The effects of perception toward cyber identity on loyalty and purchase intention

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Abstract - Many aspects of the way we work and live in the twenty-first century will be determined by the vast web of Internet. Virtual environments open the door to new identity experiences. Having the possibility to enter in a new community, where any personal information is directly shown to others, is a possibility to experiencing different self and thus to show and build new identities.
This paper aims to identify how to relate the perception of cyber identity, loyalty and purchase intention. First, we classified cyber identity into two types, personal and social, and analyzed perception of each identity type. Then we conducted a survey using pre-designed questionnaire and found out factors consisting personal and social identity. Finally we analyzed the effects of these factors on loyalty and purchase intention using Structural Equation Model.

Keywords: Cyber identity, Loyalty, Purchase intention, Structural equation model

1 Introduction

In recent years, the Internet has penetrated our daily lives. The Internet provides many useful benefits such as information sharing, chatting, business opportunities through world-wide web accessibility and a low entrance barrier. The Internet also becomes a tool for portraying personal identity. The number of Internet users in Korea reached at 29.22 million (65% of Korean population) and 24% of Korean homes are connected to the Internet through high-speed networks as of the end of 2003 according to the Ministry of Information and Communication (Korea Internet White Paper 2004, National Computerization Agency).

The Internet no longer just has the role as a community in cyberspace but also has become a necessary tool in daily life. Since nearly all commercial websites use avatars to depict web users on the web, avatar has become familiar to Internet users in Korea. Korean internet users buy cyber items to decorate themselves and to form their cyber identity on the web. However little research on cyber identity as a new business opportunity has been performed. Cyber identity denotes personal identity in cyberspace presented through various media such as a personal homepage, an avatar, blog or virtual community. As usage of the Internet spreads in daily life, cyber identity is regarded as important as real world identity. Since people want to portray themselves in cyberspace as we do - clothing, makeup, and hairstyle - in the real world, managing cyber identity can provide new business opportunities on the web.

2 Research model

Research related to perception of identity in the cyberspace has performed based on avatar, online games, messenger and community. In this paper, we classified cyber identity into personal and social identity as shown in Figure 1. In case of blog, because it plays a role as a personal media and a communication tool with others simultaneously, we located it in intersection area of both sides.

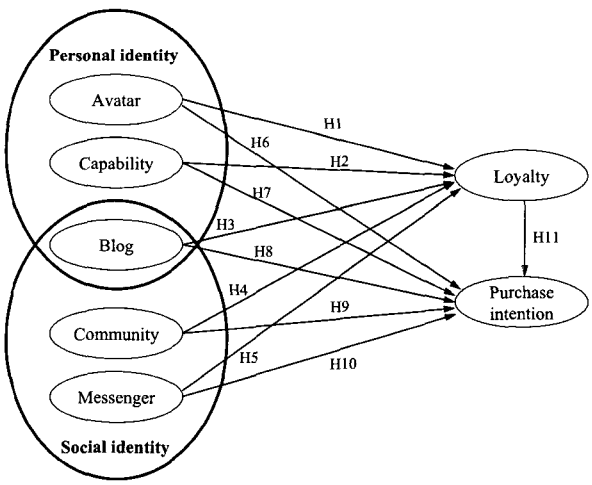

Figure 1. Research model

2.1 Research hypotheses

Research hypotheses of this study are as follows :

(1) The effects of perception of cyber identity on loyalty
H1 : Perception of avatar influences loyalty positively.
H2 : Perception of capability influences loyalty positively.
H3 : Perception of blog influences loyalty positively.
H4 : Perception of community influences loyalty positively.
H5 : Perception of messenger influences loyalty positively.

(2) The effects of perception of cyber identity on purchase intention
H6 : Perception of avatar influences purchase intention positively.
H7 : Perception of capability influences purchase intention positively.
H8 : Perception of blog influences purchase intention positively.
H9 : Perception of community influences purchase intention positively.
H10 : Perception of messenger influences purchase intention positively.

(3) The effect of loyalty on purchase intention
H11 : Loyalty influences purchase intention positively.

2.2 Research variables

We derived research variables and measures based on each category of cyber identity. We selected avatar, capability, blog, community, and messenger as independent variables, and loyalty and purchase intention as dependent variables. We then organized survey list based on the literature review for empirical study.

Table1. Research variables

Variable	Measure	Literature
Avatar	to consider avatar as an alter ego(ava1) to aware others' opinion about my avatar(ava2) to make a great effort to decorate avatar(ava3)	Kim & Kim(2004) Ahn et al.(2004) Chung(2004)
Capability	to identify game capability with real capability(cap1) to envy one with high-level capability(cap2) to make a great effort to level-up(cap3)	Lee et al.(2003) Jung(2004) Choi et al.(2001)
Blog	to aware blog visitors' number(blo1) to be conscious others' response about my posting (blo2) to make a great effort to maintain blog(blo3)	Park & Cho(2004)
Community	to check new posting in a community continuously (com1) to aware others' response about my posting in a community(com2) to think much of relation-ship among members of the community(com3)	Kang et al.(2003) Kim(2004) Mun & Choi(2003) Park & Kim(2005) Suh(2003) Choi(2005)
Messenger	to connect in a messenger at all times(mes1) to check logon status of friends(mes2) to talk to logon users habitually(mes3)*	Kim & Bang(2005) Bang & Kim(2005)
Loyalty	to visit that site more frequently(loy1) to stay on that site more longer(loy2) to use that site conti-nuously(loy3)	Mun & Choi(2003) Choi(2005) Lee et al.(2003) Bang & Kim(2005)
Purchase intention	to buy online items(pur1) to buy online items on the barrel(pur2)	Mun & Choi(2003)

* removed measure after exploratory factor analysis

3 Empirical study

This study has been conductd for undergraduate and graduate students majoring in Engineering, Information & Communication, Business Administration, Social Science, Natural Science. We distributed and received 207 questionnaires and used 189 responses except 18 responses including unfaithful answers. Average age of respondents was 25.4 and the proportion of males was about 70%.

3.1 Reliability analysis

We validated reliability of each measure using Cronba's α. *Since all values of Cronbach's α are greater than 0.7* as shown in Table 2, reliability of each measure used in the survey is quite high. We performed expolatory factor analysis to validate and refine variables in the research model using the principal component analysis to refine research variables and Varimax method to rotate factors. As a result of factor analysis, factors are classified into seven categories with cumulative variance 83.394%.

We also examined discriminant validity to identify any correlations among factors (refer to Table 3).

Table 3. Corelations of estimates

	ava	cap	blo	com	mes	loy	pur
ava	1.000						
cap	.535	1.000					
blo	.472	.371	1.000				
com	.379	.315	.632	1.000			
mes	.197	.132	.335	.335	1.000		
loy	.535	.444	.525	.488	.259	1.000	
pur	.626	.415	.530	.420	.200	**.641***	1.000

Table 2. Exploratory factor analysis

Variables	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Cronbach's α
ava1	0.176	0.799	0.169	0.115	0.132	0.129	0.030	0.869
ava2	0.167	0.810	0.219	0.153	0.183	0.198	0.067	
ava3	0.206	0.761	0.287	0.201	0.023	0.226	0.070	
cap1	0.120	0.391	0.755	0.109	0.041	0.141	-0.055	0.883
cap2	0.190	0.115	0.879	0.118	0.173	0.029	0.043	
cap3	0.132	0.184	0.887	0.078	0.047	0.121	0.083	
blo1	0.199	0.141	0.103	0.835	0.200	0.138	0.129	0.871
blo2	0.136	0.045	0.242	0.712	0.456	0.192	0.120	
blo3	0.198	0.314	0.052	0.780	0.148	0.115	0.106	
com1	0.185	0.184	0.013	0.042	0.831	0.047	0.124	0.795
com2	0.081	0.032	0.099	0.369	0.783	0.176	0.023	
com3	0.238	0.126	0.199	0.320	0.644	0.031	0.208	
mes1	0.001	0.011	-0.013	0.061	0.057	-0.036	0.927	0.735
mes2	0.190	0.109	0.093	0.197	0.214	0.139	0.791	
loy1	0.856	0.245	0.188	0.268	0.137	0.122	0.057	0.931
loy2	0.833	0.233	0.229	0.232	0.180	0.173	0.086	
loy3	0.798	0.136	0.121	0.070	0.223	0.312	0.103	
pur1	0.331	0.320	0.179	0.222	0.173	0.777	0.108	0.940
pur2	0.301	0.329	0.140	0.211	0.112	0.813	0.006	
Eigen value	2.664	2.600	2.574	2.429	2.266	1.672	1.641	-
Explanatory variance	14.020	13.684	13.546	12.783	11.925	8.800	8.635	-
Cumulative variance	14.020	27.704	41.251	54.034	65.959	74.759	83.394	-

3.2 Path analysis using covariance structure

(1) Model fitness

We analyzed covariance structure to validate research model as shown in Figure 1 using MLE(Maximum Likelyhood Estimation) method and used covariance matrix to evaluate suitability of research model. We selected GFI(Goodness-of-Fit Index), AGFI(Adjusted Goodness-of-Fit Index), CFI (Comparative Fit Index), and RMSEA(Root Mean Square Error of Approximation) for fit measures. We modified a model several times to enhance explanatory capability of the model. Table 4 depicts fit measures of an initial model and modified models.

Table 4. Fitness indices of the models

Model	chi-square	D.F	P	GFI	AGFI	CFI	RMSEA
Initial model	508.4	142	.00	.768	.690	.859	.117
Modified model 1	346.5	140	.00	.836	.777	.920	.089
Modified model 2	315.0	139	.00	.851	.800	.932	.082

* Modified model 1: After Covariance Analysis

Modified model 2: After refine Modification Indices

(2) Validation of research hypotheses

Table 5 summarizes hypotheses validation results with path coefficients of structural model.

Table 5. Hypotheses validation results

Hypo-thesis	From	To	Estimate	S.E.	C.R.	P	Result
H1	ava	loy	0.44	0.12	3.83	0.00	accept
H2	cap		0.16	0.08	2.03	0.04	accept
H3	blo		0.29	0.14	2.07	0.04	accept
H4	com		0.27	0.14	2.00	0.05	accept
H5	mes		-0.01	0.04	-0.27	0.80	reject
H6	ava	pur	0.59	0.11	5.37	0.00	accept
H7	cap		-0.02	0.07	-0.35	0.73	reject
H8	blo		0.23	0.12	1.94	0.06	reject
H9	com		0.05	0.12	0.39	0.70	reject
H10	mes		-0.02	0.04	-0.47	0.66	reject
H11	loy		0.29	0.07	3.96	0.00	accept

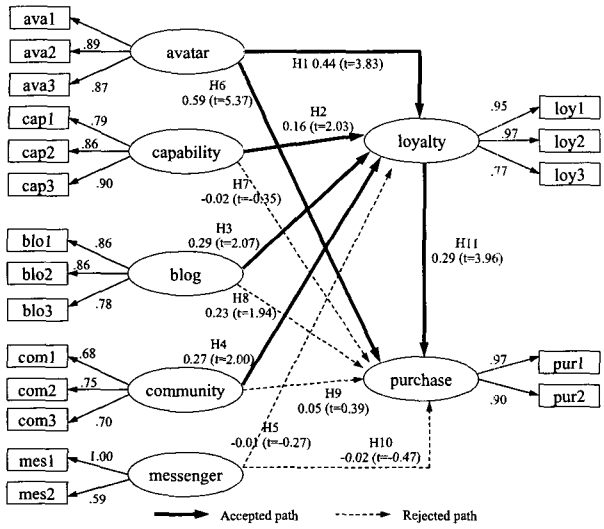

Figure 2. Path anaysis using structural equation model

By identifying relationships among five latent variables and loyalty, we found that the effect of avatar on loyalty was 0.44, with t value 3.83 (p-value<0.01), therefore Hypothesis 1 was not rejected. Similarly, Hypotheses 2, 3, 4 were not rejected, it means that there are significant relationships among capability, blog, community and loyalty, while Hypothesis 5 was rejected, that is there was no significant relationship between messenger and loyalty. And we found out that significant relationship between avatar and purchase intention exist, however there was no significant relationship among capability, blog, community, messenger and purchase intention. Finally, the last hypothesis (H11) was not rejected with t value 3.96.

4 Conclusions

In this paper we have investigated the effects of perception toward cyber identity on loyalty and purchase intention. For this we first explored possible types of cyber identity and investigated perception of each identity and then analyzed how these factors are interrelated with loyalty and purchase intention by conducting a survey. Our survey indicates that loyalty is significantly influenced by avatar, capability, blog, and community, while purchase intention is affected by avatar and loyalty. This results may provide some managerial implications.

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