IDENTIFYING USERS' BEHAVIOR ON PURCHASING VIRTUAL ITEMS

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ABSTRACT

Virtual asset has become more important in the virtual worlds. A growing number of users involve in the virtual worlds has created a new business phenomena. An online transaction on virtual goods involves real money. This research mainly focus on finding out what are the factors influence customers' behavior and how to predict it toward purchasing on virtual items. There are one hundred eleven participants from different countries involved in this study. An online questionnaire is design to get necessary information from the users. The Partial Least Square regression analysis applied in order to identify customer behaviors toward purchasing in virtual worlds.

Keywords: Virtual Worlds, Users' Behavior, Real Money Transaction, Human-Computer Interaction, Virtual Goods.

INTRODUCTION:

Internet has created a lot of opportunities in the area of business. A growing number of users had contributed to a growing number of people use Internet for shopping. Aside from that, a new area of 3D Online Virtual World has been arising. Virtual World started as Virtual Game. The communities in the Virtual Games are considered one of the most promising online game models – integrating traditional computer games into the context of collaborative virtual environments (Yue Guo, 2007). There are several types of 3D Online virtual worlds; such as: THERE®, Moove®, Active Worlds®, Dreamworld®, Cybertown®, World of Warcraft®, Second Life®, Sims Online®, etc.

Virtual Worlds are not just games or character development for its "avatar". It has been moved beyond that. Hemp in his article for Harvard Business Review said that the real-world marketing potential of online worlds is suggested by the active virtual commerce that already takes place within them (Hemp, 2006). This made possible as the virtual worlds have virtual currencies that allows participant to buy and sell online.

The avatar is the most conspicuous online manifestation of people's desire to try out alternative identities or project some private aspect of them (Hemp, 2006). (The word, which originally described the worldly incarnation of the Hindu god Vishnu, was popularized in its 'cybersense' by Neal Stephenson in his 1992 cult novel *Snow Crash.*) Broadly defined, "avatar" encompasses not only complex beings created for use in a shared virtual reality but any visual representation of a user in an online community (Hemp, 2006).

Second Life® (SL) is one of the most well-known 3D Virtual Online Games which has developed the business successfully. There are 13 million users since it launched in 2003(Curtis, 2008). As the first Quarter (Q1) 2009, Linden Research Lab (the owner of SL) reports that user-to-user transaction increased 65% from Q1 2008. In Q1, Residents spent more than USD$120 million on virtual goods and services in Second Life, representing 20% growth over Q4 2008 (Economy, 2009). SL includes an endogenously maintained currency exchange (known as LindeX) which allow users to trade between USD (US$) to Linden Dollar (L$).

Entropia Universe®, a popular Virtual World Game in Europe has entered Guinness World Book of Records for the most expensive virtual item ever sold (US $26,500) in 2004 using Project Etropia Dollar (PED) (Castronova, 2005). Cyworld®, a popular Virtual World Game in South Korea uses virtual currency called "dotori" which is literary translated to mean acorns. As in 2005 Cyworld reported to have 25% of the total population in South Korea with US $300,000 daily revenue (Benn R. Konsynski., 2006).

Considering the opportunity and real money transaction involve, a new market has emerged for so-called 'virtual assets'. Virtual assets are intangible valuables that exists solely in the computer systems known as virtual worlds – elements that may have a significant role in improving the overall competence or appearance of the characters owned by a player such as items (e.g., weapons or clothing), or virtual currencies. Elements constituting to the overall numerical competence of the character are the artefacts and wealth the player acquires for the character (T. Kujanpää., 2007).

The research questions in this paper are what the factors influence customer's behaviors are and how to predict it toward the shopping for the virtual assets. The questionnaire is designed for collecting data and the statistical analysis applied. Finally, discussion and future recommendation are made at the end.

BUSINESS IN VIRTUAL WORLDS:

Residents in the Virtual Worlds are required to pay if they want to enjoy more features. Most of the virtual world game communities are based on a Massive Multiplayer Online Role-Playing

Game (MMORPG). In a MMORG, millions of participants are able to interact with each other as well as with computer-controlled creatures or non-player characters (NPCs) by assuming different personality (e.g., warrior, mage, animal, priest or thief). As the game continues, players can buy and sell their virtual assets to others using the virtual currency just as in the real world (Yue Guo, 2007).

Trading virtual goods in the Virtual Worlds has created a new opportunity. Many SL residents have build seven-digit income (in real US dollar) from creating and selling virtual items (such as clothes for avatars) or virtual land development. Consumers like to purchase virtual items (as gifts or for themselves) to customize their experience, and Linden Lab recently acquired and eBay-like web marketplace to help consumers find their key items and to expand the reach merchants (J.P. Morgan, 2009). Digital agencies and brands entered the virtual world in force in 2007, but the need for brands to control their context and reach a broad audience proved a challenge in the world of user-generated content. For real-world companies, the branding and advertising opportunities of virtual worlds are multiple. Not only can marketers reach out to young and tech-savvy audience – who are often impervious to traditional marketing techniques – but they can also engage with them more deeply to inspire brand loyalty. This is indicative of a wider online brand shift, with virtual world presence, multimedia outreach and apps on social network (J.P. Morgan, 2009).

In November 2006, the first virtual millionaire was announced in Second Life® (Benn R. Konsynski., 2006). Anshe Chung, who is the virtual avatar of Ailin Graef, spent more than two years in SL developing virtual islands, crafting landscapes and providing virtual housing for paid participants with her real-world husband, Guntram Graef. With over L$ 270,000,000 (US $1,000,000) in assets, Anshe Chung was proclaimed by CNN and other news center as the first "Virtual Rockefeller" (Benn R. Konsynski., 2006). Her virtual company has more than ten real-world employees to help design virtual real estate, and is registered in the real-world in Hubei, China (Benn R. Konsynski., 2006).

Considering a lot of real-money involved in the virtual world transaction, some countries have implemented tax for its real profits. In 2007, the United Kingdom's HM Revenue and Customs department said that it was investigating people who were earning profits in social virtual worlds like SL and not paying taxes on the profits. Sweden also declared that it would tax profitable activities in online worlds. Until November 2008, USA has yet to issue any guideline on virtual income taxes. In fact, China has taken initial steps by issued a specific declaration regarding the taxation of profits derived from such sales – sales which China says fall under its provision for the taxation of "transfer of property" (Bill Zhang, 2008). It is fall under the circular called "Circular on Further Strengthening the Administration on Internet Bar and Online Games". The circular expressly prohibits the exchange of virtual currency for real world currency or the purchase of real commodities using virtual currency. Thus, even though such transactions may be illegal in China, if you nevertheless engage in and generate a profit from such transactions, you will be obligated to pay tax on those profits (Bill Zhang, 2008).

Recently in late February or late March, Second Life® has conducted a survey of business owner to learn how residents feel about the SL economy. The overall respondents are 2,645 business owners including 767 who run businesses but own no Land with 48% of respondents outside the USA. The findings are; 61% of business owners are optimistic that their revenue will grow and 68% are maintaining or increasing their investment to the last six months (Linden, 2009). Overall, business in the virtual worlds has a good future prospect and potential to be developed as the real world business.

REVIEW OF THE THEORY:

Theory of Reasoned Action developed by Fishbein and Ajzen, suggested that a person's

behavior intention is jointly determined by two independent factors, attitude towards behavior and subjective norms(M. Fishbein, 1975). The attitude towards behavior is the factor refers to individual's positive or negative feelings about performing specific behavior (e.g. using a new technology), and the subjective norms is determined as an individual's normative beliefs which an individual perceives that important others believe he/she should perform a given behavior. This theory has been used as foundation for the development of Theory of Planned Behavior (TPB) and Theory of Acceptance Model (TAM). Theory of Planned Behavior is an extension of TRA proposed by Ajzen by introducing a new factor, perceived behavioral control (I.Ajzen, 1991). The additional factor added to address the inability of TRA to account for conditions where individuals do not have total volitional control over their behavior. Ajzen defined Perceived Behavioral Control as one person's perceptions of how easy or difficult it is to perform specific behavior based on his/her ability (i.e., internal factor) or resources (i.e., external factors). He also argued that perceived behavioral control has a direct link with the actual behavior if perceived behavioral control, to some extent, is consistent with the actual behavior control (I.Ajzen, 1991)**.**

Limayem *et.al* augmented this theory with two new factors; personal innovativeness and perceived consequences (M. Limayem, 2000). This theory is chosen not only because the TPB's constructs are easier to operationalize, but also because this theory has received substantial empirical support in information systems and other domains as well (e.g., (D.Parker, 1992; East, 1993; Parker, 1995; Randall, 1994). They argue that shopping on the Internet is an innovative behavior that is more likely to be adopted by innovators than non-innovators (M. Limayem, 2000). It is thus important to include this construct in order to account for individual differences. Its inclusion has important implications for both theory and practice. From a theoretical perspective, the inclusion of personal innovativeness furthers our understanding of the role of personality traits in innovation adoption (R. Agarwal, 1998). From the perspective of practice, the identification of individuals who are more likely to adopt online shopping can be very valuable for marketing purposes, e.g., market segmentation and targeted marketing (M. Limayem, 2000). They hypothesized that personal innovativeness has both direct and indirect effects, mediated by attitude, on intentions of innovation adoption. The indirect effect implies that innovative individuals are more likely to be favorable toward online shopping, which in turn affects positively their intentions to shop on the Internet. The direct link between innovativeness and intentions, on the other hand, is meant to capture possible effects that are not completely mediated by attitude (M. Limayem, 2000).

The other new links that Limayem *et.al.* added to the TPB are the ones representing the potential effects of "perceived consequences." This construct is borrowed from Triandis' model (Triandis, 1980). According to Triandis, each act or behavior is perceived as having a potential outcome that can be either positive or negative. An individual's choice of behavior is based on the probability that an action will provoke a specific consequence. The TRA and the TPB claim that beliefs such as perceived consequences are completely mediated by attitude. For this reason, Taylor and Todd modeled a similar construct, perceived usefulness, as an antecedent of attitude (S. Taylor, 1995). Triandis, on the other hand, modeled perceived consequences as a direct antecedent of intentions.

RESEARCH MODEL:

This research uses Theory Planned Behavior extended model by Lemayem *et.al.* (M. Limayem, 2000).

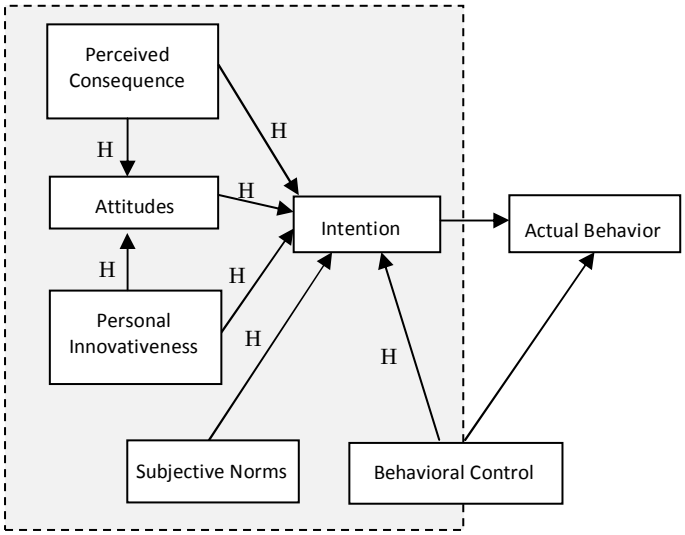

Figure 1. Extended Theory Planned Behavior

The hypotheses for this model are;

H1: There is a positive relationship between perceived consequence and intention to shop in virtual world.
H2: There is a positive relationship between perceived consequence and attitudes.
H3: There is a positive relationship between attitudes and intention to shop in virtual world.
H4: There is a positive relationship between personal innovativeness and intention to shop in virtual world.
H5: There is a positive relationship between personal innovativeness and attitudes.
H6: There is a positive relationship between subjective norms and intention to shop in virtual world.
H7: There is a positive relationship between behavioral control and intention to shop in virtual world.

The online 5 points Likert Scales questionnaire is design to the virtual world users. The questions cover demographic data and measurement variable to test the hypotheses. It includes these questions:

- I purchase on the virtual worlds because its risk of privacy violation
- I feel that I have ability to navigate in the virtual world
- I like the product description
- I must see other people using innovations before I consider them
- The Media (e.g., advertisement) influences me to purchase

Cronbach's alpha coefficient test applied to the final data in order to test the reliability of the data. The data will be analyzed using SmartPLS 2.0 beta (Ringle, 2005). Partial Least Square (PLS), first introduced by H. Wold under the name *NIPALS* (*nonlinear iterative partial least squares*), focuses on maximizing the variance of the dependent variables explained by the independent ones instead of reproducing the empirical covariance matrix (Wold, 1975). As part of SEM, a PLS model consists of a structural part, which reflects the relationships between the latent variables, and a

measurement component, which shows how the latent variables and their indicators are related; but it also has a third component, the weight relations, which are used to estimate case values for the latent variables (W. W. Chin, & Newsted, P. R., 1999). PLS has the advantage that it "involves no assumptions about the population or scale of measurement" (Fornell, 1982) and consequently works without distributional assumptions and with nominal, ordinal, and interval scaled variables (M. Haenlein, 2004).

DATA COLLECTION AND RESULT:

The online questionnaire is published on common survey sites. There are 111 (one hundred eleven) respondents who filled the questionnaire. They are from Asia, Europe, USA, Australia, North America, Latin America and New Zealand. The full questionnaire can be filled only if they have been purchased virtual goods. In this matter, there are 10 (ten) respondent who are never purchased virtual goods. So, there are only 101 (one hundred one) respondents who are valid for the data analysis.

Table 1. Demographic

Category	Percentage
Gender	
Male	34.29
Female	65.71
Age	
Below 20 years	5.71
20 – 30 years	17.14
30 – 40 years	22.86
40 – 50 years	28.57
50 years above	25.71
Education background	
High School	28.57
Undergraduate	42.86
Master	22.86
Doctoral	5.71
Years involving in Virtual Word	
Less than 1 year	28.57
1 – 3 years	28.57
4 – 6 years	25.71
More than 6 years	17.14
Hours spend in Virtual Worlds per week	
Less than 10 hours	22.86
10 – 20 hours	28.57
20 – 30 hours	31.43
30 – 40 hours	2.86
More than 40 hours	14.29

Most of the users play Second Life® followed by Ultima®, Cyberlandia®, OpenSims®, and World of Warcraft®. From those who have been purchased says that they purchase virtual goods (93.10%). For reflective measures, all items are viewed as parallel measures capturing the same

construct of interests. Thus, the standard approach for evaluation, where all path loadings from construct to measures are expected to be strong (i.e., 0.70 or higher), is used. In the case of formative measures, all item measures can be independent of one another since they are viewed as items that create the "emergent factor." Thus, high loadings are not necessarily true and reliability assessments such as Cronbach's alpha are not applicable (M. Limayem, 2000). Under this situation, suggests that the weights of each item be used to assess how much it contributes to the overall factor (W. W. Chin, 1998). For the reflective measures, rather than using Cronbach's alpha, which represents a lower bound estimate of internal consistency due to its assumption of equal weightings of items, a better estimate can be gained using the composite reliability formula (W. W. Chin, 1998).

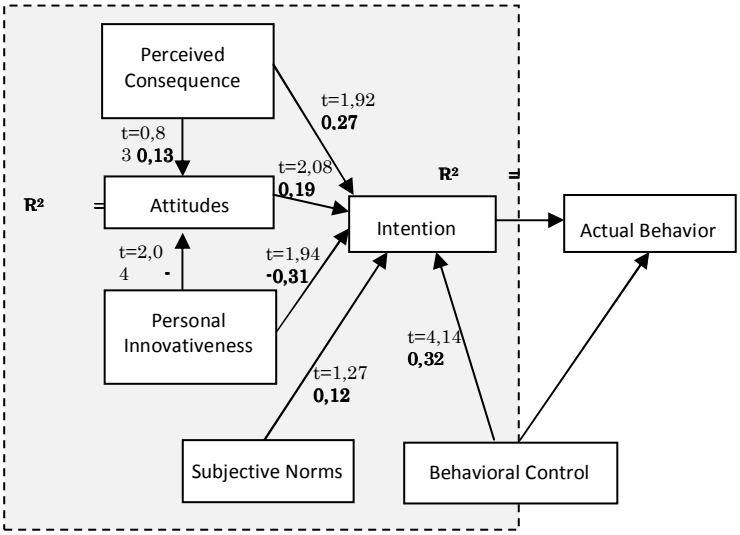

Figure 2. Result

From the result presented in fig. 2, the estimated path effects (standardized) are given along with the associated t-value. All path coefficients are significant at the 99% significance level showing that the data is reliable. The effects of the five antecedents of intentions (i.e., perceived consequences, attitude, personal innovativeness, subjective norms and behavioral control) accounted for over 59.7 % of the variance in this variable. This is an indication of the good explanatory power of the model for intentions. Behavioral Control had the strongest effect with a path coefficient of 0.32 emphasizing that they are familiar with the virtual world sites in driving his/her intentions toward purchasing virtual goods. Perceived consequences had a strong effect on intention with a path coefficient of 0.27 and weak (though significant) effect on attitudes with a path coefficient of 0.13. Personal innovativeness had negative effects on attitude and intentions with similar path coefficients (-0.31 for the link with intentions and -0.35 for the link with attitude). In fact, only 13.5% of the variance in attitude is explained by personal innovativeness and perceived consequences which mainly affected by perceive consequences. As for the hypotheses, all the hypotheses are accepted beside H4 and H5.

Table 2. Construct Weights and Loadings

Factor	Variable	Weight	Loading	St. Error	T-value
Intentions	Intention 1		0,936801	0,018820	49,776323
	Intention 2		0,929462	0,020851	44,577271
	Intention 3		0,732308	0,045126	16,228007
Attitude	Attitude 1		0,850481	0,054997	15,464144
	Attitude 2		0,829151	0,044541	18,615354
	Attitude 3		0,752873	0,056863	13,240192
Personal Innovativeness	Personal Innovativeness 1		0,912028	0,457121	1,995156
	Personal Innovativeness 2		-0,407659	0,368512	1,106230 **ns**
	Personal Innovativeness 3		-0,657771	0,449901	1,462035
	Personal Innovativeness 4		0,699232	0,370728	1,886107
Behavior Control	Behavior Control 1	0,508235		0,058457	8,694232
	Behavior Control 2	0,391638		0,095382	4,105973
	Behavior Control 3	0,485915		0,057005	8,524065
Subjective Norms	Subjective Norms 1	0,361505		0,053407	6,768884
	Subjective Norms 2	0,561714		0,065853	8,529774
	Subjective Norms 3	0,287022		0,068577	4,185384
Perceive Consequences	Perceive Consequences 1	-0,347489		0,404431	0,859205 **ns**
	Perceive Consequences 2	0,659270		0,233854	2,819150
	Perceive Consequences 3	0,482895		0,177081	2,726973

Table 2 provides information concerning the weights and loadings of the measures to their respective constructs. Weights should be interpreted for formative measure while loadings for reflective. For all constructs with multiple reflective measures, all items have reasonably high loadings (i.e., above 0.70) with the majority above 0.80 therefore demonstrating convergent validity (M. Limayem, 2000). Furthermore, all reflective measures were found to be significant.

In the case of formative measures, all items for behavioral control, two out of three items for perceived consequences were found to contribute significantly to the formation of their respective construct. For perceived consequences, the item that did not make a difference is the risk of privacy violation. All other two items, i.e., it's convenient and it's familiarity (0.65 and 0.48, respectively). For subjective norms, all items contribute to the respective construct. The higher influence comes from their peers then followed by family & friend then the last one is the media. For behavioral control, all items, i.e., ability to navigate the Internet, trust the seller, and product description; the highest influence is the trust to the seller (0.51).

DISCUSSIONS:

In the final result of this research, Personal Innovativeness has negative relationship both to Attitudes and Intentions. In the questionnaire there are several questions being asked such as: I am generally cautious about accepting new ideas; I must see other people using innovations before I consider them; and I am challenged by ambiguities and unsolved problems. Consider that most of the users (57.14%) are newly involve (less than 3 years) in the virtual worlds; means that most of them still curious about what happening if they purchase virtual goods. This situation leads users to wait for their friends, family and media (subjective norms) in stimulating them for purchasing virtual goods.

The strongest correlation with the Intentions is Behavioral Control. This factor includes trust to the seller, familiarity to the virtual games and navigation. It means that users are very careful to do purchasing in virtual worlds. The situation reflects to the previous report saying that players consider virtual asset purchases as being cheating (Bartle, 2004; Burke, 2002).

Beyond that, users consider more likely to buy virtual goods for their avatars. In the virtual worlds, the important aspect is character development: the skill and ability of one's avatar improve with play (Lehdonvirta, 2005). This will involve the real money transaction for the "achievement hierarchy" in virtual worlds (Bartle, 2004; Randall, 1994). Bartle discussed that at least three reasons why virtual world's players feel compelled to make virtual asset purchase (Bartle, 2004)]. First, experiencing all the content programmed into a world requires players to develop their characters to the highest level. That takes lots of time, which not everyone has. Buying a high-level avatar is a shortcut that gives immediate access to all the content (Randall, 1994). Secondly, some parts of the content may be so inappealing that even players with enough time would rather skip them (Randall, 1994). Thirdly, the virtual worlds are usually design in such a way that players who wish to play together have to have avatars of approximately the same level of prowess (Bartle, 2004).

CONCLUSIONS:

There are opportunities of real money transaction inside the virtual worlds. Many of the potential users spend more than 20 hours inside the virtual worlds. In the other hand, the virtual world's company owner has set a target for developing a good business environment. The Personal Innovativeness which is fund has no correlation to the Attitudes and Intentions. This can be decrease

gradually as the users get other stimulant and get familiar with the virtual worlds. It is necessary to study in details about the future prediction of customer behavior.

REFERENCES:

[1] Bartle, R. A. (2004). Pitfalls of Virtual Property. Retrieved June 20, 2009, from http://www.themis-group.com/uploads/Pitfalls%20of%20Virtual%20Property.pdf

[2] Benn R. Konsynski., D. A. B. (2006). Virtual Worlds, Virtual Economies, Virtual Institutions Retrieved July 15, 2009, from http://ssrn.com/abstract=962501

[3] Bill Zhang, D. T., Joseph R. Tiano, James G. Gatto, Benjamin T. Duranske, and D. Benjamin Esplin. (2008). China Taxes Real Profits from Virtual World Transaction. Retrieved June 20, 2009, from http://www.pillsburylaw.com/siteFiles/Publications/0099534E2089DE6CFBC7E12469B4FFB8.pdf

[4] Burke, T. (2002). Rubicite Breastplate Priced to Move, Cheap: How Virtual Economies Become Real Simulations. Retrieved June 20

[5] 2009, from http://www.swarthmore.edu/SocSci/tburke1/Rubicite%20Breastplate.pdf

[6] Castronova, E. (2005). *Synthetic Worlds: The Business and Culture of Online Games*. Chicago: University of Chicago Press.

[7] Chin, W. W. (1998). *The Partial Least Squares Approach for Structural Equation Modeling*. Philadelphia: Lawrence Erlbaum Associates, Inc.

[8] Chin, W. W., & Newsted, P. R. (1999). Structural Equation Modelling Analysis with Small Samples Using Partial Least Squares. In R. H. Hoyle (Ed.), *Statistical Strategies for Small Sample Research*. Thousand Oaks: Sage.

[9] Curtis, A. (2008). Center for the Study of Virtual Worlds Retrieved February 20, 2009, from http://www.uncp.edu/home/acurtis/NewMedia/CenterForTheStudyOfVirtualWorlds/CenterForTheStudyOfVirtualWorlds.html

[10] D.Parker, A. S. R. M., S. G. Stradling, J. T. Reason, J. S. Baxter. (1992). Intention to Commit Driving Violations: An Application of the Theory of Planned Behavior. *Journal Applied Psychology, 77*(1), 94-101.

[11] East, J. R. (1993). Investment Decisions and the Theory of Planning Behavior. *Journal of Economy Psychology, 14*, 337–375.

[12] Economy, S. L. (2009). First Quarter 2009 in Details. Retrieved June 20, 2009, from https://blogs.secondlife.com/community/features/blog/2009/04/16/the-second-life-economy--first-quarter-2009-in-detail

[13] Fornell, C., & Bookstein, F. L. (1982). Two Structural Equation Models: LISREL and PLS Applied to Consumer Exit-voice Theory. *Journal of Marketing Research, 19*, 440–452.

[14] Hemp, P. (2006). Avatar-Based Marketing. *Harvard Business Review Online Version* June 2006. Retrieved February 20, 2009, from http://hbr.org/2006/06/avatar-based-marketing/ar/1

[15] I.Ajzen. (1991). The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processed, 50*(2), 179-211.

[16] J.P. Morgan, P., Cancer Research UK, Linden Lab and John Lewis. (2009). E-Business Evolution 2009: Past, Present and Future E-business Strategies. Retrieved June 20

[17] 2009 from http://www.telegraphbusinessclub.co.uk/repository/E-BusinessEvolution2009.pdf

[18] Lehdonvirta, V. (2005). Real-Money Trade of Virtual Assets: Ten Different User Perceptions. from http://virtual-economy.org/files/Lehdonvirta-2005-RMT-Perceptions.pdf

[19] Linden, M. (2009). State of the Economy. Retrieved July 15, 2009, from https://blogs.secondlife.com/community/features/blog/2009/04/09/state-of-the-economy

[20] M. Fishbein, I. A. (1975). *Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research*. Reading: Addison-Wesley.
[21] M. Haenlein, K. A. M. (2004). A Beginner's Guide to Partial Least Squares Analysis. *Understanding Statisctics, 3*(4), 283-297.
[22] M. Limayem, M. K., A. Frini. (2000). What Makes Consumes Buy from Internet? A Longitudinal Study of Online Shopping. *IEEE Transaction on System Man and Cybernetics – Part A: System and Human, 30*(4), 421-432.
[23] Parker, A. S. R. M. D. (Ed.). (1995). *Evaluating and Extending the Theory of Planned Behavior*.
[24] R. Agarwal, J. P. (1998). A Conceptual and Operational Definition of Personal Innovativeness in the Domain of Information Technology. *Information System Research, 9*(2), 204–215.
[25] Randall, D. M. (1994). Why Students Take Elective Business Ethics Courses: Applying the Theory of Planned Behavior. *Journal Business Ethics, 13*, 369–378.
[26] Ringle, C. M. W., Sven/Will, Alexander. (2005). SmartPLS 2.0 (beta). Retrieved Jan 10, 2010, from http://www.smartpls.de
[27] S. Taylor, P. A. T. (1995). Understanding Information Technology Usage: A Test of Competing Models. *Information System Research, 6*(2), 144–176.
[28] T. Kujanpää., T. M. (2007). The Value of Virtual Assets – The Role of Game Characters in MMOGs. *International Journal of Business Science and Applied Management, 2*(1), 21-33.
[29] Triandis, C. H. (1980). Values, Attitudes and Interpersonal Behavior *Nebraska Symposium on Motivation, 1979: Beliefs, Attitudes and Values* (pp. 159–295). Lincoln: Universitas Nebraska Press.
[30] Wold, H. (1975). Path models with latent variables: The NIPALS approach. In A. A. H. M. Blalock, F. M. Borodkin, R. Boudon, and V. Capecchi (Ed.), *Quantitative Sociology: International Perspectives on Mathematical and Statistical Modeling* (pp. 307–357). NewYork: Academic.
[31] Yue Guo, S. B. (2007). Why People Buy Virtual Items in Virtual Worlds with Real Money. *ACM The DATA BASE for Advances in Information System, 38*(4), 69-76.
