

Evaluation of Visual Perception in Smoking Cessation Websites and Construction of Antismoking Website

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I . Introduction

These days, we are highly interested in our health and the government actively proceeds to the programs of national health promotion. For this, it continuously puts budgets and human resources into development of various programs and education of health for prevention of diseases. Among the businesses of national health promotion that are proceeded by the government, smoking prevention programs is noteworthy because ill effects of smoking on health are very serious and wide. At present, in Korea, there

are 12,500,000 smokers (1,000,000 females and 12,500,000 males) and over 30,000 people a year die because of diseases caused by smoking, which is expected to increase to over 50,000 in 2020. Economic loss by smoking is estimated at 6 trillion won for a year, which is expected to rise up too (Kim, 2002).

According to the 1997 report made by WHO, 68.2% of Korean males who are over 15 years old smoke, which is the highest in the world. The smoking population in Korea is currently expanded to juveniles and females. In 2001, about 500,000 middle and high school students in Korea were estimated to smoke, which means that 7.4% of middle

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school male students, 3.2% of middle school female students, 27.6% of high school male students, and 10.7% of high school female students smoke. The cigarettes that they consume for a year (67,000,000 packs) total to 1.4% of the whole cigarette consumption (WHO,1997). The Korea Council of Antismoking Campaign tells that the average smoking rate of high school male students is 32.6%, 7.5% for high school female students and 3.1% for middle school female students. The time when high school students smoke most is the third school year (41%) in case of males and the first school year (10.5%) in case of females. In case of middle school male students, they smoke most when they are in the second school year (8.7%), which is followed by the third school year (7%) and the first school year (1.1%). In case of middle school female students, they smoke most when they are in the third school year (3.5%), which is followed by the second school year (3.2%) and the first school year (2.2%). Especially, the smoking rate of female students at vocational schools is higher by 10 times than that (2.5%) of general schools. The smoking rate of the third year male students at high school is 41%, which is much higher than that of advanced countries: 26.2% for Japan (1991), 28.2% for America (1997) and 20.5% for England (1994)(Kim, 2002).

Juveniles' high smoking rate causes a serious problem with health because health

in the adolescent period decides one's health in life. The sooner one smokes, the more one gets poisoned to nicotine so one gets to smoke more than others who start to smoke after grown up(Kim, 2003). In the adolescent period, genes are sensitive to carcinogenic substances so smoking can cause various diseases. Juveniles who start to smoke get poisoned to nicotine at fast speed. And further, they are short of motivation for antismoking so the effects of antismoking programs for them are very low. Therefore, smoking can be seen as juveniles' problem, not adults', and it is more important to educate juveniles not to smoke.

According to the research that has been carried out from 1988 to 1997, while smoking by curiosity was reduced, smoking by friends' influences was increased. That is, a peer group's sense of value is an important factor to determine juveniles' smoking so comprehensive approach is necessary in order to remove harmful environment (smoking) from juveniles (Kim et al., 2000).

In order for Korea to wipe off such dishonor of "the first rank in the smoking rate of juveniles and males in the world", it is important to help male smokers stop smoking, but it is sincerely required to develop various programs for antismoking in order for females and juveniles not to be exposed to evil influences of smoking.

Juvenile and female smokers are reluctant

to let the fact of their smoking open to others so education of antismoking has not been effective and further, continuous management has been difficult. Focusing on activation of antismoking programs by use of Internet that juveniles and females have easy access to, this study intends to evaluate antismoking websites that are operated in and out of the country. Based on the evaluation, it will construct and operate the best optimum website, it will propose a model for antismoking program on cyber.

II. Method

1. Study Design and Concept

Under the serious situation that smoking is expanded to juveniles and females in Korea, this study has started from the idea, how to contribute to the cyber antismoking business by use of Internet that juveniles and females have relatively easy access to.

Design of web page is one of the factors that have decisive influences on its use. Systematically well-designed homepages attract web surfers, encourage them to visit the sites frequently, and further, accomplish their original purposes (Shin, 2000).

At present, there are many antismoking websites in Korea. However, evaluation of these sites depends on the number of visitors only yet. Analysis of antismoking websites

by use of visual perceptive evaluation model will make a contribution to highlighting the importance of design and to settling antismoking business on cyber.

This paper has set up a visual perception evaluation model because the visual designing factor is essential to maximize the cyber-content usage. As web sites that were designed without sufficient consideration of visual designing factors were compared to those with great visual design, it turned out that the results varied greatly. Even in off-line, readership is nothing but 50 percent. That's why the Web-designing armed with visual perception factors has been very important.

In order to apply visual perceptive evaluation model to antismoking websites, local and foreign contents regarding antismoking have been selected based on the standards set by this research, and then, evaluated by professionals and users respectively. For evaluation, availability of interface, convenience of design, and other indexes have been used. Referring to the design factors that are evaluated good, an antismoking website have been made and its influence on antismoking have been analyzed.

2. Instrument

- 1) Selection of smoking cessation websites for evaluation

There are hundreds of antismoking web-

Table 1. Homepage address of smoking cessation for the evaluation of visual perception

Web-Site (Local)	Homepage Address	Web-Site (foreign)	Homepage Address
Healthguide	healthguide.kihasa.ridentitye.kr	WHO(UN)	www.tobacco.who.int
Nosmoke	www.nosmoke.or.kr	CDC(America)	www.CDC.gov
Healthkorea.net	nosmoking.healthkorea.net	The Foundation for a Smokefree America(America)	notobacco.org
Korea Association of smoking & Heath	www.kash.or.kr	National Center for Tobacco-Free Kids(America)	tobaccofreekids.org
Nosmokingnara	nosmokingara.org	The Population Health Division(Canada)	www.quitnow.info.au
nosmokeguide	nosmokeguide.or.kr	Action on Smoking and Health(England)	www.ash.org.uk

sites in and out of the country. In order to get useful information such as design factors required for construction of the best optimum website, efficiency in operation of a website, etc., the following standards have been used to select the relevant websites for analysis.

The local websites for evaluation have

been selected from the websites that are highly ranked on two search engines (<http://www.google.co.kr>) and (<http://www.naver.com>) in terms of search frequency. For selection of the foreign websites for evaluation, the two search engines, Google and Naver, have been used too. In addition, professionals' opinions have been referred so

Table 2. Distributions of demographic characteristics in evaluation group

		Professional Group(%)	User Group(%)	Total(%)
Sex	Male	25(58.3)	27(36.5)	48(43.6)
	Female	15(41.7)	47(63.5)	62(56.4)
	Total	36(100.0)	74(100.0)	110(100.0)
Age Group	20s	29(80.6)	74(100.0)	103(93.6)
	30s	5(13.9)	0(0.0)	5(4.5)
	40s	2(5.6)	0(0.0)	2(1.8)
	Total	36(100.0)	74(100.0)	110(100.0)
Job	Web Designer	11(30.6)	0(0.0)	0(0.0)
	Designer	18(50.0)	0(0.0)	18(16.4)
	Professor	2(5.6)	0(0.0)	2(1.8)
	Researcher	5(13.9)	0(0.0)	5(4.5)
	Undergraduate	0(0.0)	74(100.0)	74(67.3)
	Total	36(100.0)	74(100.0)	110(100.0)

the websites which are high in trust and popularity, and which are sincere at information supply have been finally selected (Table 1).

2) Evaluative index and grades

For evaluation of local and foreign anti-smoking websites, visual perceptive evaluation model has been used (Shin, 2001). The visual perceptive evaluation model of web graphic interface has been divided into forums, navigation, layout, image and identity.

Two groups consisting of professionals and users respectively have evaluated the websites. Unlike the survey of recognition or attitudes that is based on subjective

judgment, the visual perceptive evaluation needs objectivity so enough orientation should be provided for fair evaluation.

Especially, for the group of users, who are composed of university students, a lecture of website evaluation has been provided through a class. And, they have been made to take enough time for analysis in order to obtain objectivity in evaluation (Table 2).

The evaluation has been made for each website and item by 5-point scale - 5 points for very good, 4 for good, 3 for average, 2 for bad and 1 for very bad. Average and standard deviation (SD) of the total scores for each item has been calculated by group and the total score of each website has been calculated too. Through this calculation, the

Table 3. Each scores of major-evaluation contents & sub-evaluation contents

Major-Evaluation Contents	Sub-Evaluation Contents	Score
Form	Length of Web Page	5
	Type of Frame	5
	Home Page Style	5
	Accomplishment & Participation	5
Navigation	Flow of Logic	5
	Consistency	5
Layout	Priority of Information	5
	Grouping	5
	Grid	5
	Text	5
Image	Esthetic Function	5
	Contents Function	5
Identity	Identity	5
Total(mean)		65

websites have been ranked and referred to construction of an antismoking website(Table 3).

3) Construction of an smoking cessation website based on the evaluation results

Based on the evaluation results for local and foreign antismoking websites, an antismoking website has been constructed. It has put its focus on harmony in all the processes from designing to construction of database, and has tried to consider convenience in use, excellence in design, and effectiveness in smoking cessation. The server of the school institute that this researcher belongs to has been used and concerned specialists' advice have been provided for contents. Further, the opinions of trainers and clients who are participating in smoking cessation education have been reflected too.

III. Result and Discussion

1) Evaluation of local and foreign smoking cessation websites

Based on the standards set by this study, 6 local websites and 6 foreign websites have been selected for evaluation. The group of 36 professionals and the group of 74 users have participated in the evaluation from April to June 2003. The group of professionals is composed of students who have studied web

design at graduate school or higher school and employees of companies and schools involved in web. The results of evaluation are as follows(Table4, 5):

First, "No Smoking Guide" (www.nosmokeguide.or.kr) has been ranked on the first, getting total mean 7.52 points(SD: 0.50) with 3.84(SD: 0.30) points (perfect score of 5) from the group of professionals and 3.59(SD: 0.23) from the group of users. While No Smoking Guide has got the highest points from both groups, the second-ranked, Health Guide (www.healthguide.kihasa.re.kr) has been ranked on the second by the group of professionals and on the third by the group of users. The total mean score that Health Guide has received is 6.98(SD: 0.50). The sixth is www.kash.or.kr operated by Korea Association of Antismoking Campaign, which has received 6.55 points (SD: 0.47) and the group of professionals have evaluated it lowest. The first-ranked, No Smoking Guide, has received the highest score from both groups, but the sixth has been ranked on the fifth by the group of users even though the group of professionals has ranked it on the sixth. This result shows that the groups have maintained considerable level of trust in evaluation of contents(Table 4).

Secondly, in case of foreign websites, www.tobaccofreekids.org has got the highest scores of 6.70(SD: 0.42) with 3.32(SD: 0.22) from the group of professionals and 3.38(SD:

0.21) from the group of users. The second-ranked is www.quitnow.info.au, which has received total 6.65(SD: 0.53) with 3.30(SD: 0.29) from the group of professionals and 3.35(SD: 0.26) from the group of users. In case of the foreign websites that are ranked on the first, the second and the third, both groups' evaluations have been coincided. The lowest-ranked is www.CDC.gov, which has received total mean 5.74(SD: 0.55) with 2.78(SD: 0.32) from the group of professionals and 2.96(SD: 0.26) from the group of users. Both groups have evaluated the site same. It means that evaluation of foreign websites is more stable than that of local

websites.

The website that is opened by WHO has been evaluated relatively high in terms of form, but it has been evaluated very low (2 score) in terms of image. The group of professionals has given lower mark to it rather than the group of users. In case of evaluation of image, especially, regarding contents, the difference between the scores given by both groups is about 0.5, which means that both groups have quite different viewpoint of the web site. WHO is the most authoritative organization leading antismoking campaign, but evaluation of it is not so good in this study(Table 5).

Table 4. Results of evaluation (Local Websites)

Major-Evaluation Contents	Sub-Evaluation Contents	Healthguide			Nosmoke			Helth Korea		
		Expert	User	Total	Expert	User	Total	Expert	User	Total
Form	Length of Web Page	3.56	3.53	7.09	3.75	4.11	7.86	3.06	3.34	6.40
	Type of Frame	3.86	3.78	7.64	3.69	3.68	7.37	3.44	3.10	6.54
	Home Page Style	3.94	3.85	7.79	3.58	3.50	7.08	3.25	3.46	6.71
	Accomplishment & Participation	3.03	3.22	6.25	3.42	3.76	7.18	3.61	3.38	6.99
Navigation	Flow of Logic	3.53	3.52	7.05	3.39	3.97	7.36	3.08	3.30	6.38
	Consistency	3.50	3.47	6.97	3.00	3.65	6.65	3.11	3.41	6.52
Layout	Priority of Information	3.69	3.19	6.88	3.36	3.07	6.43	3.08	3.33	6.41
	Grouping	3.78	3.47	7.25	3.28	3.39	6.67	3.19	3.28	6.47
	Grid	3.31	2.95	6.26	3.08	2.99	6.07	3.28	2.91	6.19
	Text	3.42	3.07	6.49	3.25	3.49	6.74	3.56	3.20	6.76
Image	Esthetic Function	3.56	3.44	7.00	3.25	3.55	6.80	3.56	3.34	6.90
	Contents function	3.69	3.84	7.53	3.44	3.69	7.13	3.69	3.51	7.20
Identity	Identity	3.51	3.04	3.04	3.09	3.32	6.41	3.17	3.39	6.56
	Mean	3.57	3.41	6.98	3.35	3.55	6.90	3.31	3.30	6.62
	SD	0.24	0.30	0.50	0.23	0.32	0.48	0.23	0.16	0.28
	Rank		②			③			⑤	

Major-Evaluation Contents	Sub-Evaluation Contents	KASH			Nosmokignara			Nosmokeguide		
		Expert	User	Total	Expert	User	Total	Expert	User	Total
Form	Length of Web Page	3.83	3.64	7.47	3.67	3.62	7.29	4.06	3.82	7.88
	Type of Frame	2.92	3.68	6.60	3.41	3.47	6.88	4.19	3.69	7.88
	Home Page Style	3.03	3.27	6.30	3.41	3.55	6.96	4.17	3.69	7.86
	Accomplishment & Participation	3.03	3.08	6.11	3.26	3.68	6.94	4.17	3.81	7.98
Navigation	Flow of Logic	3.25	3.57	6.82	3.00	3.48	6.48	3.86	3.62	7.48
	Consistency	3.58	3.76	7.34	3.30	3.61	6.91	3.75	3.51	7.26
Layout	Priority of Information	3.36	3.30	6.66	3.26	3.55	6.81	3.83	3.46	7.29
	Grouping	3.14	3.14	6.28	3.11	3.52	6.63	3.67	3.30	6.97
	Grid	2.97	3.24	6.21	3.15	3.20	6.35	3.28	3.09	6.37
	Text	3.22	3.26	6.48	3.26	3.68	6.94	3.39	3.40	6.79
Image	Esthetic Function	2.75	3.00	5.75	3.70	3.58	7.28	3.75	3.65	7.40
	Contents function	3.06	3.55	6.61	3.26	3.86	7.12	4.17	3.80	7.97
Identity	Identity	3.17	3.32	6.49	3.15	3.62	6.77	3.69	3.83	7.54
	Mean	3.17	3.32	6.55	3.30	3.57	6.87	3.84	3.59	7.43
	SD	0.29	0.24	0.47	0.20	0.15	0.28	0.30	0.23	0.50
	Rank	⑥			④			①		

Table 5. Result of evaluation (Foreign Websites)

Major-Evaluation Contents	Sub-Evaluation Contents	WHO			CDC			Notobacco		
		Expert	User	Total	Expert	User	Total	Expert	User	Total
Form	Length of Web Page	3.14	3.14	6.28	2.78	2.51	5.29	2.19	2.75	4.94
	Type of Frame	3.37	3.34	6.71	2.78	3.07	5.85	2.36	2.88	5.24
	Home Page Style	3.34	2.85	6.19	2.31	2.72	5.03	2.69	3.16	5.85
	Accomplishment & Participation	3.06	2.94	6.00	2.44	2.74	5.18	2.65	2.95	5.60
Navigation	Flow of Logic	3.27	3.26	6.53	3.24	3.14	6.38	3.26	3.08	6.34
	Consistency	3.36	3.43	6.79	3.18	3.21	6.39	3.21	3.22	6.43
Layout	Priority of Information	3.06	3.49	6.55	3.00	3.25	6.25	2.91	3.27	6.18
	Grouping	3.42	3.30	6.72	3.03	3.13	6.16	3.03	3.15	6.18
	Grid	3.00	2.99	5.99	2.44	2.87	5.31	2.67	2.99	5.66
	Text	2.97	3.16	6.13	2.58	2.85	5.43	2.86	3.26	6.12
Image	Esthetic Function	2.86	2.86	5.72	2.39	2.56	4.95	3.17	3.39	6.56
	Contents function	2.94	3.46	6.40	3.06	3.31	6.37	3.53	3.30	6.83
Identity	Identity	3.18	3.13	6.31	2.97	3.06	6.03	3.00	3.31	6.31
	Mean	3.15	3.18	6.33	2.78	2.96	5.74	2.89	3.13	6.02
	SD	0.19	0.22	0.32	0.32	0.26	0.55	0.37	0.19	0.54
	Rank	③			⑥			⑤		

Major-Evaluation Contents	Sub-Evaluation Contents	Tobaccofreekids			Quitnow			Ash		
		Expert	User	Total	Expert	User	Total	Expert	User	Total
Form	Length of Web Page	3.53	3.81	7.34	3.69	3.70	7.39	3.34	3.28	6.62
	Type of Frame	3.58	3.61	7.19	3.23	3.54	6.77	3.29	3.19	6.48
	Home Page Style	3.56	3.54	7.1	3.51	3.21	6.72	3.14	2.79	5.93
	Accomplishment & Participation	3.18	3.24	6.42	3.00	3.11	6.11	2.56	2.90	5.46
Navigation	Flow of Logic	3.26	3.31	6.57	3.29	3.37	6.66	3.38	3.12	6.50
	Consistency	3.38	3.44	6.82	3.44	3.59	7.03	3.24	3.33	6.57
Layout	Priority of Information	3.35	3.38	6.73	3.35	3.24	6.59	3.06	3.17	6.23
	Grouping	3.21	3.12	6.33	3.21	3.16	6.37	2.97	2.91	5.88
	Grid	2.78	3.10	5.88	2.61	2.81	5.42	2.91	2.82	5.73
	Text	3.22	3.08	6.3	3.06	3.20	6.26	2.57	2.30	4.87
Image	Esthetic Function	3.11	3.38	6.49	3.44	3.56	7.00	3.03	2.80	5.83
	Contents function	3.41	3.50	6.91	3.68	3.64	7.32	3.39	3.14	6.53
Identity	Identity	3.53	3.47	7.00	3.35	3.43	6.78	3.09	2.80	5.89
	Mean	3.32	3.38	6.70	3.30	3.35	6.65	3.07	2.97	6.04
	SD	0.22	0.21	0.42	0.29	0.26	0.53	0.27	0.28	0.52
	Rank				①			②		④

2) Construction of an smoking cessation website

Based on the evaluation of antismoking websites, this research has set out to develop contents to maximize effects of antismoking education Referring to the websites that have

received the highest score in each detailed item, it has applied them to the homepage to be constructed.

This paper that has been prepared based on the evaluation results classified by evaluation factor has attempted to set up a

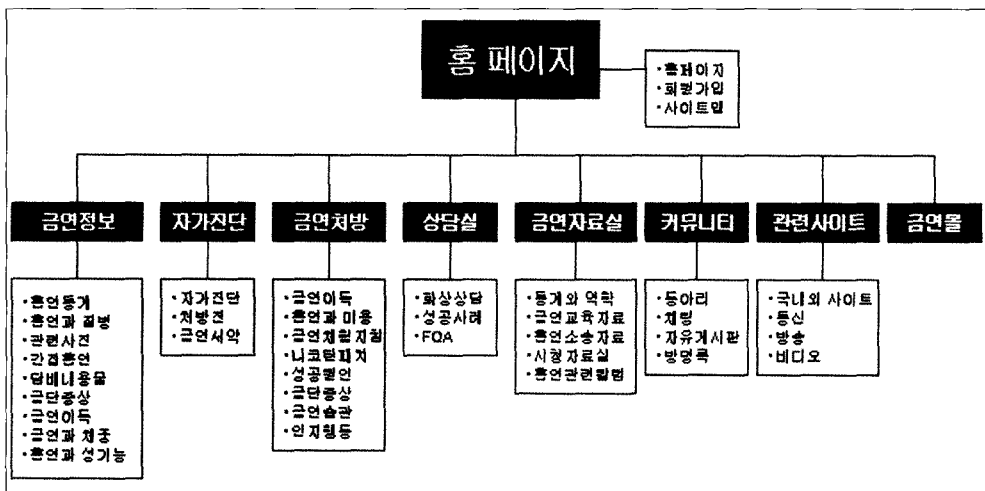


Figure 1. Site-map of Dr. No Smoking(www.drnosmoking.com)

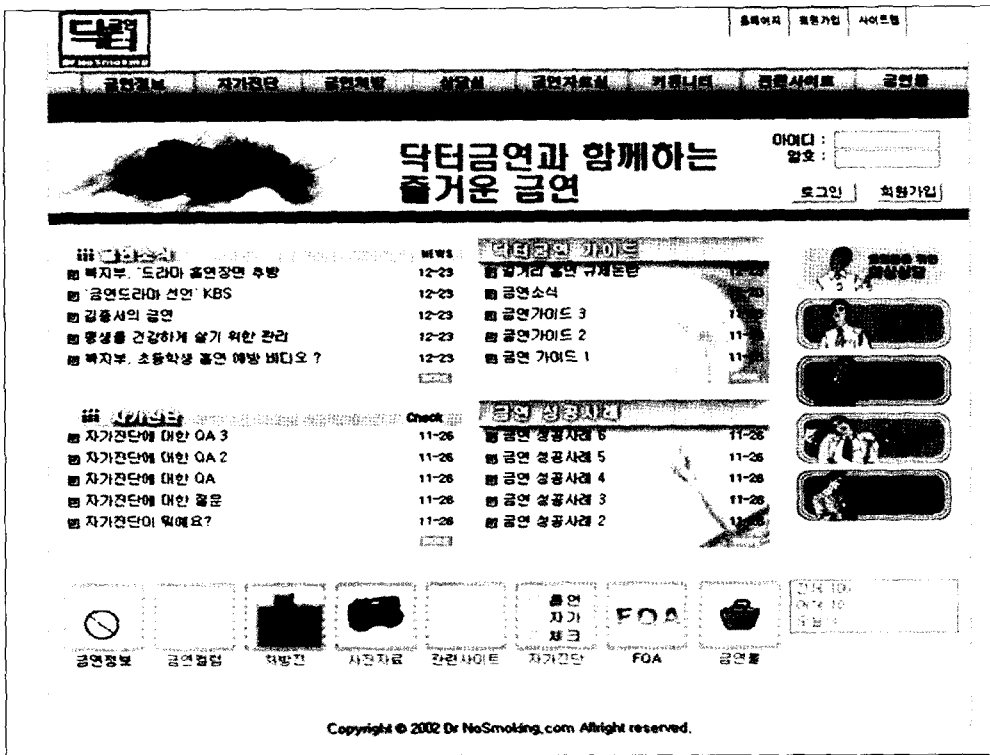


Figure 2. Index structure of Dr. No Smoking(www.drnosmoking.com)

website, considering following factors. With regard to the structure of the website, domestic websites are evaluated as over average while foreign sites such as Notobacco and CDC are evaluated as below average because each page is too long containing too much information about anti-smoking.

Therefore, considering that Internet users prefer seeing to reading, this paper has developed new contents by grouping data and adjusting the size of each page. Each page has been adjusted to reduce the inconvenience of using scroll under resolution of 1020x768. In case there is too much information, users

often need to scroll up to view upper page. To get over this trouble, TOP anchor function has been set up.

Program has been set up by a single frame all the way through to all pages.

Community and Advice sites are also set up to make more users participate in anti-smoking movement.

On top of each page, sub-menus are set up to make it easy for users to use. In each category, Layout has been designed to make it possible for users to get the key idea easily from long text provided with simple explanation. The contents are separated into

two parts: upper and lower. Menu bars and images are inserted in the upper part while the contents are displayed on the lower part where data can be grouped making it possible to apply same Grid within same category.

Furthermore, the use of CSS enables the size, word space, line space, style of text and hypertext to be consistent with each other.

The images with aesthetic and substantial function are used, and a variety of characters are also inserted to give users intimacy.

The existing anti-smoking sites are also evaluated as poor in its identity, which means that the integral management in coloring, image, text, and has not been implemented. In its anti-smoking guide, same coloring has been used to give unity and consistency. Harmonizing color (main and sub), image and text with each other has made the site consistent in overall.

And also it has considered design and convenience in access from the viewpoint of users, and collected information and data necessary for it. Especially, it has actively reviewed ways that users can easily have access to consultation and exchange information smoothly.

With the purpose to show the image of a doctor who manages antismoking, this web site has been named "Dr. No Smoking" and registered under the domain name of www.drnosmoking.com. Index of a home

page is very important in carrying out a cyber business of no smoking so in order to escape from tediousness or dullness, flash has been used for design. The menus for Dr. No Smoking are: information on antismoking; self-diagnosis; prescription for no smoking; counselling; community; relevant websites; and mall for antismoking. Structure and contents of each menu are as follows Fig1 & 2.

3) Discussion

This study has evaluated antismoking websites through visual perceptive evaluation model first in Korea, and its results will become important guidelines to designing antismoking websites in the future(Lee,2003). Through comprehensive evaluation of design, usefulness and other factors, the site should be evaluated generally in the future, and through this process, how to heighten usefulness of local health-related websites and how to make qualitative improvement should be studied too in the future. In addition, future studies need to be done in analyzing effects of the existing ways to stop smoking like off-line education, cigar for antismoking, acupuncture and patch, together with long-term effects of antismoking programs on line. There is a research saying that no smoking for over 3 years should be regarded real no smoking(Kim, 2003). However, the existing researches have been done for a year

or some months so there are few cases that verify perfect no smoking. Under the circumstance evil influences of smoking are increasing, if national health is improved by no smoking, continuous and long-term post management is necessary(Han, 2003). Therefore, if the website developed by this research is utilized for the smoking cessation program, it will be able to maximize the effects of no smoking by the virtue of various advantages of cyber media(Lee, 2003).

Consequently, additional researches should be done on how to effectively combine the existing ways to stop smoking with the antismoking programs on cyber and on effects of the antismoking business by combination. In addition, the tool that this study has used for evaluation of antismoking websites will be able to be utilized to evaluate health-related websites and make any improvement and development for the relevant web sites. The constructed website will be able to be applied to the websites of no drinking, Internet-poisoning, diet and any other health-related.

Especially, the program of self-diagnosis can be applied to other fields. If so, it will make a big contribution to health management of individuals at low cost, and further, continuous post management beyond the barriers of distance and time will be possibly made, which can maximize the program effects.

VI. Conclusion

The final purpose of this study is to propose a model of the most effective cyber antismoking contents by constructing contents and server, and analyzing the effects.

The contents, "Dr. No Smoking" developed by this research will make a big contribution to lowering the rate of smoking in Korea, together with the existing antismoking contents. Under the situation that the smoking population is expanded to females and juveniles, more effective antismoking campaign will be able to be carried out to them who have easy access to Internet. Through antismoking library, they can have access to various data in and out of the country and can understand importance of no smoking naturally. Through self-diagnosis, they themselves grasp their tendency of smoking and they are encouraged to practice no smoking as per given prescription. In order to improve falling-off in learning effects (which may be caused by one-way information delivery), video counseling system has been made to maximize effects of antismoking education.

This paper has evaluated 12 antismoking websites (6 for local and 6 for foreign) and scored them by design factors so it will be utilized actively for designing or modifying websites in the future.

In addition, it has focused on development of contents for operation of cyber antismoking

programs. With convenient and familiar designs and 100-page contents, this website will become the biggest portal website in Korea. Especially, construction of a remote video counseling system in this website has made two-way information delivery possible, not one-way and anonymous information delivery (which is a weak point of cyber) so it will make a big contribution to maximizing the effects of antismoking programs.

The rate of practicing antismoking should be verified through education by continuous intervention and thorough post management, but because of limited time for research, this study is quite restricted to measuring objective effects.

The above results say that if the existing ways to stop smoking and the cyber programs are combined for juveniles and females, it will get higher effects.

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References

- Brennan, P.F., Moore, S.M. and Smyth, K.A. 1995. The effects of a special computer network on care givers of persons with Alzheimer's disease. *Nursing Research*, 44(3):166-172.
- Chang, H.J. and Noh, M.S. 2003. Factor related to the recognition and behavioral intention for smoking cessation programs. *J of Korea Society for Health Education and Promotion* 20(3):1-18.
- Chung, Y.C. and Lee, K.J. 2003. self-regulation of a health information on the internet. *Korean J of Health Policy and Administration* 12(2):92-114.
- Cheong, Y.S., and Lee, Y.H. 2002. Development of personal computer based smoking cessation program for healthcare managers in factories and school. *J of the Korea Academy of Family Medicine* 23(6):753-759.
- Fagerstrom, K.O. and Schneider, N.G. 1989. Measuring nicotine dependence: a Han, S.h., Lee, M.S. and Choe, M.J. 2003. The smoking, drinking behavior and sexual activity among korea high school students. *Korean J of Health Education and Promotion* 3(1):113-128. review of Fagerstrom tolerance questionnaire. *J Behav Med* 12(2):159-182.
- JAMA 1996. The smoking cessation clinical practice guideline panel and staff. the agency for health care policy and research smoking cessation clinical practice guideline. 275(16):1270-1280.
- Kim, S.Y. and Chung, Y.S. 2003 The effects of smoking prevention on high school students. *J of Korea Society for Health Education and Promotion* 20(2):81-94.
- Kim, I.S. 2002. Perspective and situation of smoking cessation movement. Korea

- Association of Smoking Cessation Campaign. 5-16.
- Kim, I.S., et al. 2000. Influence factor of smoking in health. Unpublished National Health Insurance materials.
- Lee, S.j., Park, T.J., Joung, Y.I. and Cho, Y.C. 2003. A study on the development of Multimedia CAI in smoking prevention for adolescents. *J of Korea Society for Health Education and Promotion* 20(2):35-62.
- Lee, Y.H. 2003. Development of the internet contents for cyber smoking cessation program & its effectiveness analysis. Seoul, Korea: Korea institute of Health and Social Affairs.
- Lauri, S. 1992. Using a computer simulation program to assess the decision-making process in child health care. *Computers in Nursing* 10(4):171-177.
- Rarris, N.A., Stoupa, R.A., Mendenhall, J.D. and Mazzuca, K.B. 1994. A computerized diabetes education module for documenting patient outcome. *Computers in Nursing* 12(6):272-276.
- Schneider, D.J., Taylor, E.L., Prater, L.M. and Wright, M.P, 1991. Risk assessment for HIV infection: Validation study of a Computer-Assisted Preliminary Screen. *AIDS Education and Prevention* 3(3): 215-229.
- Suh, M.K. 2003. Legal measures for handling internet health information. *J of Korea Society for Health Education and Promotion* 20(1):61-76.
- Shin, S.H. 2001. The Study on the evaluation of visual perception in the web graphic interface. Master's thesis. Department of Industrial Design, University of Chung-Ang.
- Tsoh, J.Y. and McClure, J.B. 1997. Smoking cessation part 2: components of effectiveness intervention. *Behavioral Medicine* 23:15-27.
- Work Group on Nicotine Dependence. 1996. Practice guideline for the treatment of patients with nicotine dependence. *Am J Psy* 153(10):1-31.
- World Health Organization. 1997. Tobacco or health, a global status report. Geneva; World Health Organization.
- Work Group on Nicotine Dependence. 1996. Practice guideline for the treatment of patients with nicotine dependence. *Am J Psy* 153(10):1-31.
- Wilson, D., Lindsay, E., Alla, J., Raymond, J., Willms, D. and Singer, J. 1987. A smoking cessation intervention program for family physicians. *CMAJ* 137:613-619.
- Wilson, D. 1999. Smoking cessation: the new possibilities. *Can J Diagnosis. Feb:* 122-130.
- Yi, S.W., Ohrr, H.C., Yi, J.J., Kim, T.W. and Huh, N.U. 2003. The conditions and problems of anti-smoking education programs of government offices. *J of Korea Society for Health Education and Promotion* 20(1):77-90.

ABSTRACT

Tobacco use is the most readily preventable cause of premature death; it is a worldwide problem, with a significant impact on health and well-being. In order to design an effective tobacco education program, it is important to understand smoking patterns and the underlying factors associated with smoking in different generations such as adults or young people. Despite a general decline in the prevalence of regular smoking among adults, recent surveys commissioned by the Ministry Health & Welfare for the Republic of Korea have shown no evidence of any decline in smoking rates among young women and adolescents. The Republic of Korea has the highest adult male smoking percentage (65.1%) in the world and smoking in adolescents is still an increasing trend. Smoking in adolescents and young women is especially more dangerous, thus health education of anti-smoking directed at these groups is an important area that will benefit from using internet content that they can easily access.

The purpose of this study is the evaluation of visual perception and effectiveness analysis in smoking cessation websites in promoting smoking cessation in adolescents and young women through Internet content.

As a result of this project, at first we evaluated the Internet content of cyber smoking cessation programs by the evaluation criteria of web design interface. The Internet site of <http://nosmokeguide.or.kr> received the most superior evaluation in the domestic Internet content for smoking cessation and the Internet site of the National Center for Tobacco-Free Kids received the most superior evaluation in the foreign Internet content for smoking cessation. This evaluation was surveyed by an expert in Internet content and user.

Secondly, we developed the Internet content for cyber smoking cessation program, namely, "Dr. Smoking" that contained several menus and a database regarding anti-smoking designed in accordance with the results of this evaluation.

The domain address of Dr. Smoking is <http://www.drnosmoking.com> and our webpage has assorted kinds of news, information, self-diagnosis, prescription, consulting, a no-smoking mall etc.

In conclusion, this project is designed to develop Internet content for the most effective smoking cessation program and to contribute to eliminating smoking from our society.

We also will try to develop and upgrade this web-site in order to help a smoker who want to quit smoking and diminish the physical and socioeconomic harm from smoking.

key word : Smoking cessation websites, Cyber programs, Evaluation of visual perception