forums, and Instant Messaging (IM) within the VWs platforms.

Specifically, achievement motive measurements items are adapted from (Hassouneh & Brengman, 2014; Zhou et al., 2011), control motive measurement items adapted from (Y. Guo & Barnes, 2011), escapism motive measurement items adapted from (Hassouneh & Brengman, 2014; Mackenzie, Buckby, & Irvine, 2009; Partala, 2011), and friendship motive measurement items adapted from (Constantiou, Legarth, & Olsen, 2012; Hassouneh & Brengman, 2014; Suler, 2004). Thus, four targeted motive constructs were enlisted.

Data Collection

The online questionnaire delivered 613 responses. After eliminating duplication, incomplete answers, and inconsistencies, the final usable sample size for this study was 274 responses. This large reduction in response usability was due in-part to many respondents starting the survey and not completing it, or not completing the last demographic section, and/or not completing certain survey sections. Nevertheless, a usable global sample size is obtained.

Factor reduction engaged SPSS 22.0. The motive constructs developed each held all items to item loads above 0.7, residuals below 0.05, and no cross-loads greater than 0.3 existed. Each motive construct exhibited a Cronbach Alpha above 0.6 and held an average-variance-explained measure of above 0.5 (Hair et al., 2010). Hence, all construct items showed internal consistency, and reliable constructs resulted.

RESULTS

Table 2 summarizes the demographics of the study sample across the different VW platforms (SL, WOW, and EU). Overall, the male population (57%) outweighs the female population (43%). About 79% of the VW population is aged 44 years or younger. Thus, those involved-in, and engaging-with, these three interactive VW Platforms tend to be non-gender specific and tend to be within the 18 to 44 years age group.

Table 2: Respondent Demographics (profile)

Demographic Measure (N=274)	Percentage (%)
Gender	
Female	43.1%
Male	56.9%
Age	
18 to 24	23.7%
25 to 34	30.7%
35 to 44	24.8%
45 to 54	14.6%

55 or older	6.2%

ANOVA Results

The study's hypotheses are investigated via ANOVA with post-hoc analysis. Table 3 shows the achievement motive is significant ($p < 0.05$) for SL against WOW, and for EU against WOW, and insignificant for SL against EU. The control, escapism and friendship motives also display significant differences in end-user motives within their respective different VW platforms. SL is different in its control motives, escapism is different in its EU motives, and friendship is different in its EU differences.

These significant differences in motives are understandable, and they can arise because of the differences in the purpose and use of these differing VW platforms, and the type of end-user activities conducted within each VW platform.

Table 3: ANOVA with the Tukey HSD Test for Social Capital (Cognitive, Relational and Structural)

Construct	Main VW	Compared VW	Mean Differences	Std. Error	Sig.
		Achievement			
	SL	EU	.207	.145	0.32
		WOW	.540	.131	0.00
Achievement	EU	SL	-.210	.145	0.32
		WOW	.332*	.136	0.04
	WOW	SL	-.540*	.131	0.00
		EU	-.332*	.136	0.04
		Control			
	SL	EU	.600*	.142	0.00
		WOW	.343*	.129	0.02
Control	EU	SL	-.600*	.142	0.00
		WOW	-.256	.134	0.13
	WOW	SL	-.343*	.129	0.02
		EU	.256	.134	0.13
		Escapism			
	SL	EU	.349*	.135	0.02
		WOW	-.296*	.122	0.04
Escapism	EU	SL	-.349*	.135	0.02
		WOW	-.645*	.126	0.00
	WOW	SL	.296*	.122	0.04
		EU	.645*	.126	0.00
		Friendship			
	SL	EU	.503*	.151	0.00
		WOW	-.200	.137	0.31
Friendship	EU	SL	-.503*	.151	0.00
		WOW	-.703*	.142	0.00
	WOW	SL	.200	.137	0.13
		EU	.703*	.142	0.00

* The mean difference is significant at the 0.05 level

CONCLUSION

This study highlights that these four motive constructs (achievement, control, escapism, and friendship) show significant differences when applied to different VWs platforms. It also suggests that VW platform studies need to be investigated in isolation, and not in combination. This study clarifies why past and combined VW platform studies of achievement, control, escapism, and friendship end-users' motives (Constantiou et al., 2012; Y. Guo & Barnes, 2011; Hassouneh & Brengman, 2014; Zhou et al., 2011) have delivered inconsistent (and sometimes unpredictable) findings.

This study suggests the motive constructs (achievement, control, escapism, and friendship) each exert different effects within an individual VW platform. Hence in VW platform studies it likely remains useful to investigate the motive influences of the constructs (and their items) as a combined suite of input motives, and to do so one VW platform at a time. Further, for each VW platform, such end-user motive constructs can be used in structural equation modelling as a suite of pre-engagement drivers that initiate VW behavioral, and/or values, and/or trust/loyalty studies. Such studies offer developers great direction when formulating and building their VW platform's sustainable positioning modelling outcome directions.

Further understanding of such motive constructs also provides VW Platform and gaming developers with potential specific item-focused additions. Sometimes, these item addition considerations may expose further virtual platform 'sustainable

positioning' enhancements, or they may expose relational marketing pathways through which the VW developers may work towards enhancing their end-user and/or potential new-consumer commitments.

Limitations and Scope for Future Research
- The sample size per VW type is acceptable, but relatively small when sectioned into VW platform respondent data sets. Hence, larger sample sizes per VW should allow more in-depth analysis and interpretation.
- This English language only online end-user survey reduces the scope of interpretation. A multilingual survey may contribute further understanding to this study's findings.
- This study did not segment the VW responses against the demographics (age, gender, social status and educational level) or against detectable background differences of the end-users. Further segmentation may likely offer further motive construct and item insights.

REFERENCES
Agag, G., & El-Masry, A.A. (2016). Understanding consumer intention to participate in online travel community and effects on consumer intention to purchase travel online and WOM: An integration of innovation diffusion theory and TAM with trust. Computers in Human Behavior, 60, 97-111.
Aichner, T., & Jacob, F. (2015). Measuring the degree of corporate social media use. *International Journal of Market Research*, *57*(2), 257–275. https://doi.org/10.2501 /IJMR-2015-018
Ayeh, J.K. (2015). Travellers' acceptance of consumer-generated media: An integrated model of technology acceptance and source credibility theories. *Computers in Human Behavior*, 48, 173-180.
Barnes, S. J. (2011). Understanding use continuance in virtual worlds: Empirical test of a research model. *Information & Management*, *48*(8), 313–319. https://doi.org/10.1016/j.im.2011.08.004
Barnes, S.J., & Pressey, A.D. (2011). Who needs cyberspace? Examining drivers of needs in Second Life. *Internet Research*, *21*(3), 236–254. https://doi.org/10.1108/10662241111139291
Bartle, R. (2004). *Designing virtual worlds. New Riders Publishing*. Retrieved from http://books.google.com/books?hl=en&lr=&id=z3VP7MYKqaIC&oi=fnd&pg=PR19&dq=Designing+Virtual+Worlds&ots=FgqLIdhmhu&sig=rWYSLrz8Rqhh6qWDt5Q19onezPQ
Basilisco, R., & Cha, K.J. (2015). Uses and gratification motivation for using facebook and the impact of facebook usage on social capital and life satisfaction among filipino users. *International Journal of Software Engineering and Its Applications*, *9*(4), 181–194. https://doi.org/10.14257/ijseia.2015.9.4.19
Bell, M.W. (2008). Toward a Definition of "Virtual Worlds". *Journal of Virtual Worlds Research*, *1*(1), 1–5. https://doi.org/10.4101/jvwr.v1i1.283
Bock, G. W., Ahuja, M. K., Suh, A., & Yap, L. X. (2015). Sustainability of a virtual community: Integrating individual and structural dynamics. *Journal of the Association for Information Systems*, *16*(6), 418.
Boyd, D.M., & Ellison, N.B. (2007). Social Network Sites: Definition, History, and Scholarship. *Journal of Computer-Mediated Communication*, *13*(1), 210–230. https://doi.org/10.1111/j.1083-6101.2007.00393.x
Calvert, J. (2010). World of Warcraft: Cataclysm. Retrieved June 23, 2015, from http://www.gamespot.com/reviews/world-of-warcraft-cataclysm-review/1900-6285551/
Cantallops, A.S., & Salvi, F. (2014). New consumer behavior: A review of research on eWOM and hotels. *International Journal of Hospitality Management*, 36, 41-51.
Chiu, C.-M., Hsu, M.-H., & Wang, E.T.G. (2006). Understanding knowledge sharing in virtual communities: An integration of social capital and social cognitive theories. *Decision Support Systems*, *42*(3), 1872–1888. https://doi.org/10.1016/j.dss.2006.04.001
Chung, N., Nam, K., & Koo, C. (2016). Examining information sharing in social networking communities: Applying theories of social capital and attachment. *Telematics and Informatics*, *33*(1), 77–91. https://doi.org/10.1016/j.tele.2015.05.005
Constantiou, I., Legarth, M.F., & Olsen, K.B. (2012). What are users' intentions towards real money trading in massively multiplayer online games? *Electronic Markets*, *22*(2), 105–115. https://doi.org/10.1007/s12525-011-0076-9
Dai, H., Hu, T., & Zhang, Z. (2014) Continued Use of Mobile Technology Mediated Services: A Value Perspective, *Journal of Computer Information Systems*, 54(2), 99-109.
Entropia Universe. (2013). Moon Sale Details. Retrieved August 9, 2016, from http://www.entropiauniverse.com/entropia-universe/announcements/moon/
Gapper, J. (2006). A real-life right to virtual property. Retrieved March 5, 2016, from http://www.ft.com/intl/cms/s/0/050d2f96-67bb-11db-8ea5-0000779e2340.html#axzz41ziLJMcB
Girvan, C. (2018). What is a virtual world? Definition and classification. *Educational Technology Research and Development*, *66*(5), 1087–1100. https://doi.org/10.1007/s11423-018-9577-y
Guo, J., & Gong, Z. (2011). Measuring virtual wealth in virtual worlds. *Information Technology and Management*, *12*(2), 121–135. https://doi.org/10.1007/s10799-011-0082-9
Guo, Y., & Barnes, S. (2011). Purchase behavior in virtual worlds: An empirical investigation in Second Life. *Information & Management*, *48*(7), 303–312. https://doi.org/10.1016/j.im.2011.07.004
Hair, J. F., Black, B., Babin, B., & Anderson, R. E. (2010). *Multivariate Data Analysis* (7th Edition). Uppersaddle River, New Jersey: Pearson Education International.
Hassouneh, D., & Brengman, M. (2014). A motivation-based typology of social virtual world users. *Computers in Human Behavior*, *33*, 330–338. https://doi.org/10.1016/j.chb.2013.08.012

Hendaoui, A., Limayem, M., & Thompson, C. W. (2008). 3D social virtual worlds: research issues and challenges. *Internet Computing, IEEE*, *12*(1), 88–92. https://doi.org/10.1109/MIC.2008.1

Jalilvand, M.R., Samiei, N., Dini, B., & Manzari, P.Y. (2012). Examining the structural relationships of electronic word of mouth, destination image, tourist attitude toward destination and travel intention: An integrated approach. *Journal of Destination Marketing & Management*, 1(1-2), 134-143.

Jin, C.-H. (2014). The role of users' motivations in generating social capital building and subjective well-being: The case of social network games. *Computers in Human Behavior*, *39*, 29–38. https://doi.org/10.1016/j.chb.2014.06.022

Jung, Y. (2011). Understanding the Role of Sense of Presence and Perceived Autonomy in Users' Continued Use of Social Virtual Worlds. *Journal of Computer-Mediated Communication*, *16*(4), 492–510. https://doi.org/10.1111/j.1083-6101.2011.01540.x

Kannan, P.K., Chang, A.-M., & Whinston, A.B. (2000). Electronic Communities in E-Business: Their Role and Issues. *Information Systems Frontiers*, *1*(4), 415–426. https://doi.org/10.1023/A:1010022226639

Lehdonvirta, V. (2009). Virtual item sales as a revenue model: identifying attributes that drive purchase decisions. *Electronic Commerce Research*, *9*(1–2), 97–113. https://doi.org/10.1007/s10660-009-9028-2

Lin, C.-Y., Hung, W.-H., Fang, K., & Tu, C.-C. (2015). Understanding players' achievement values from MMORPGs: an exploratory study. *Internet Research*, *25*(5), 829–851. https://doi.org/10.1108/IntR-12-2013-0268

Linden Lab. (2013). Infographic: 10 Years of Second Life. Retrieved June 9, 2015, from http://www.lindenlab.com/releases/infographic-10-years-of-second-life

Liu, W., & Williams, M. (2008). Strategies for business in virtual worlds: case studies in Second Life. In *Pacific Asia Conference on Information Systems, PACIS 2008* (pp. 888–900). City University of Hong Kong Press.

Mackenzie, K., Buckby, S., & Irvine, H. (2009). A framework for evaluating business lead users' virtual reality innovations in Second Life. *Electronic Commerce Research*, *9*(3), 183–202.

Mäntymäki, M., & Salo, J. (2013). Purchasing behavior in social virtual worlds: An examination of Habbo Hotel. *International Journal of Information Management*, *33*(2), 282–290. https://doi.org/10.1016/j.ijinfomgt.2012.12.002

McGlaun, S. (2013). Entropia Universe is auctioning off a virtual moon for $150k. Retrieved March 5, 2016, from http://www.slashgear.com/entropia-universe-is-auctioning-off-a-virtual-moon-for-150k-04272342/

McKenna, B. (2019). Creating convivial affordances: A study of virtual world social movements. *Information Systems Journal*, isj.12256. https://doi.org/10.1111/isj.12256

Nah, F.F.-H., Schiller, S., Mennecke, B.E., Siau, K., & Sattayanuwat, P. (2011). Team collaboration in virtual worlds: The role of task complexity. In *AMCIS 2011 Proceedings*. Retrieved from http://aisel.aisnet.org/amcis2011_submissions/383/

Nazir, M., Hamilton, J.R., & Tee, S. (2018). Social Capital Dimensions in Virtual World Platforms. In *Proceedings of The 18th International Conference on Electronic Business* (pp. 578–585). The Association for Information Systems (AIS). Retrieved from https://aisel.aisnet.org/iceb2018/41/

Nazir, M., & Lui, C. (2016). A brief history of Virtual Economy. *Journal For Virtual Worlds Research*, *9*(1), 1–24. https://doi.org/10.4101/jvwr.v9i1.7179

Nazir, M., & Lui, C. (2017). A Survey of Research in Real-Money Trading (RMT) in Virtual World. *International Journal of Virtual Communities and Social Networking*, *9*(1), 34–53. https://doi.org/10.4018/IJVCSN.2017010103

Nazir, M., Lui, C., & Hamilton, J.R. (2016). Toward a Better Understanding of The Virtual Economy Platforms. *The Sixteenth International Conference on Electronic Business*, 534–539.

Novak, N.M., Mladenow, A., & Strauss, C. (2014). Virtual worlds as settings for avatar-based innovation processes. *Journal of Service Science Research*, *6*(1), 71–98. https://doi.org/http://dx.doi.org/10.1007/s12927-014-0003-7

Pappas, N. (2016). Marketing strategies, perceived risks, and consumer trust in online buying behaviour. *Journal of Retailing and Consumer Services*, 29, 92-103.

Partala, T. (2011). Psychological needs and virtual worlds: Case Second Life. *International Journal of Human-Computer Studies*, *69*(12), 787–800. https://doi.org/10.1016/j.ijhcs.2011.07.004

Phang, C. W., Kankanhalli, A., & Sabherwal, R. (2009). Usability and sociability in online communities: A comparative study of knowledge seeking and contribution. *Journal of the association for Information Systems*, *10*(10), 2.

Ridings, C.M., & Gefen, D. (2006). Virtual Community Attraction: Why People Hang Out Online. *Journal of Computer-Mediated Communication*, *10*(1), 00–00. https://doi.org/10.1111/j.1083-6101.2004.tb00229.x

Roy, S. K. (2009). Internet uses and gratifications: A survey in the Indian context. *Computers in Human Behavior*, *25*(4), 878–886. https://doi.org/10.1016/j.chb.2009.03.002

Sharma, G., Qiang, Y., Wenjun, S., & Qi, L. (2013). Communication in virtual world: Second life and business opportunities. *Information Systems Frontiers*, *15*(4), 677–694. https://doi.org/10.1007/s10796-012-9347-z

Suler, J. (2004). The Online Disinhibition Effect. *CyberPsychology & Behavior*, *7*(3), 321–326. https://doi.org/10.1089/1094931041291295

Tikkanen, H., Hietanen, J., Henttonen, T., & Rokka, J. (2009). Exploring virtual worlds: success factors in virtual world marketing. *Management Decision*, *47*(8), 1357–1381. https://doi.org/10.1108/00251740910984596

Tucker, C. (2019). Digital Data, Platforms and the Usual [Antitrust] Suspects: Network Effects, Switching Costs, Essential Facility. *Review of Industrial Organization*, 54(4), 683-694.

Verhagen, T., Feldberg, F., van den Hooff, B., Meents, S., & Merikivi, J. (2012). Understanding users' motivations to engage in virtual worlds: A multipurpose model and empirical testing. *Computers in Human Behavior*, *28*(2), 484–495. https://doi.org/10.1016/j.chb.2011.10.020

Wang, T., Yeh, R.K., Chen, C., & Tsydypov, Z. (2016). What drives electronic word-of-mouth on social networking sites? Perspectives of social capital and self-determination. *Telematics and Informatics*, *33*(4), 1034–1047. https://doi.org/10.1016/j.tele.2016.03.005

Wang, X., Butler, B. S., & Ren, Y. (2013). The impact of membership overlap on growth: An ecological competition view of online groups. *Organization Science*, *24*(2), 414-431.

Yee, N. (2006). Motivations for Play in Online Games. *CyberPsychology & Behavior*, *9*(6), 772–775. https://doi.org/10.1089/cpb.2006.9.772

Yeh, N.-C., Chuan-Chuan Lin, J., & Lu, H.-P. (2011). The moderating effect of social roles on user behaviour in virtual worlds. *Online Information Review*, *35*(5), 747–769. https://doi.org/10.1108/14684521111176480

Zhang, F., & Kaufman, D. (2015). The impacts of social interactions in MMORPGs on older adults' social capital. *Computers in Human Behavior*, *51*, 495–503. https://doi.org/10.1016/j.chb.2015.05.034

Zhong, Z.-J. (2014). Civic engagement among educated Chinese youth: The role of SNS (Social Networking Services), bonding and bridging social capital. *Computers & Education*, *75*, 263–273. https://doi.org/10.1016/j.compedu.2014.03.005

Zhou, Z., Jin, X.-L., Vogel, D. R., Fang, Y., & Chen, X. (2011). Individual motivations and demographic differences in social virtual world uses: An exploratory investigation in Second Life. *International Journal of Information Management*, *31*(3), 261–271. https://doi.org/10.1016/j.ijinfomgt.2010.07.007.