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Analysis of the Current Status of Internet Fashion Shopping Malls and Proposal of a Cyber Fitting System as an Improvement

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ABSTRACT

In order to correctly understand the Internet fashion shopping mall, which is expected to continuously grow up, and to strengthen marketing activities in cyber space, a more scientific and systematic research is necessary. Most of the early researches of the Internet fashion shopping mall were focused on technical parts so they studied the environmental and physical characteristics of the Internet fashion shopping mall, but recently, the Internet fashion shopping mall is activated and accordingly, the interest in Internet shopping users is going up. Under this circumstance, the research to understand the characteristics of Internet shopping consumers becomes necessary. Therefore, the research was conducted by a survey, focusing on college students who use Internet a lot. The survey covered the experience and the type of using the Internet fashion shopping mall, the extent of satisfaction, strengths, and weaknesses of the Internet fashion shopping mall, the use of a cyber fitting system, and the possibility of the development of the Internet fashion shopping mall having a cyber fitting system. As a result of the study, it was found that: most of the students used the Internet fashion shopping mall; they used a fashion-specialized mall most; they pointed out economy of time as the biggest strength of using the Internet fashion shopping mall; they thought the biggest weakness of the Internet fashion shopping mall is that they can not try on clothes so they can not check whether clothes go well with them or not; and regarding the intention to use a cyber fitting system if available and the possibility of the development of the Internet fashion shopping mall, they replied that they would use it and the malls with the system would be developed. Based on the results, this study proposes a cyber fitting system as an improvement of the Internet fashion shopping mall.

Key words: Internet fashion shopping mall, Cyber fitting system

1. INTRODUCTION

Internet, which is an on-line medium, is being spread at the historical fastest speed, and through this information technology, changes are being made in every field of the society. Internet is being accepted as the concept of a new market, not the concept of information.

The Internet shopping mall does not require consumers' direct visit to it. Only if Internet is available, consumers can search and purchase the products they want, using the function of product search. And the Internet shopping mall is open to everyone for 24 hours a day, 365 days a year, so consumers can shop, free from the restraint of time, which is a big advantage of the Internet shopping mall compared with the off-line shopping mall. Therefore, the number of Internet shopping users is on increase every day[8].

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According to the data given by Statistics Korea, among many Internet shopping malls, the sales turnover of fashion shopping malls is increasing every year, but the biggest weakness that the users of the Internet fashion shopping mall feel is that they can not try on clothes to check if the clothes go well with them.

In relation to this, this research examined the current status of the Internet fashion shopping mall, distributing a questionnaire to 100 students from 6 departments of 3 colleges (59 males, 41 females). And it describes the result of the survey in the below, together with the problems with Internet shopping malls and a possible improvement.

2. CURRENT STATUS OF INTERNET SHOPPING MALLS

According to the data given by Statistics Korea, the tendency of e-commerce and cyber shopping in the whole year of 2008 and the 4th quarter was: In 2008, the total sales turnover of e-commerce in Korea was ₩629,967 billion, which was ₩113,453 billion (22.0%) increase compared with the previous year; and the total sales turnover of cyber shopping (B2C) was ₩18,146 billion, which was ₩766 billion (15.1%) increase compared with the previous year (₩15,766 billion).

Table 1 shows the portion of the sales turnover of each product group. Clothes and fashion products formed 16.5% of the total, travel and reservation services formed 15.7%, and electric home appliances and electronic/communication instruments formed 13.6%. The total sales turnover of cyber shopping in the 4th quarter was ₩4,780 billion, which was 10.2% higher than that in the same quarter of the previous year. By the portion of the sales turnover by product group, clothes and fashion products took the biggest portion, 18.3%, which was followed by electric home appliances and electronic/communication instruments (13.8%) and then, by travel and reservation services (13.7%).

Table 2 indicates the sales turnover by handled product range in the year of 2008. Compared with the previous year, the general shopping mall had a greater increase (16.6%) than the specialized mall (11.6%). Regarding the sales turnover of cyber shopping by operation type in 2008, on-line companies had a big increase (20.5%), while the companies doing both on-and off-line business had a small increase (5.7%).

Note 1) Cyber shopping malls where various product groups are handled on Internet and several kinds of products can be purchased at a time

Note 2) Cyber shopping malls where one or some major product groups are handled on Internet

Note 3) Products and services are sold to con-

Table 1. Sales turnover by product group (Unit: ₩billion, %)

Item	2007		2008P		Turnover (Compared with the previous year)	
		Percentage		Percentage	Amount of increase/ decrease	Rate of increase/ decrease
Total	15,766	100.0	**18,146**	**100.0**	2,380	15.1
Clothes and fashion products	2,714	17.2	**2,996**	**16.5**	282	10.4
Travel and reservation services	2,416	15.3	**2,857**	**15.7**	441	18.3
Electric home appliances and electronic/communication instruments	2,326	14.8	**2,466**	**13.6**	140	6.0
Living necessaries and automobiles	1,485	9.4	**1,710**	**9.4**	224	15.1
Computers and peripheral devices	1,542	9.8	**1,636**	**9.0**	94	6.1

Table 2. Tendency of the turnover by handled product range and operation type (Unit: ₩billion, %)

Item	2007		2008[P]		Turnover (Compared with the previous year)	
		Percentage		Percentage	Amount of increase/ decrease	Rate of increase/ decrease
○ Total	15,766	100.0	18,146	100.0	2,380	15.1
<By handled product range >						
General mall[1]	11,122	70.5	12,964	71.4	1,842	16.6
Specialized mall[2]	4,644	29.5	5,181	28.6	537	11.6
<By operation type>						
On-line[3]	10,007	63.5	12,061	66.5	2,054	20.5
Both on-/off-line[4]	5,759	36.5	6,084	33.5	325	5.7

sumers only through computers and networks (on-line).

Note 4) Products and services are sold to consumers through not only on-line, but also the existing commercial methods.

※ The sales turnover of the companies doing both on- and off-line business means the on-line sales turnover.

3. QUESTIONNAIRE ABOUT THE USE OF INTERNET FASHION SHOPPING MALLS

The questionnaire was distributed to college students using Internet a lot. The below Figure 1 shows the experience of using Internet fashion shopping malls. 85 students (85%) of the students replied they had used Internet fashion shopping malls and 15 students (15%) had not used at all. That is, it was found that most of the students used Internet fashion shopping malls.

Figure 2 indicates the type of using Internet fashion shopping malls. 28 students (28%) of the respondents used general shopping malls, 52 students (52%) used fashion-specialized malls, and 20 students (20%) used others. It was revealed that fashion-specialized malls were used more than general shopping malls[8].

Figure 3 shows the extent of the satisfaction with Internet fashion shopping malls. 6 students (6%) of the respondents were not satisfied with Internet fashion shopping malls at all, 17 students (17%) were dissatisfied, 44 students (44%) replied that they didn't know well, 31 students (31%) were

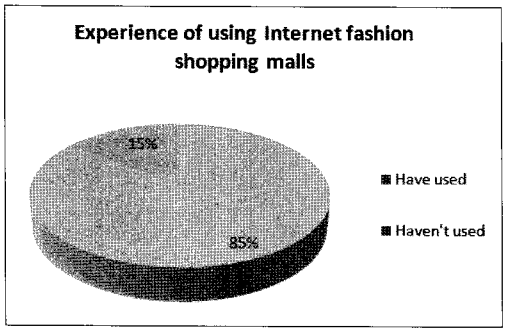

Fig. 1. Experience of using Internet fashion shopping malls

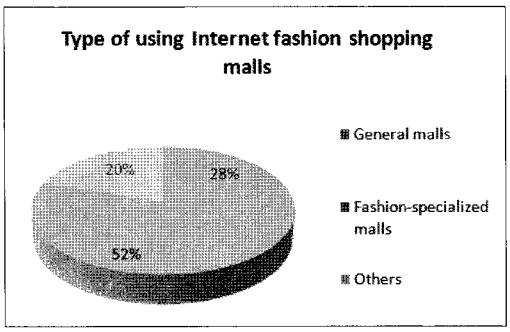

Fig. 2. Type of using Internet fashion shopping malls

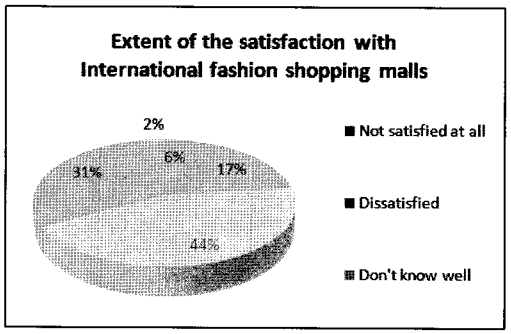

Fig. 3. Extent of the satisfaction with International fashion shopping malls

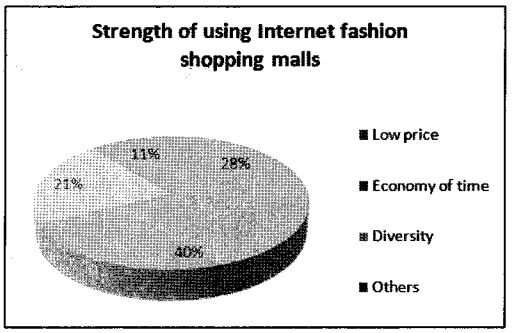

Fig. 5. Strength of using Internet fashion shopping malls

satisfied, and 2 students (2%) were very much satisfied. The respondents who were satisfied with Internet shopping malls were more than the respondents who were dissatisfied. And the students who replied that they didn't know well were most.

Figure 4 indicates the weaknesses of using Internet fashion shopping malls. 72 students (72%) of the respondents pointed out the impossibility to try on clothes to check whether the clothes go well with them as the weakness, 21 students (21%) pointed out low reliability, and 7 students (7%) gave other opinions. The impossibility to try on clothes to check whether the clothes go well with them was pointed out as the biggest weakness[8].

Figure 5 shows the strengths of using Internet fashion shopping malls. 28 students (28%) of the respondents pointed out low price as the strength, 40 students (40%) pointed out economy of time, 21 students (21%) pointed out diversity, and 11 students (11%) gave other opinions. It was revealed that using Internet fashion shopping malls could save more time than visiting off-line shops.

Figure 6 indicates the intention to use a cyber fitting system. To the question, "Will you use a cyber fitting system if it is available?", 61 students (61%) of the respondents replied that they would use, 6 students (6%) didn't want to use it, 26 students (26%) were not interested in it, and 7 students (7%) gave other opinions. That is, most of the respondents replied that they would use it.

Table 3 shows the comparison between males and females in terms of the experience of using Internet fashion shopping malls. 53 males (62.4%) and 32 females (37.6%) had the experience of using Internet fashion shopping malls, while 6 males (40.0%) and 9 females (60.0%) had no experience, which shows no gender difference in terms of the experience of using Internet shopping malls ($p>.05$). It was revealed that men used Internet

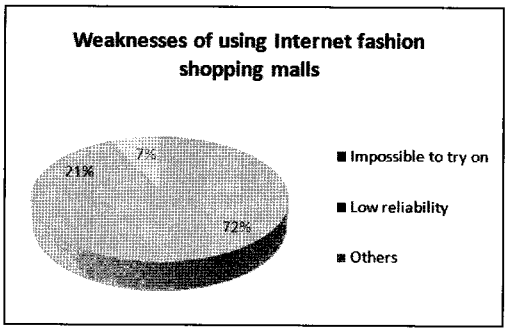

Fig. 4. Weaknesses of using Internet fashion shopping malls

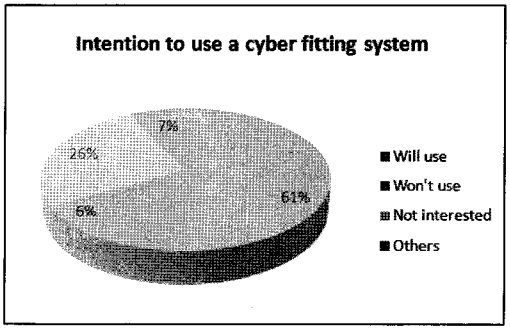

Fig. 6. Intention to use a cyber fitting system

Table 3. Experience of using Internet shopping malls by gender

Experience of using Internet shopping malls	Gender		Total	chi (p)
	Male	Female		
Yes	53	32	85	2.634 .105
	62.4%	37.6%	100.0%	
No	6	9	15	
	40.0%	60.0%	100.0%	
Total	59	41	100	
	59.0%	41.0%	100.0%	

shopping malls more than women[8].

Table 4 indicates the comparison between males and females in terms of the type of using Internet fashion shopping malls. Among the respondents having the experience of using Internet shopping malls, 16 males (57.1%) and 12 females (42.9%) used general shopping malls while 33 males (63.5%) and 19 females (36.5%) used fashion-specialized shopping malls. And 10 males and 10 females (50% each) used other types of shopping malls. No gender difference in the type of using Internet shopping malls was found ($p>.05$). Regarding the type of using Internet shopping malls, fashion-specialized shopping malls were used most and men used them more than women.

Table 5 shows the comparison between males and females in terms of the extent of the satisfaction with Internet fashion shopping malls. 3 males (50%) and 3 females (50%) were not satisfied with Internet fashion shopping malls at all, and 11 males (64.7%) and 6 females (35.3%) were dissatisfied with Internet fashion shopping malls. 30 males (68.2%) and 14 females (31.8%) replied that they didn't know well. 13 males (41.9%) and 18 females (58.1%) were satisfied while 2 males (100%) were very much satisfied. However, there was no woman who was very much satisfied. That is, there was no gender difference in the extent of the satisfaction with Internet shopping malls ($p>.05$). In relation to the satisfaction with Internet fashion shopping malls, many males replied that they didn't know well, while many females replied that they were satisfied.

Table 4. Type of using Internet fashion shopping malls by gender

Type of using Internet fashion shopping malls	Gender		Total	chi (p)
	Male	Female		
General shopping mall	16	12	28	1.138 .566
	57.1%	42.9%	100.0%	
Fashion-specialized shopping mall	33	19	52	
	63.5%	36.5%	100.0%	
Others	10	10	20	
	50.0%	50.0%	100.0%	
Total	59	41	100	
	59.0%	41.0%	100.0%	

Table 5. Extent of the satisfaction with Internet fashion shopping malls by gender

Extent of the satisfaction with Internet fashion shopping malls	Gender		Total	chi (p)
	Male	Female		
Not satisfied at all	3	3	6	7.085 .131
	50.0%	50.0%	100.0%	
Dissatisfied	11	6	17	
	64.7%	35.3%	100.0%	
Don't know well	30	14	44	
	68.2%	31.8%	100.0%	
Satisfied	13	18	31	
	41.9%	58.1%	100.0%	
Very much satisfied	2	0	2	
	100.0%	.0%	100.0%	
Total	59	41	100	
	59.0%	41.0%	100.0%	

Table 6 indicates the comparison between males and females in terms of the strengths of using Internet fashion shopping malls. 20 males (71.4%) and 8 females (15%) pointed out low price as the strength, 25 males (62.5%) and 15 females (37.5%) pointed out economy of time as strength, 10 males (47.6%) and 11 females (52.4%) pointed out diversity as the strength, and 4 males (36.4%) and 7 females (63.6%) gave other opinions. It was found that there was no gender difference in the

Table 6. Strengths of using Internet fashion shopping malls by gender

Strengths of using Internet fashion shopping malls	Gender		Total	chi (p)
	Male	Female		
Low price	20	8	28	5.445 .142
	71.4%	28.6%	100.0%	
Economy of time	25	15	40	
	62.5%	37.5%	100.0%	
Diversity	10	11	21	
	47.6%	52.4%	100.0%	
Others	4	7	11	
	36.4%	63.6%	100.0%	
Total	59	41	100	
	59.0%	41.0%	100.0%	

strengths of using Internet fashion shopping malls (p>.05). Both men and women thought economy of time as the biggest strength of using Internet fashion shopping malls.

Table 7 indicates the comparison between males and females in terms of the weaknesses of using Internet fashion shopping malls. 41 males (57.7%) and 30 females (42.3%) replied that they could not check whether clothes went well with them because they couldn't try on. 16 males (72.7%) and 6 females (27.3%) pointed out low reliability on products as the weakness. 2 males (28.6%) and 5 males (71.4%) pointed out other weaknesses. No gender difference in the weaknesses of using Internet fashion shopping malls was found (p>.05). It was found that most of men and women thought that the impossibility to try on clothes to check whether the clothes go well with them was be the biggest weakness of using Internet fashion shopping malls.

Table 7. Weaknesses of using Internet fashion shopping malls by gender

Weaknesses of using Internet fashion shopping malls	Gender		Total	chi (p)
	Male	Female		
Impossible to try on clothes to check whether the clothes go well with them	41	30	71	4.439 .109
	57.7%	42.3%	100.0%	
Low reliability on products	16	6	22	
	72.7%	27.3%	100.0%	
Others	2	5	7	
	28.6%	71.4%	100.0%	
Total	59	41	100	
	59.0%	41.0%	100.0%	

Table 8 shows the comparison between males and females in terms of the intention to use a cyber fitting system if available. 5 males (59.3%) and 24 females (40.7%) replied that they would use a cyber fitting system, while 3 males (50%) and 3 females (50%) replied that they wouldn't use it. 16 males (57.1%) and 12 females (42.9%) replied that they were not interested in a cyber fitting system. 5 males (71.4%) and 2 females (28.6%) gave other opinions. No gender difference in the intention to use a cyber fitting system was found (p>.05). It was found that most of men and women would use a cyber fitting system if available.

Table 9 indicates the comparison between males and females in terms of the possibility of the development of Internet fashion shopping malls having a cyber fitting system. 11 males (78.6%) and 3

Table 8. Intention to use a cyber fitting system by gender

Intention to use a cyber fitting system if available	Gender		Total	chi (p)
	Male	Female		
Will use	35	24	59	.690 .875
	59.3%	40.7%	100.0%	
Won't use	3	3	6	
	50.0%	50.0%	100.0%	
Not interested	16	12	28	
	57.1%	42.9%	100.0%	
Others	5	2	7	
	71.4%	28.6%	100.0%	
Total	59	41	100	
	59.0%	41.0%	100.0%	

Table 9. Possibility of the development of Internet fashion shopping malls having a cyber fitting system (by gender)

Possibility of the development of Internet fashion shopping malls having a cyber fitting system	Gender		Total	chi (p)
	Male	Female		
Will be greatly developed	11	3	14	2.773 .597
	78.6%	21.4%	100.0%	
Will be developed	21	16	37	
	56.8%	43.2%	100.0%	
So so	21	16	37	
	56.8%	43.2%	100.0%	
Won't be developed	4	4	8	
	50.0%	50.0%	100.0%	
Others	2	2	4	
	50.0%	50.0%	100.0%	
Total	59	41	100	
	59.0%	41.0%	100.0%	

females (21.4%) replied that they would be greatly developed, while 21 males (56.8%) and 16 females (43.2%) replied that they would be developed. However, 21 males (56.8%) and 16 females (43.2%) replied, "So so" and 4 males (50%) and 4 females (50%) replied they would not be developed. No gender difference was found in the possibility of the development of Internet fashion shopping malls having a cyber fitting system($p>.05$). It was found that most of men and women thought that Internet fashion shopping malls would be developed if a cyber fitting system were used.

Table 10 shows the comparison between males and females in terms of the experience of using a cyber fitting system. There was no man who had the experience of using a cyber fitting system, while 1 female (100%) had the experience of using a cyber fitting system. 59 males (59.6%) and 40 females (40.4%) haven't used a cyber fitting system so no gender difference was found in terms of the experience of using a cyber fitting system($p>.05$). It was found that most of men and

Table 10. Experience of using a cyber fitting system by gender

Experience of using a cyber fitting system	Gender		Total	chi (p)
	Male	Female		
Yes	0	1	1	1.454 .228
	.0%	100.0%	100.0%	
No	59	40	99	
	59.6%	40.4%	100.0%	
Total	59	41	100	
	59.0%	41.0%	100.0%	

women had no experience of using a cyber fitting system.

Table 11 shows the comparison among the respondents having the intention to use a cyber fitting system, the respondents having no intention, and the respondents having no interest in terms of the experience of using a cyber fitting system. Among the respondents replying that they would use, 1 respondent (1.7%) had the experience of using a cyber fitting system and 58 respondents (98.3%) had no experience. Among the respondents replying that they would not use, there was no one who had the experience of using a cyber fitting system. All of them, 6 respondents (100%), had

Table 11. Experience of using a cyber fitting system by the intention to use a cyber fitting system if available

Intention to use a cyber fitting system if available	Experience of using a cyber fitting system		Total	chi (p)
	Yes	No		
Will use	1	58	59	.702 .873
	1.7%	98.3%	100.0%	
Won't use	0	6	6	
	.0%	100.0%	100.0%	
Not interested	0	28	28	
	.0%	100.0%	100.0%	
Others	0	7	7	
	.0%	100.0%	100.0%	
Total	1	99	100	
	1.0%	99.0%	100.0%	

Table 12. Experience of using Internet shopping malls by type of Internet fashion shopping malls

Type of using Internet fashion shopping malls	Experience of using Internet shopping malls		Total	chi (p)
	Yes	No		
General shopping mall	28	0	28	70.588 .000
	100.0%	.0%	100.0%	
Fashion-specialized shopping mall	52	0	52	
	100.0%	.0%	100.0%	
Others	5	15	20	
	25.0%	75.0%	100.0%	
Total	85	15	100	
	85.0%	15.0%	100.0%	

no experience. Among the respondents who were not interested in a cyber fitting system, all the 28 respondents (100%) had no experience of using a cyber fitting system. There was no difference in the experience of using a cyber fitting system on the basis of the intention to use a cyber fitting system if available ($p>.05$). It was found that many of the respondents would like to use a cyber fitting system, but they had no experience of using it.

Table 12 shows the experience of using Internet shopping malls by the type of using Internet fashion shopping malls. Among the respondents using general shopping malls, 28 (100%) had the experience of using Internet shopping malls, and among the respondents using fashion-specialized shopping malls, 52 (100%) had the experience. The experience of using Internet shopping malls by the type of using Internet fashion shopping malls was different ($p<.05$). Regarding the experience of using Internet shopping malls by the type of using Internet fashion shopping malls, most of the respondents had the experience and fashion-specialized shopping malls were used most.

4. PROPOSAL OF A CYBER FITTING SYSTEM

With the recent development of Internet, e-commerce is increasing and especially, the number of fashion shopping mall users is increasing because of such strengths as economy of time and low price. However, the impossibility to try on clothes to check whether the clothes go well with users is pointed out as the biggest weakness of fashion shopping malls, which was confirmed again by this paper. This paper also found that the users of Internet fashion shopping malls would use a cyber fitting system if available and thought that Internet shopping malls could be developed if a cyber fitting system were available. Based on the study results, this paper proposes a cyber fitting system as a way of improving Internet fashion shopping malls.

Figure 7. is the structure of the 3D virtual fitting system proposed by this paper

The cyber fitting system is operated through the following steps:

Choose gender in the 1st step.

Input a body size in the 2nd step.

Choose a face shape in the 3rd step.

Choose a hair style in the 4th step.

Choose background and complete in the 5th step.

Save the complete data in the 6th step.

Go to the relevant site and shop in the 7th step[9]

Based on the information on the body shape given by a user, a fitting model, which is similar with the user's body shape, is created. Through the fitting model, a user can feel the effect of trying on clothes on line. Through this cyber fitting system,

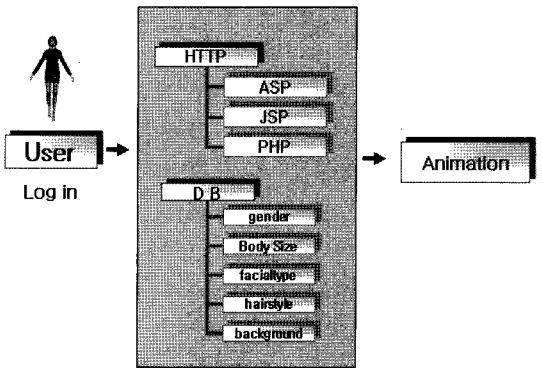

Fig. 7. Structure of cyber fitting system

effective shopping culture, free from the restrictions in time and space, can be guaranteed to consumers and producers can supply reliable products.

5. PLAN OF IMPROVEMENT AND CONCLUSION

The results of this research show that most of students use Internet fashion shopping malls and men use them more than women. Regarding the type of using Internet fashion shopping malls, fashion-specialized shopping malls are used most and men use them more than women. Regarding the satisfaction with Internet fashion shopping malls, most of men replied that they did not know well, but most of women replied that they were satisfied. Regarding the strengths of using Internet fashion shopping malls, both men and women thought economy of time as the greatest strength. Regarding the weaknesses of using Internet fashion shopping malls, both men and women replied that the biggest weakness was that they can not try on clothes so they can not check whether clothes go well with them. Regarding the intention to use a cyber fitting system if available, both men and women replied that they would use. Regarding the possibility of the development of Internet fashion shopping malls having a cyber fitting system, both men and women thought they would be developed. Regarding the experience of using a cyber fitting system, both men and women had no experience of using it. Regarding the experience of using a cyber fitting system by the intention to use a cyber fitting system if available, many respondents wanted to use it, but they had no experience of using it. Regarding the experience of using Internet shopping malls by type of using Internet fashion shopping malls, most of the respondents had the experience of using them, and they used fashion-specialized shopping malls most.

This research proposed a cyber fitting system as an improvement of Internet fashion shopping malls. A fitting model, which is similar with a user's body shape, is created on an Internet shopping mall, so a user can enjoy the effect of really trying on clothes on line. The effort of analyzing users' desires and of meeting with them is the future direction that the whole industry can be developed further. From the viewpoint of producers, the production cost can be saved and the industry can be changed into the high value-added industry. Therefore, this paper hopes that this system will be perfectly made and become the motive of the development of the industry.

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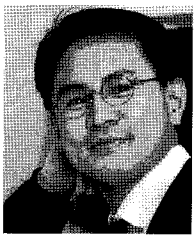

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