

## Comparative Study on Aesthetics in Web Design of Well Known Universities in Korea and China

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**Abstract** · Since the origin of the web site in the first part of the 90's there has been discussion regarding the function of aesthetics. Visual aesthetics has for the most part played an absolutely necessary role in human-computer interactive research. This study is intended to design websites on aesthetic aspects which focuses on the websites of universities in Korea and China. What exactly are the differences and commonalities of each; and how they have been clarified by methods of empirical research on aesthetic measurements.

**Key words** · Web sites, Web design, Aesthetics, Visual, Human-computer interaction

### 1. Introduction

Modern social science has demonstrated the importance of aesthetics in everyday life. Aesthetics was found to play an important role in new product development, marketing strategies, and the retail environment. "physical form or design of a product is an unquestioned determinant of its marketplace success"[7].

The robust findings regarding the importance of aesthetics in most walks of life make its absence from the human-computer interaction agenda harder to justify. The ubiquity of web based applications has generated a large body of research in human-computer interaction regarding

the design of such applications and web sites.

This study is intended to web site aesthetics. The goal was to further explore how users perceived the aesthetics of web sites beyond the general question of whether the site is attractive. On the other hand, It would facilitate future research on aesthetics in web design, its effects on human-computer interaction, and its relation to other perceived qualities of the interface in general and of web sites in particular.

### 2. Purpose of study

Korea and China communication increases steadily because of the similarities of their respective

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cultures with the demand of economic development. It is necessary to understand each other in many fields especially in design domain. More and more communication in this field can be seen these years, yet in web design there are few news. Based on aesthetic analysis and compare of web page in Korea and China, this study focuses on website of some universities.

Main purposes of this study are to find the differences and commonalities: to facilitate the communication and exchange between China and Korea, and to provide visual information to designers of Korea and China for reference.

### 3. Process of study

#### 3.1 Defining web design

What is Web Design? Web design is an ambiguous term. Web professionals define it differently all the time[1]. Web Design is the art and process of creating a single Web page or entire Web sites and may involve both the aesthetics and the mechanics of a Web site's operation although primarily it focuses on the look and feel of the Web site. Some of the aspects that may be included in Web design or Web production are graphics and animation creation, color selection, font selection, navigation design, content creation, HTML/XML authoring, JavaScript programming, and e-commerce development. Simply speaking, Web design is a form of electronic publishing.[9] Web design is the process of collecting and organizing information, including static information and dynamic information for presentation on the web(See Fig. 1).

Website design, in its purest form, is the

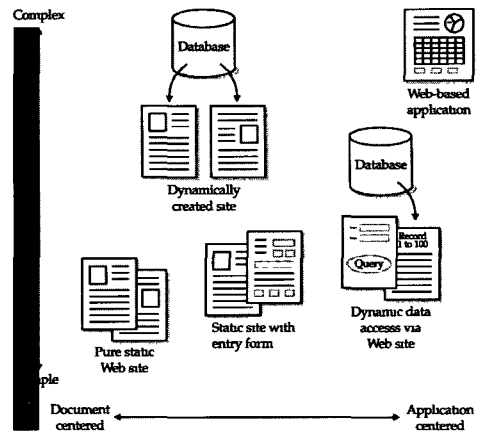


Figure 1. Static and dynamic information in website

analysis of a number of elements, both physical and metaphysical. The results of this analysis are the blueprint of the website, essentially it is the design[10].

Web design includes three aspects: contents, design and technology. Before construction a website, the contents is a factor which must be considered firstly. After construction a website, the import of design comes more and more(See Fig. 2).

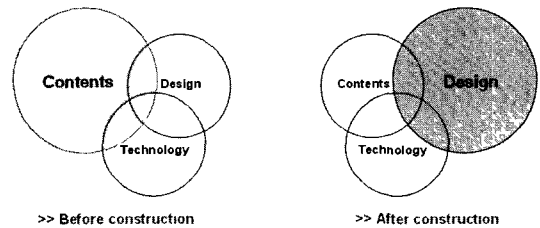


Figure 2. three aspects of web design

#### 3.2 About aesthetics

What Is Beauty? Beauty gives blissful pleasure-which is why it is sought after. We all seem to possess an inner need for beauty that is both primitive and rather intensive. Everybody wants to experience beauty, and to be beautiful-whole

industries are built on these needs. We are ready to make sacrifices, some small and some great, in our pursuit for beauty; we travel to the other end of the world to experience the beauty of nature, or some famous work of art; we buy high prices for penthouse apartments with wonderful views, as well as for works by well known masters-examples of appreciation of aesthetic qualities are plenty, and easy to find. According to the French writer Anatole France, “beauty is the greatest power in this world”[5].

The term “aesthetics” has evolved through the years, has been studied from different viewpoints, and has different meanings from different schools of thought. Of the range of connotations of the term “aesthetics” that exist today in various academic disciplines and in common language, we are interested here in its meaning as “an artistically beautiful or pleasing appearance” (The American Heritage Dictionary of the English Language), or as “a pleasing appearance or effect: Beauty” (Merriam Webster’s Collegiate Dictionary)[7].

Engineering and aesthetics in the ancient world were married almost by definition since judgments of the product’s usefulness and beauty were one and the same. An important function of aesthetics in engineering is the satisfaction of human requirements. From the consumer viewpoint, aesthetic quality can make engineering products more readily acceptable and can improve their commercial value.

From a designer viewpoint, an aesthetic approach can also reveal solutions to hidden problems, because visual thinking leads to clarification of forms and to their organization into integrated patterns.

### 3.3 Aesthetics in human computer interaction

Human computer interaction is a discipline concerned with the design, evaluation and implementation of interactive computing systems for human use and with the study of major phenomena surrounding them[3](See Fig. 3).

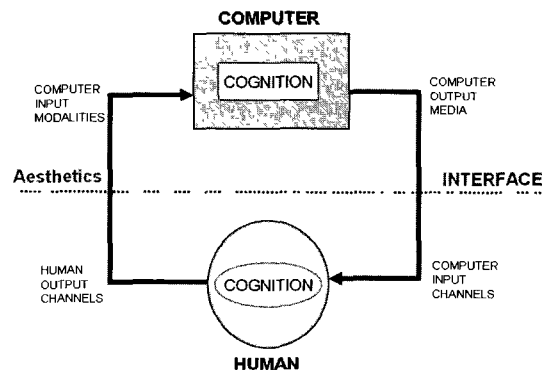


Figure 3. definition of HCI

Traditionally, the human-computer interaction literature expressed only passing interest in the aesthetic aspects of the interaction. In general, the aesthetic criterion is an integral part of effective interaction design[7]. Researchers have begun studying the role of aesthetics in interaction design; its effects on the users, and its relations with users’ perceptions of other system attributes and with the overall experience of their interaction. Issues of visual appeal and aesthetics have become an integral part of interactive systems design.

The rationales and guidelines often advocated for web site design resemble those used to direct human-computer interaction in general. While Neale and McCombe(1997) describe how to design a usable and visually appealing web site[4], the emphasis is clearly on the functional and the usability aspects of the design rather than on aesthetics. Some empirical evidence suggests that

beauty was the most important determinant for preferring a web and it has affected perceptions of other web site qualities. Indeed, in strike contrast to the principles and the guidelines advocated by usability researchers and gurus, any random perusal of web sites would suggest that aesthetic considerations are paramount in designing for the web.

### 3.4 The new wave: considering aesthetics in human-computer interaction and web design

Increasingly, research seeks to study the aesthetic aspects of human-computer interaction and to strike a balance between usability and aesthetic considerations. For example, Apple's iMac was heralded as the "aesthetic revolution in computing"[7]. Researchers have also begun studying the role of aesthetics in interaction design, its effects on the users, and its relations with users' perceptions of other system attributes and with the overall experience of their interaction.

The new wave of research on the visual aesthetics of computer interfaces suggests that aesthetics is a strong determinant of pleasure experienced by the user during the interaction. Similarly, in the context of web sites, the beauty was a primary predictor of overall impression and preferences of web sites. Simplicity may serve as a linkage between usability and aesthetics. Issues of visual appeal and aesthetics have become an integral part of interactive systems design[7].

### 3.5 Three web-design philosophies

One helpful way of understanding the more than

20 million Web sites in the world today is to divide them into three distinct philosophies: usability, multimedia, and mortised. Depending on the designer, any of the three philosophies does the best job of satisfying the goal of a Web site: communicate to the user in the most effective manner. Although multimedia and usability represent the proverbial argument between form and function, respectively, mortising represents the coming together of these two philosophies[2].

When considering the pros and cons of each philosophy, a designer should take into account how each philosophy addresses the following three factors of any site:

**Aesthetics:** How professional is the look and feel of the site? Is it consistent with the desired identity of the business or individual.

**Usability:** How quickly and easily can a user find and process information while being able to perform necessary tasks.

**Functionality:** Programming should enable the functional aspects of the site, such as forms and database driven text

As *Web pyramids*(See Fig. 4) to show, the four primary aspects of Web design are content,

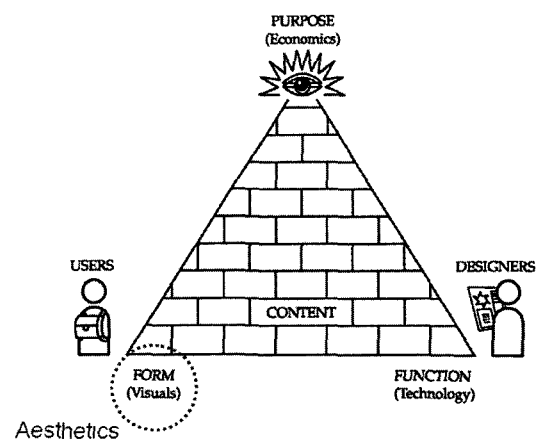


Figure 4. Web pyramids the facets of Web design [8]

technology, visuals, and economics. The primary purpose of content is to inform or perhaps persuade users. The point of using technology on a Web site is to implement the function of the site. The visuals provide the form for the site. Form and visual are concern with aesthetics. Finally, for most sites we need to consider the economic ramifications of building the site between designer and users.

### 3.6 Web elements analysis

Websites are composed of three parts form cognition aspect: Perceptual Cognition, Structural Cognition, and Contents Cognition(See Fig. 5).

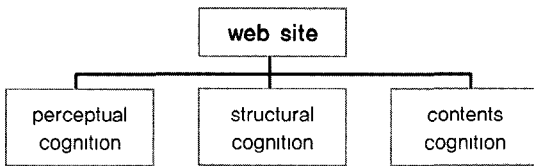


Figure 5. three aspects of web site

Perceptual Cognition aspect including: visual or imagery, auditory or verbal and textual, kinesthetic or experiential, and awareness or prior knowledge.

Structural Cognition aspect including: global or webbed, sequential or linear, and hierarchical or tiered or modular. The structural aspects in designing Web documents to accommodate cognitive disabilities are accomplished by providing variety in the navigation tools a site uses.

Contents Cognition aspect including: page design, navigation, writing for the web, making interactive features usable, accessibility and for the users.

### 3.7 Analysis of web sites design

There are altogether 358 universities in Korea[1]

and there are altogether 1032 universities in China[6]. 30 Korean universities and 30 Chinese universities have been collected to analyze their web sites design. 30 universities total to 8,38% proportion of the number of Korean universities and 2,91% proportion of Chinese universities have been investigated. The great majority of these universities are well known universities in Korea and China.

The websites of 60 well known universities of Korea and China have been collected totally. Then disassemble the visual components of them by the method of empirical research, especially in aesthetics factor way. At last, analyzed and compared the results.

1	Seoul National university
2	Yongsei University
3	Korea university
4	Pohang University of Science and Technology
5	SoGang University
6	Sungkyunkwan University
7	Hanyang University
8	Ewha Womans University
9	Hankuk University of Foreign Studies
10	Chung-Ang University(CAU)
11	Kyung Hee University
12	Dongguk University
13	Konkuk University
14	Sookmyung Women's University
15	Kyungpook National University
16	Korea university
17	KAIST
18	Hongik University
19	Pusan national university
20	Kookmin University
21	University of Seoul
22	Chonnam national university
23	Chungnam National University
24	Dankook University
25	Ajou University
26	Inha university
27	Soongsil University
28	Chonbuk National University
29	The Catholic University of Korea
30	Chungbuk National University

Figure 6. 30 Koean universities that have been investigated


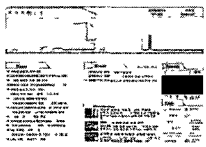
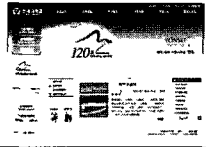

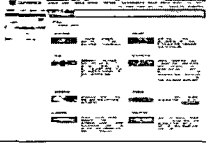
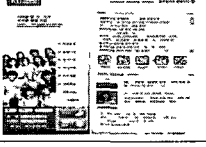
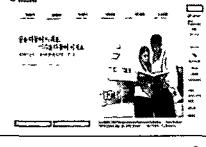
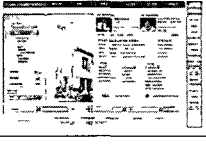
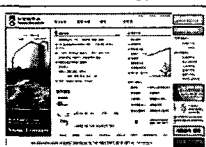


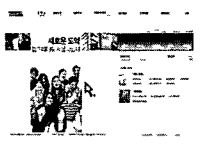
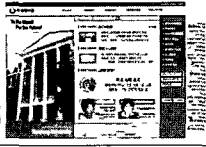
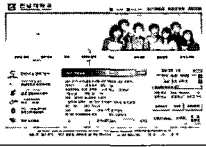
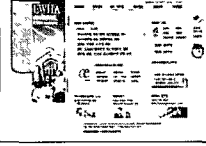
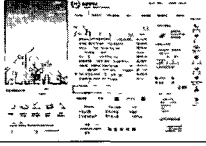

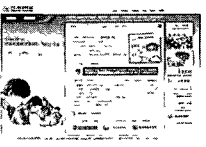
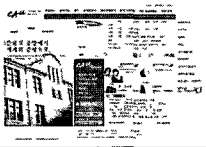
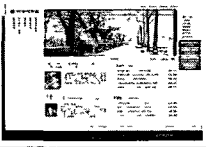
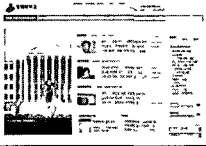
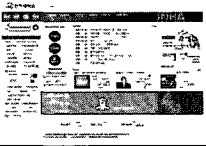
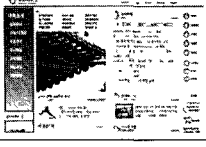

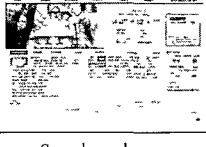
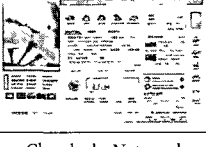
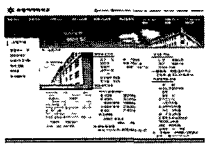
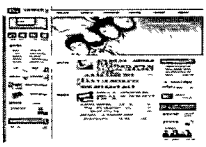
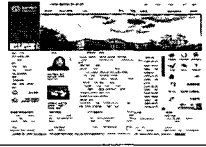
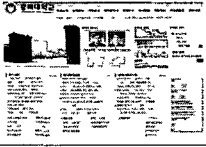
			
1	Seoul National university	16	Hongik University
			
2	Yongsei University	17	KAIST
			
3	Korea university	18	Hongik University
			
4	Pohang University of Science and Technology	19	Pusan national university
			
5	SoGang University	20	Kookmin University
			
6	Sungkyunkwan University	21	University of Seoul
			
7	Hanyang University	22	Chonnam national university
			
8	Ewha Womans University	23	Chungnam National University
			
9	Hankuk University of Foreign Studies	24	Dankook University
			
10	Chung Ang University(CAU)	25	Ajou University
			
11	Kyung Hee University	26	Inha university
			
12	Dongguk University	27	Soongsil University
			
13	Sungkyunkwan University	28	Chonbuk National University
			
14	Sookmyung Women's University	29	The Catholic University of Korea
			
15	Kyungpook National University	30	Chungbuk National University

Figure 7. The images of Korean universities that have been investigated

30 typical web sites of Well known universities in Korea have been explored. Their design style which based on aesthetic factors have been analyzed. This is the list of universities that have been investigated(See Fig. 6, 7).

30 typical web sites of Well known universities in China also have been explored, and their design style which based on aesthetic factors have been analyzed. This is the list of universities that have been investigated(See Fig. 8, 9).

1	Tsinghua University
2	Peking University
3	Renmin University of China
4	Zhejiang University
5	Nanjing University
6	Fudan University
7	Huazhong University of Science & Technology
8	Xian Jiaotong University
9	East China University of Science& Technology
10	Shanghai Jiao Tong University
11	University of Science and Technology of China
12	Harbin Institute of Technology
13	Tongji University
14	Nankai University
15	Sun Yat-Sen University
16	Wuhan University
17	Jilin University
18	Beijing Jiaotong University
19	Xiamen University
20	Beijing Institute of Technology
21	Henan University
22	Shantou University
23	Shenzhen University
24	Chongqing University
25	Southeast University
26	Hubei University of Technology
27	Wuhan University of Technology
28	Hunan University
29	Jinan University
30	Shanghai University

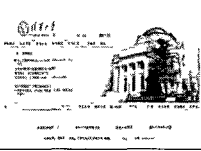






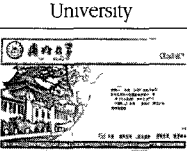


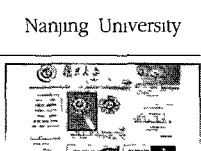





	16	
1	Tsinghua University	Wuhan University
	17	
2	Peking University	Jilin University
	18	
3	Renmin University of China	Beijing Jiaotong University
	19	
4	Zhejiang University	Xiamen University
	20	
5	Nanjing University	Beijing Institute of Technology
	21	
6	Fudan University	Henan University
	22	
7	Huazhong University of Science & Technology	Shantou University
	23	
8	Xian Jiaotong University	Shenzhen University

Figure 8. 30 Chinese universities that have been investigated

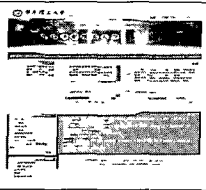
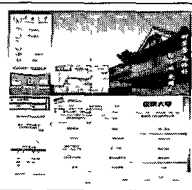
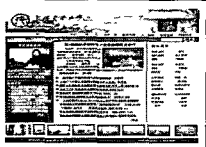
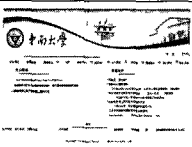
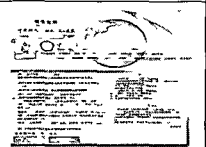

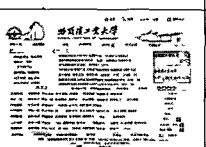



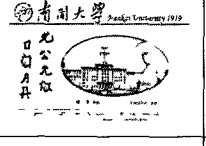


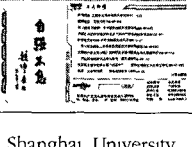
			
9	East China University of Science & Technology	24	Chongqing University
			
10	Shanghai Jiao Tong University	25	Southeast University
			
11	University of Science and Technology of China	26	Hubei University of Technology
			
12	Harbin Institute of Technology	27	Wuhan University of Technology
			
13	Tongji University	28	Hunan University
			
14	Nankai University	29	Jinan University
			
15	Sun Yat Sen University	30	Shanghai University

Figure 9. The images of Chinese universities that have been investigated

### 3.8 Item generation on aesthetics in web design

Assessing dimensions of perceived visual aesthetics of web sites[7], which in this research project they developed and validated a measurement instrument of perceived web sites aesthetics. Developing valid measures is a prerequisite for future study and design of the aesthetic aspect of web sites. The study used various types of web sites in order not to restrict the instrument to a specific web site genre.

Items intended to measure the construct of perceived web site aesthetics were generated from two sources: (1) A literature review, undertaken to identify the aesthetic construct in general. (2) Eleven respondents(including four professional web designers, four human-computer interaction researchers, two interior designers and an architect) were asked to provide a list of adjectives representing aesthetics. The final set of adjectives was selected from the larger pool by excluding duplicates or opposite words. A comprehensive list of forty one items was eventually compiled(See Table 1).

This study was conducted in order to refine the item pool for measuring the perceived aesthetics of Web sites. This study involved a preliminary round of exploratory factor analysis on the original list of 41 items.

### 3.9 Questionnaire design and quiz

According, before the research approach for this study, questionnaires needed to be design. For the questionnaire, the key words that describing feeling character about Web Site need to be find out. There are some words of describing



**Table 1.** Pattern matrix of the exploratory factor analysis for the aesthetics items in this Study

	Factor	
	1	2
	Expressive	Classical
Eigenvalues	9.344	8.652
Creative	0.842	0.02
Artistic	0.777	-0.134
Modern	0.753	-0.092
Sophisticated	0.733	0.055
Uses effects	0.723	0.124
Colorful	0.665	-0.065
Original	0.646	0.078
Energetic	0.628	0.022
Beautiful	0.597	-0.341
Challenging	0.582	0.002
Fascinating	0.502	-0.340
Intriguing	0.478	-0.238
Designed with skill	0.468	-0.450
Professional	0.415	-0.401
Includes pictures	0.306	-0.223
Good feeling	-0.054	-0.921
Aesthetic	-0.017	-0.845
Clear	-0.205	-0.730
Clean	-0.060	-0.704
Enjoyable	0.187	-0.667
Pleasant	0.243	-0.653
Organized	0.138	-0.532
Admiration	0.297	-0.525
Exciting	0.237	-0.486
Symmetrical	0.223	-0.451

Factor loading higher than 0.5 represented in bold face[7]

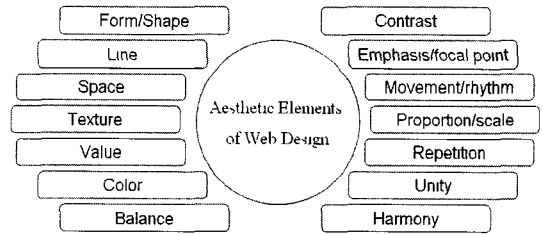
feeling character for web site. creative, modern, sophisticated, uses effects, colorful, original, energetic, beautiful, challenging, fascinating, intriguing, designed with skill, professional, includes pictures, good feeling, clear, clean, enjoyable, pleasant, organized, admiration, exciting and symmetrical.

Among them, these words(Uses effects, Colorful, Beautiful, Fascinating, Designed with skill, Good

feeling, Enjoyable, Pleasant, Symmetrical, etc.) are related to the visual and aesthetic factor. At last, referring to these words and analyzed them to confirm the key words of describing aesthetic character of web site.

Like the figure 10 shows, aesthetics elements of web design including: Form(shape), line, space, texture, value, color, Balance, contrast, emphasis (focal point), movement(rhythm), proportion(scale), repetition, unity(harmony).

Using these words about aesthetics elements of web design, the Questionnaire & quiz items have been designed(See Fig. 11).



**Figure 10.** aesthetic elements of web design

Factor/item	Form shape	space	texture	color	Balance	contrast	emphasis	Rhythm movement	Proportion scale	repetition	Unity harmony	Mean
Website												
시공디자인과												
인하대학교												
홍익대학교												
한양대학교												
단국대학교												
고려대학교												
충북대학교												
한서대학교												
충남대학교												
한서대학교												
충남대학교												
한서대학교												
충남대학교												
한서대학교												
KAIST												

Factor/item	Form shape	space	texture	color	Balance	contrast	emphasis	Rhythm movement	Proportion scale	repetition	Unity harmony	Mean
Website												
강원대학교												
계원대학교												
조선대학교												
한양대학교												
고려대학교												
충남대학교												
한서대학교												
충남대학교												
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충남대학교												
한서대학교												

**Figure 11.** Questionnaires of web design

3.10 Report of analysis

Sample: One hundred and twenty five university students (36 female, 89 male with an average age of 25. Among them, 47 Korean, 78 Chinese) volunteered to participate in the study for course credit.

Procedure: The participants worked in groups in a supervised computer laboratory. They visited a web site and completed an online questionnaire based upon their impression of that site. The participants were randomly assigned to these one of two groups of websites. Half of the participants evaluated the sites of Korean universities. The other half evaluated the sites of Chinese universities. At last the results of exploratory factor analysis studies were analyzed using SPSS. This is report of analysis of the results(See Tab. 2-3).

Like Table 4 shows, through comparing two groups of data, overall Korean website scoring points is higher than Chinese websites. It is especially obvious in the color, texture and repetition aspects.

Table 2. respondent's data of questionnaires analysis by SPSS

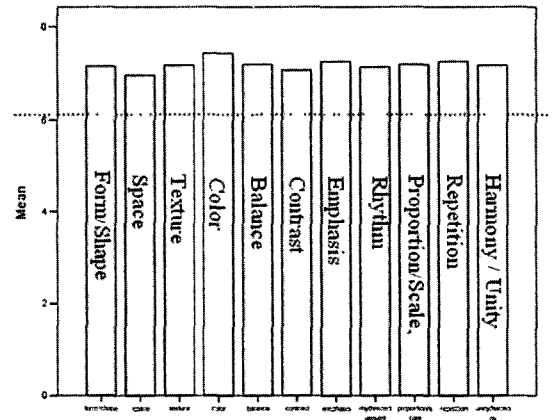
	form/shape	space	texture	color	balance	contrast	emphasis	rhythm/movement	proportion/scale	repetition	unity/harmony
1	8	8	7	8	8	7	8	8	7	7	9
2	8	9	8	9	9	6	9	9	9	7	9
3	7	8	8	8	8	8	8	8	8	7	7
4	8	9	8	9	8	8	9	8	8	6	9
5	6	7	7	9	6	9	6	6	6	6	6
6	8	8	7	9	8	9	9	8	8	8	8
7	9	8	9	8	8	8	8	8	8	8	9
8	7	7	9	8	8	9	9	8	8	7	8
9	7	9	9	7	7	7	7	7	8	6	8
10	6	6	6	7	6	8	6	6	6	7	5
11	8	8	8	8	8	8	8	8	8	7	8
12	8	8	7	7	7	8	7	8	8	8	9
13	6	7	7	7	7	8	9	9	9	8	6
14	6	6	7	7	7	7	7	7	8	7	7
15	8	8	7	8	8	7	8	8	7	6	7
16	8	7	7	8	8	7	7	8	8	7	7
17	8	8	8	8	8	8	8	8	8	7	7
18	8	9	7	9	9	8	9	8	9	8	8
19	8	9	8	9	9	8	8	8	9	7	8
20	9	8	8	8	8	8	8	8	8	7	8
21	8	8	9	9	9	9	9	8	8	7	8
22	8	9	8	7	7	9	9	8	7	8	8
23	8	8	8	8	8	9	9	8	8	7	8
24	8	8	7	8	7	8	8	8	7	7	7
25	7	7	8	8	8	8	7	7	8	7	7
26	7	8	8	8	8	9	8	8	7	8	7
27	7	6	7	8	8	7	8	7	8	8	8
28	6	6	7	7	7	7	7	7	8	8	8
29	9	8	8	8	8	7	8	8	7	8	7
total N	29	29	29	29	29	29	29	29	29	29	29

Table 3. respondent's data of questionnaires analysis by SPSS

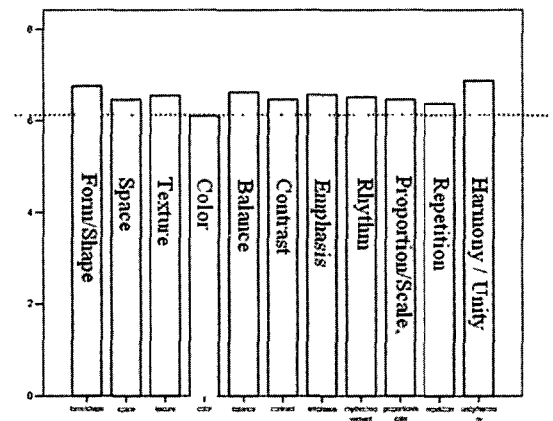
	Case Processing Summary <sup>a</sup>					
	Cases					
	Included		Excluded		Total	
	N	percent	N	percent	N	percent
form/shape	29	33.3 %	58	66.7 %	87	100.0 %
space	29	33.3 %	58	66.7 %	87	100.0 %
texture	29	33.3 %	58	66.7 %	87	100.0 %
color	29	33.3 %	58	66.7 %	87	100.0 %
balance	29	33.3 %	58	66.7 %	87	100.0 %
contrast	29	33.3 %	58	66.7 %	87	100.0 %
emphasis	29	33.3 %	58	66.7 %	87	100.0 %
rhythm/movement	29	33.3 %	58	66.7 %	87	100.0 %
proportion/scale	29	33.3 %	58	66.7 %	87	100.0 %
repetition	29	33.3 %	58	66.7 %	87	100.0 %
unity/harmony	29	33.3 %	58	66.7 %	87	100.0 %

<sup>a</sup> Limited to first 100 cases

Table 4. the results analysis and compare of questionnaire's database by SPSS



Website of universities in Korea



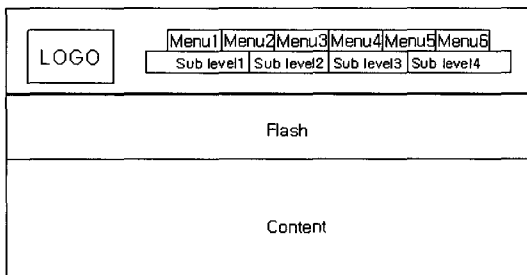
Website of universities in China

## 4. Review

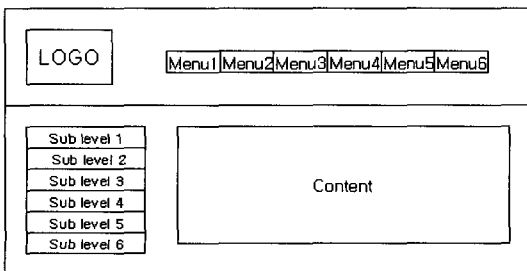
The aforesaid questionnaire has been quizzed, analyzed, and compared with the data of this investigation. As a result, at the same time, reviewed the form of Korean and Chinese websites which concerned with visual on aesthetic aspect. These aspects include layout, color, Content of picture and animation, Image and text in web page, Space and detail.

### 4.1 Layout

Comparison of Korean & Chinese website design on aesthetics characteristic, the layout of websites in Korea and China is different. In particular the places of Sub level are different. Normally, it's in here at the top of the Korean website, and it's in here on left on the Chinese website(See Fig. 12).



Layout of web sites in Korea



Layout of web sites in China

Figure 12. compare both of the layout aspect

### 4.2 Color

Korean designers are good at utilizing color. They express different subject columns by different color tone. They frequently use gradually changed color.

But mostly the stripe color or the simplicity color has been used in Chinese University's websites(See Fig. 13).

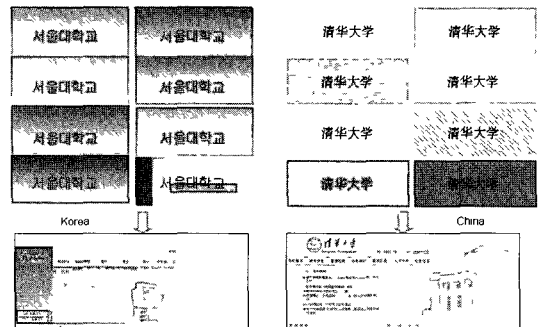


Figure 13 compare both of the color aspect

### 4.3 Content of picture and animation

Korean web sites make good use of pictures and flashes. Normally they often used by picture on people which look more vivid, fashionable and humanization so it reflects concept education is based on people. However, the Chinese ones use pictures on sceneries or architectures which lack concern on people(See Fig. 14).

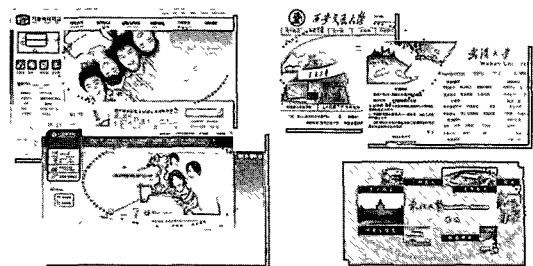


Figure 14. compare both of the content of picture and animation aspect

#### 4.4 Image and text in web page

More graphics and pictures have been on Korean university web sites; and more texts have been in Chinese university's web sites(See Fig. 15).

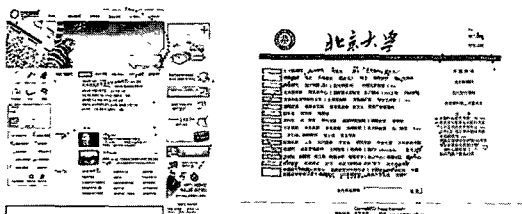


Figure 15, compare both of the image and text in web page aspect

#### 4.5 Space and detail

The websites of Korean universities give good space feeling, however Chinese ones are not so good; they look plan(See Fig. 16).

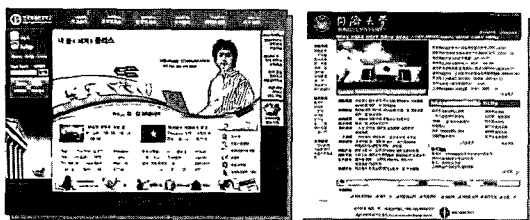


Figure 16, compare both of the space in web page aspect

At the same time, on the specific items Korean university websites do it more perfectly(See Fig. 17).



Figure 17, compare both of the detail aspect

The font type of website's title is different. On the title of website, Korean universities' use common font type which exists in computer but Chinese ones commonly use font type which is

written by hand. It's Chinese calligraphy(See Fig. 18).



Figure 18, compare both of the font type of web site's title aspect

### 5. Conclusion

This study examined users' perceptions of web site aesthetics focusing on website of some well-known universities in Korea and China.

Based on the evaluation results gathered from the participants of two countries to show, most of the eigenvalues with aesthetics elements of Korean web sites is higher than Chinese websites. Among of 14 aspects on aesthetics characteristic, the color, texture and repetition aspects of Korean group obviously are excellent.

Says specifically, Korean university's website is better in the aspects of skill, specialized color, picture, animation, and three dimensional effects in the website. More fashionable feeling has been conveyed. There is obvious Korean characteristic on the whole, but on the other side each of individuality seem to be lost.

As a result, the scoring points of Chinese website group is lower than Korean group. This indicates that Chinese university's website is

simple on the aspect of skill, and even is deficient on the aspect of skill. But the culture characteristic has been expressed well in some websites of them.

The proposed aesthetic evaluation can serve in this two countries not only about the visual aesthetics of web sites but also about the cultural and commercial communication.

## 6. Limitations and Future Work

Clearly, this study is subject to some limitations. The results might have been influenced by certain confounding factors. Familiarity with the web site, for example, could have influenced the users' perception and evaluation. In other words, when participants responded to the questionnaire regarding the site's visual appearance, their answers may have been tainted by their past interactions with the site. This is particularly a concern regarding this study. Thus future studies may focus on comparing first impressions of web sites to familiar sites. Such a comparison would certainly increase our understanding on aesthetic perceptions of web sites and the relation of these perceptions to other perceived site qualities.

Another possible contaminating factor in this study relates to language and culture. In this research, half of the sites examined were in Korean and other half of the sites examined were in Chinese. Because of mother tongue of the participants are difference, we have no way to completely rule out this potential bias. The difference between cultures of two countries might become significant when dealing with the issue of aesthetics, which might vary across cultures.

This study represents only an initial examination of the users' perceptions of web site aesthetics in the universities of Korea and China. Further research is needed in order to provide additional support to evaluate web site aesthetics from different perspectives both of this two countries. Finally, provide visual information for business, and provide aesthetics reference for web designers designing trends or web site genres in Korea and China.

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