

Affective and Cognitive Responses to Chinese Fonts in Web Interface Design

Honors Thesis

Presented to the College of Agriculture and Life Science, Social Science

of Cornell University

in Partial Fulfillment of the Requirements for the

Research Honors Program

By

Qian Wang

Dr. Susan R. Fussell

May 2016

## AFFECTIVE AND COGNITIVE RESPONSES TO CHINESE FONTS IN WEB INTERFACE DESIGN

**Abstract**

The two major objectives of the study were (1) to understand the need for web interface design for Chinese characters, and (2) to determine what observable relationship, if any, exists between fonts, website type, website type and font interactions and users' affective responses. Eight website prototypes of two website categories in four representative Chinese fonts were designed for user testing. A sample of 67 Chinese international students at Cornell participated in the study. The study's results demonstrated that fonts, website types, and website type and font interactions all have significant effects on users' affective responses to various degrees under different circumstances. Web designers need to be mindful when choosing fonts for a website and consider the multitude of effects each font may have on users' perception of the website.

## AFFECTIVE AND COGNITIVE RESPONSES TO CHINESE FONTS IN WEB INTERFACE DESIGN

### Introduction

Web interface design in the west has evolved tremendously since the 1990s. From the initial black background with a few monochrome pixels, to tabular display of data using HTML, to JavaScript, CSS, and today's responsive design, people living in the western world have seen dramatic changes and shift in web interface design over the past 20 years. Increasingly more tools, typefaces, and design styles have emerged in the western world to enable web designers to make user-friendly websites that appeal to people and allow them to interact and engage with websites (Ruluks, 2014).

However, the transformation of web interface design in the western world has not seen a parallel shift in China. China has now surpassed 649 million Internet users, outnumbering the entire U.S. population two to one (McKirdy, 2015). Chinese web interface design, nevertheless, still solely places functionality as the top priority instead of taking the psychological and cultural implications of Chinese characters into consideration (Xu, 2010).



**Figure 1 One of the largest Chinese news websites, Sina.com.cn**

## AFFECTIVE AND COGNITIVE RESPONSES TO CHINESE FONTS IN WEB INTERFACE DESIGN



**Figure 2 The largest Chinese shopping website, Taobao.com**

Despite the significant amount of differences between Chinese characters and Latin characters, web interface design in China has mostly adopted the web design style and principle that are traditionally applied to Latin alphabets and has not been taking the unique features and properties of Chinese characters into design consideration. For example, most Chinese websites are center-aligned and has either vertical or horizontal navigation bars as shown in figure 1 and 2. Typeface is usually limited to Songti, which is deemed as formal, due to the small number of Chinese web fonts that are available. Chinese websites are also commonly known to employ extensive motion graphics, such as flash and scrolling content to showcase featured content (Schaefer, 2011). These types of design decisions are made with the absence of considering how Chinese characters, as an important cultural component, could affect how Chinese people think and react. They also fail to take advantage of certain psychological and cultural implications of Chinese characters that can help build trust and improve users' online experience.

## AFFECTIVE AND COGNITIVE RESPONSES TO CHINESE FONTS IN WEB INTERFACE DESIGN

Chinese characters, also known as Hanzi, are one of the earliest forms of written language in the world, dating back approximately five thousand years. Chinese calligraphy is an integral aspect of Chinese culture – it not only marks the temporal and cultural transition from era to era, but it has also long been regarded as a true reflection of personality and characters. According to Jia et al (Jia & Jia 2015), Chinese writing forms are created by and thus reflect culture, mind, and social reality in China.

As the Internet age approaches, however, the perceptual and cultural significance of Chinese characters has been lost in digital translation. Chinese characters online are generally used to share information instead of to increase online users' e-satisfaction and e-loyalty by leveraging the unique perceptual and cultural impact of Chinese typefaces (Cyr, Bonanni, Ilsever, 2004). There's arguably a lack of web interface design focusing on Chinese characters as seen from the absence of literature on the topic. It is paramount to note, nevertheless, that web interface design for Chinese characters is valuable on one hand because the recognition of Latin alphabets is fundamentally different from that of Chinese characters so web interface design catered to Latin alphabets may not serve Chinese characters the same way. On the other hand, web interface design catered to Chinese characters can potentially help improve e-satisfaction and e-loyalty of Chinese users.

First, as Jia et al (Jia & Jia 2015) found that the recognition of alphabets is fundamentally different from that of Chinese characters. The recognition of alphabets can be characterized as “an abstract, analytical, deductive, and linear process” (Jia & Jia 2015) yet the recognition of Chinese characters is primarily “an intuitive, holistic, concrete, and analogical process” (Nisbett, 2003). This difference signifies that the Chinese mode of conceptualization is predominantly visual and imaginative. It's important to consider the psychological process in the recognition of

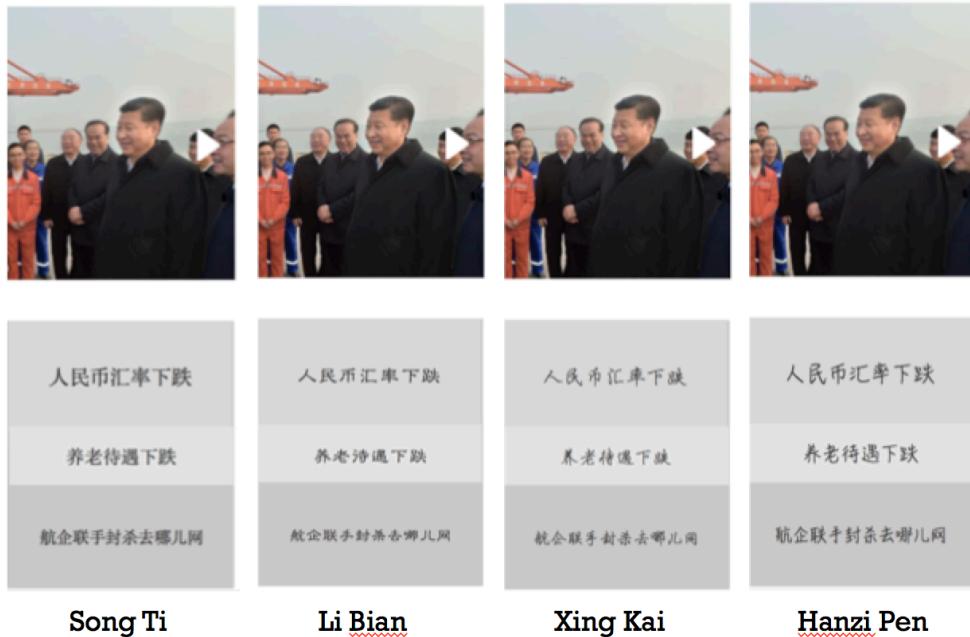
## AFFECTIVE AND COGNITIVE RESPONSES TO CHINESE FONTS IN WEB INTERFACE DESIGN

Chinese characters because it can help design a web interface that is catered to Chinese

characters. This can potentially result in positive user perceptions and in turn, lead to a higher level of user satisfaction and loyalty. The direct relationship between positive perceptions of website design and higher user satisfaction is corroborated by Szymanski and Hise (Szymanski, Hise, 2000). They found that “positive perceptions of site design are important to e-satisfaction assessments”.

While it is recognized that there are significant differences between the Chinese and the Latin mode of conception, there is a lack of literature and research on how different Chinese fonts affect Chinese users’ perception and experience. Therefore, a study was designed in order to observe and understand any relationship that may exist between users’ affective responses and fonts used on a Chinese website as well as the effects of website type and website type and font interactions. The study focused on five specific dimensions of affective responses: formal, personal, trusting, emotional, and homesick. These dimensions can effectively measure how a user feels about a website and they cover major areas of concerns in evaluating user’s affective experience. Figure 3 shows how the same website appears in four different fonts:

## AFFECTIVE AND COGNITIVE RESPONSES TO CHINESE FONTS IN WEB INTERFACE DESIGN



**Figure 3 Website designed in different Chinese fonts**

Past research and experiments on western fonts have shown that fonts can influence perception and persuasion (2013). In 2012, New York Times' Errol Morris conducted a test and proved empirically that certain fonts can change the way we perceive what we read and the mere appearance of typefaces has the power to sway us to believe a given statement is more or less true (Morris, 2012). This is corroborated by David Dunning, a professor at University of Michigan, that certain fonts can increase perceived formality that lends the website the believability that the other tested fonts lack (Stinson, 2015). Therefore, from a typeface standpoint alone, the fonts used on a website are already having a psychological impact on the users (Wolter, 2016). Further studies have shown that fonts have the power to affect overall appearance of the onscreen text. Using appropriate fonts based on the amount of text is likely to result in a more positive user experience (Bulat, 2012). It appears that fonts can have a multitude of affective effects on users.

## AFFECTIVE AND COGNITIVE RESPONSES TO CHINESE FONTS IN WEB INTERFACE DESIGN

In this study, I focused on five salient aspects (formality, personal, trusting, emotional, and homesickness) of affective responses to evaluate the ways in which they can change based on different fonts used. By doing so, although only a small subset of dimensions of affective responses were chosen to be evaluated, future studies can easily replicate the same model given more specific aims and target audience. This study tested to see if changes in the five aspects of affective responses could be observed from Chinese users when various Chinese fonts are used. To be more specific, five specific research questions were addressed in the study:

RQ 1: Do fonts make a website appear more or less formal to users?

RQ 2: Do fonts make a website appear more or less personal to users?

RQ 3: Do fonts make users feel more or less trusting about a website?

RQ 4: Do fonts make users feel more or less emotional about a website?

RQ 5: Do fonts make users feel more or less homesick about a website?

These five research questions helped explore the uncharted research area of web design for Chinese characters and focus on the effects of fonts on Chinese web design. They also led to design recommendations for researchers and web designers in China in order to inspire them to further explore the area and generate more ideas.

### **Method**

#### **Participants**

A sample of 67 Chinese international students studying at Cornell participated in the study. Amongst the participants, 32 were female and 35 were male. Over 95% of the participants were aged between 18 and 30. Only 3 out of the 67 participants were over 30 years old. They were all recruited through on-campus publicity, namely posting flyers at International students'

AFFECTIVE AND COGNITIVE RESPONSES TO CHINESE FONTS IN WEB INTERFACE DESIGN  
office, distributing flyers at academic diversity office, making in-class announcement on the  
study, and so on.

## Materials

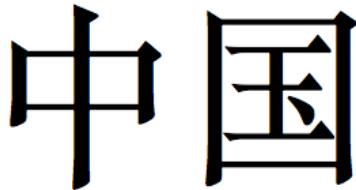
**Choice of website types.** Two categories of websites, news and shopping, were chosen to represent a wide array of Chinese websites used by Chinese users. Research has shown that the most popular websites used in China as of 2014 are Baidu, QQ, Google HK, Sina, Weibo, Taobao, Youku, and Ctrip (2014). Two out of the ten websites, Sina and Baidu (news) are widely used news websites. Another two, Taobao and Ctrip, are extremely popular shopping websites. Therefore, considering the rich amount of information that are usually available on shopping and news websites in contrast to search engine websites such as Baidu and Google HK, news and shopping websites make better choices. This is because a high concentration of Chinese characters present on the website is desirable to understand how these characters written in different Chinese fonts can impact users' perception. In addition, news and shopping websites are vastly different in their styles and designs. News websites are usually formal, impersonal, and informative whereas shopping websites tend to be more casual and personal. Hence, website prototypes designed in these two categories arguably represent a large number of Chinese websites commonly available in China.

**Choice of Chinese fonts.** Four different Chinese fonts were selected in prototyping. They are Songti, Libian, Xingkai, and Hanzi Pen. They were chosen because they range nicely on a scale from the most standard to resembling handwriting. Songti, also known as SimSun, is the most commonly used Chinese web font. Some claim that if one type of font had to be chosen to represent Chinese typography, it would be Songti (Schaefer, 2015). Songti is characterized by

AFFECTIVE AND COGNITIVE RESPONSES TO CHINESE FONTS IN WEB INTERFACE DESIGN

perfectly straight horizontal strokes and wider verticals. It is considered to be the Chinese “serif”

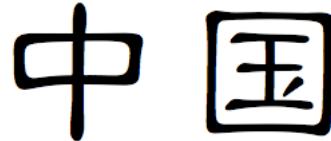
and is generally regarded as classy but regimented (Schaefer, 2015).



**Figure 4 "China" written in Songti**

Libian is another major classification, which can be loosely defined as the Chinese “sans-serif”

font. Libian is typified by rounded strokes and even eider verticals.

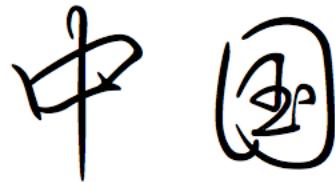


**Figure 5 "China" written in Libian**

Xingkai mimics basic brush script lettering. It is one of the more clearly-written and legible

ancient calligraphic script styles (Schaefer, 2015). It is fancier and more stylized than basic

typography such as Songti.



**Figure 6 "China" written in Xingkai**

Lastly, Hanzi Pen is a web font available that mimics handwritten Chinese. It is not as fancy as Xingkai and it is not as standard as Songti. The strokes are more casual and irregular. The style resembles average Chinese handwriting.



**Figure 7 "China" written in Hanzi Pen**

**Website prototypes.** Eight prototypes were designed for two genres of websites (shopping and news) as between subject variables and four different Chinese fonts (Songti, Libian, Xingkai, and Hanzi Pen) were used as within subject variables. The prototypes were designed in a way that minimized the use of colors and avoided any outlandish navigation structure in order to focus the subject of study to solely being Chinese fonts and their potential affective effects. The eight prototypes are as follows:

For website type shopping:



Figure 8 Shopping website prototype in Songti



Figure 9 Shopping website prototype in Libian

## AFFECTIVE AND COGNITIVE RESPONSES TO CHINESE FONTS IN WEB INTERFACE DESIGN



Figure 10 Shopping website prototype in Xingkai



Figure 11 Shopping website prototype in Xingkai

## AFFECTIVE AND COGNITIVE RESPONSES TO CHINESE FONTS IN WEB INTERFACE DESIGN



Figure 12 Shopping website prototype in Hanzi Pen

For website type news:

## AFFECTIVE AND COGNITIVE RESPONSES TO CHINESE FONTS IN WEB INTERFACE DESIGN



Figure 13 News website prototype in Songti

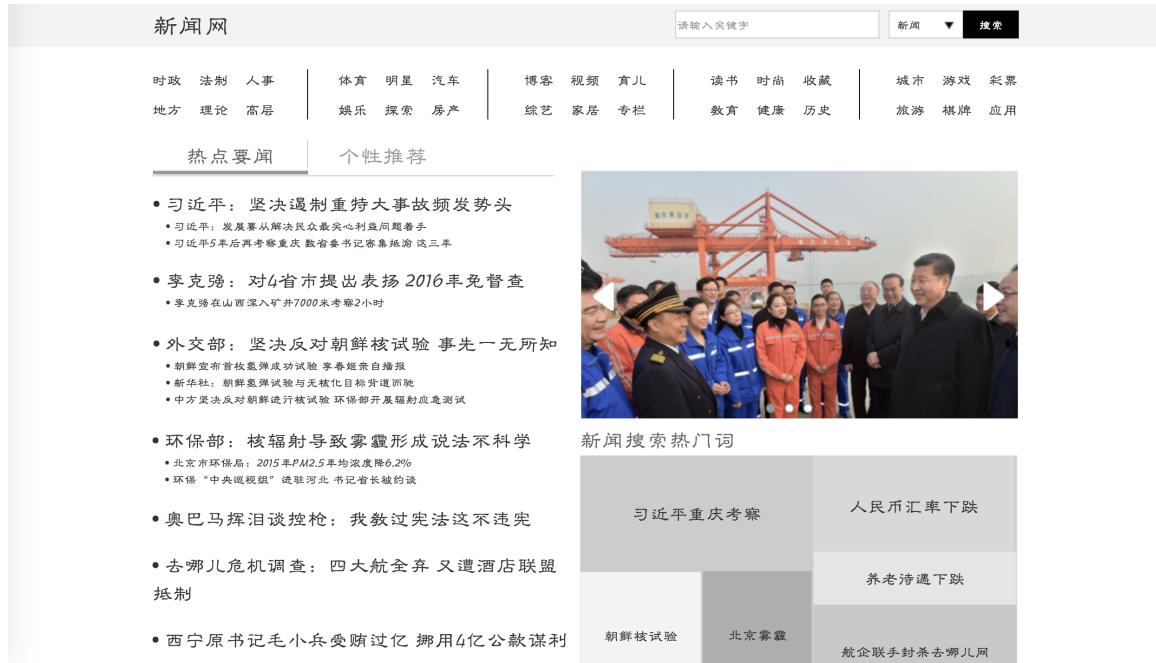


Figure 14 News website prototype in Libian

## AFFECTIVE AND COGNITIVE RESPONSES TO CHINESE FONTS IN WEB INTERFACE DESIGN



Figure 15 News website prototype in Xingkai



Figure 16 News website prototype in Hanzi Pen

## AFFECTIVE AND COGNITIVE RESPONSES TO CHINESE FONTS IN WEB INTERFACE DESIGN

**Procedure.** Two sets of online Internet surveys were designed for the two between subject variables of website types (shopping and news). In each survey, four within subject variables of Chinese fonts (Songti, Libian, Xingkai, and Hanzi Pen) were presented where a set of questions evaluating users' affective responses and user experience were asked regarding each font. The sequence of appearance of each Chinese font was randomized to minimize the effect of sequence on participants' responses. Each study participant was randomly assigned to one website type to observe. The participant was first asked to observe a website prototype in a randomly chosen Chinese font and then answer a set of questions; the participant would then look at the next randomly chosen Chinese font and answer a set of questions, and so on. Each participant observed and answered questions on all four different Chinese fonts.

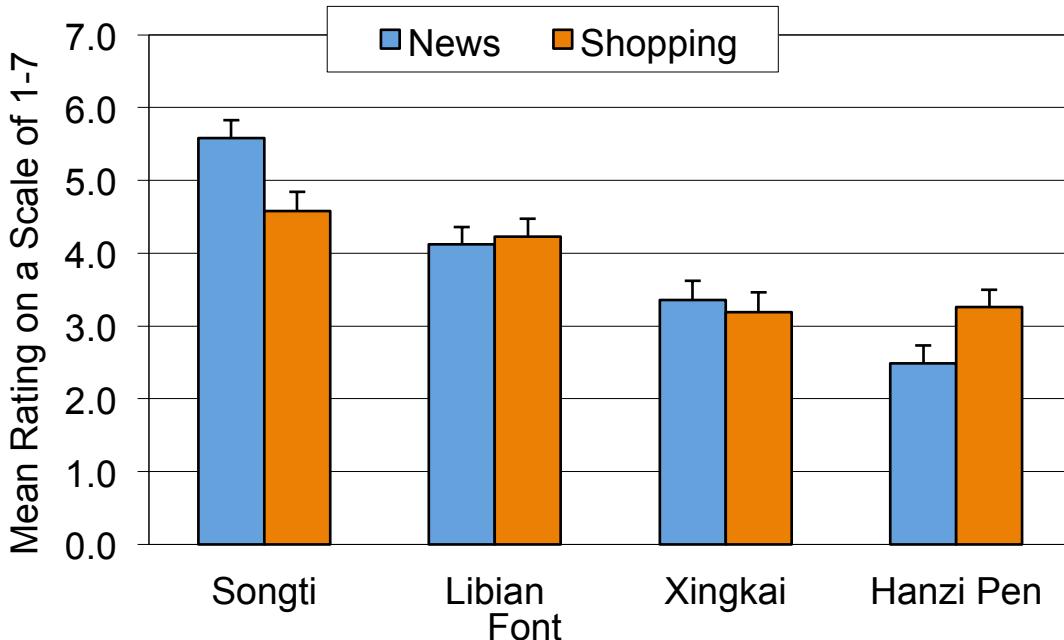
Each survey had four parts to each tested Chinese font. There were 20 parts in total for four different fonts, and a general demographic questionnaire at the end. The four parts evaluating each Chinese font were: overall affective responses, ease of reading, attractiveness, and accessibility and navigability. The first part evaluated user's affective responses. This was the most salient part to the study. It contained research questions variables: formal, personal, trusting, emotional, and homesick. The other three parts were meant for general user experience. They assessed common areas of user experience including legibility, aesthetics, layout, and arrangement of information. These were used as a general website quality control. The questions were designed to randomize in positivity. Some questions were written from a positive perspective yet others were written from a negative perspective. Participants were encouraged to read the questions carefully. They could refer back to the website prototype whenever they needed to by scrolling back up. Each survey question ranged in possible answers from 1 (strongly disagree) to 7 (strongly agree) in order to capture an array of different responses.

## AFFECTIVE AND COGNITIVE RESPONSES TO CHINESE FONTS IN WEB INTERFACE DESIGN

### Results

A two-way mixed between subjects (site: shopping and news) and within subjects (font: Songti, Libian, Xingkai, and Hanzi Pen) ANOVA was conducted to determine if website type and font affected users' perceptions of the website and if there was any interaction between the font and the website type.

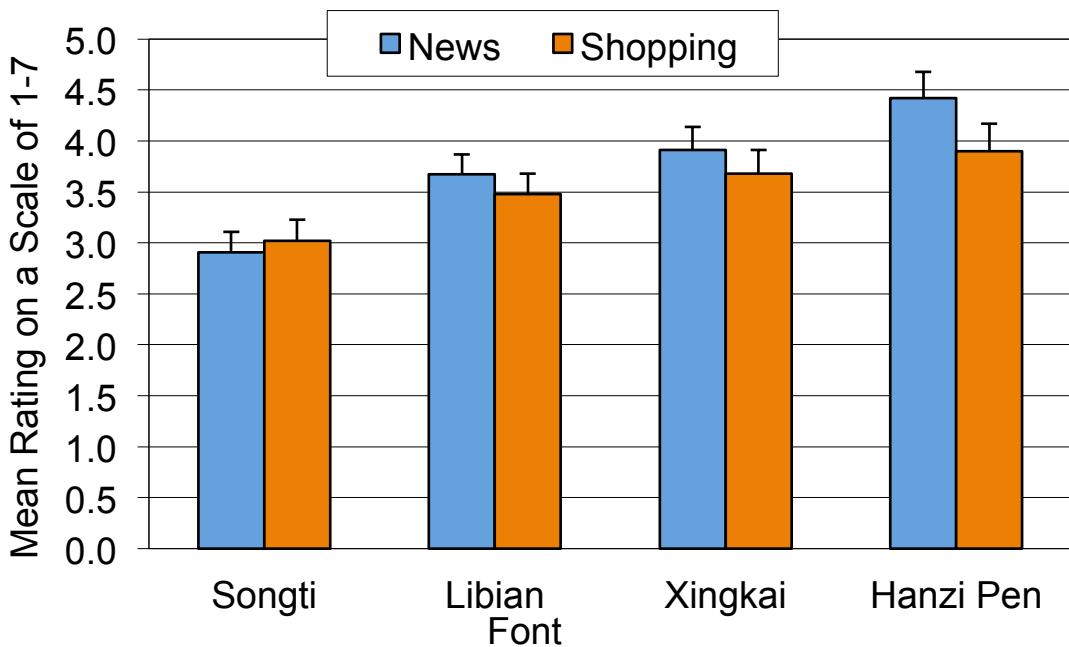
Our first research question was how website type and font affect perceived formality. There was no significant effect of website type on perceptions of formality [ $F(1, 62) = 0.08, p = .77$ ]. However, as expected, there was a significant effect of font on perceptions of formality [ $F(1, 62) = 111.11, p < .0001$ ]. Pairwise comparisons using LSD suggested that all fonts are significantly different from each other at  $p = .0001$  except Xingkai and Libian, which was significantly different at  $p < .05$ . As shown in figure 17, Songti elicited the highest rating of formality than the other fonts and Libian elicited the second highest rating of formality. There was also a significant interaction between font and website type [ $F(1, 62) = 12.45, p = .001$ ]. Songti was rated to make the website appear more formal in the context of news website than shopping website. Conversely, Hanzi Pen is rated to make the website appear more formal in the context of shopping website than news website. There was no effect of website type on the ratings of perceived formality on Libian and Xingkai.



**Figure 17 Estimated marginal means on a scale of 1(strongly disagree) – 7(strongly agree)  
by font and website type**

Our second research question was how website type and font affect users' perception on how personal the website is. There was no significant effect of website type on perceptions of formality [ $F(1, 62) = 0.87, p = .36$ ]. However, as expected, there was a significant effect of font on perceptions of how personal the website is [ $F(1, 62) = 24.32, p < .0001$ ]. Pairwise comparisons using LSD suggested that all fonts are significantly different from each other. Songti was different from others at  $p = .0001$ . Libian and Xingkai were different from others at  $p < .2$ . Hanzi Pen was different from others at  $p < .08$ . As shown in figure 18, Hanzi Pen elicited the highest rating of personal than the other fonts and Xingkai elicited the second highest rating of personal. There was also a significant interaction between font and website type [ $F(1, 62) = 1.66, p < .03$ ]. Hanzi Pen was rated to make the website appear more personal in the context of news

AFFECTIVE AND COGNITIVE RESPONSES TO CHINESE FONTS IN WEB INTERFACE DESIGN  
 website than shopping website. There was no effect of website type on the ratings of perception  
 on being personal on Songti, Libian, and Xingkai.

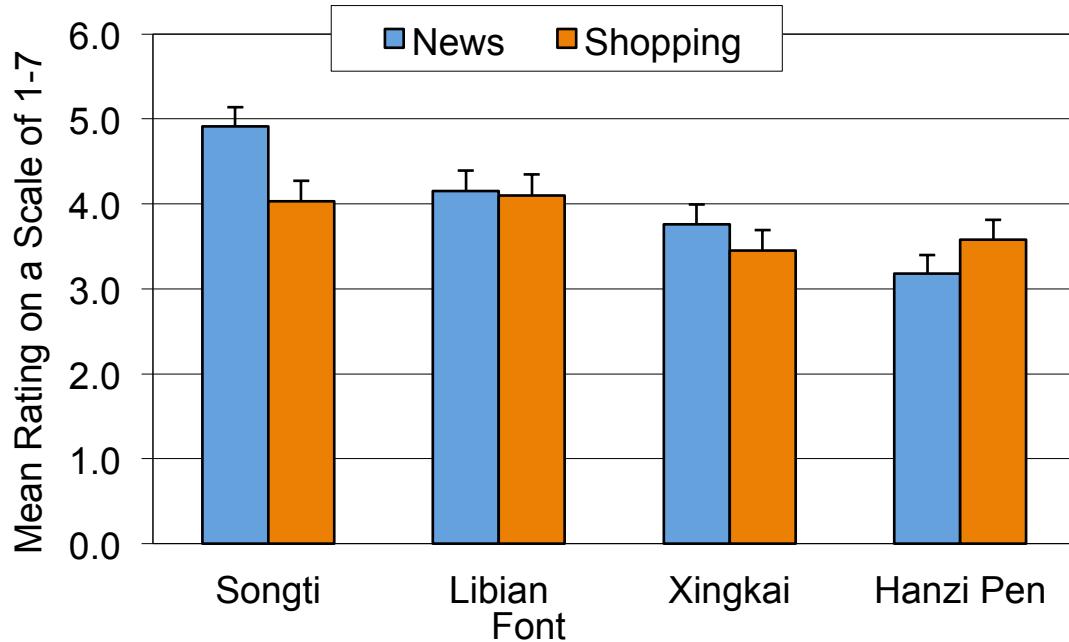


**Figure 18 Estimated marginal means on a scale of 1(strongly disagree) – 7(strongly agree)  
 by font and website type**

Our third research question was how website type and font affect perceived trust. There was no significant effect of website type on perceptions of trust [ $F(1, 62) = 0.71, p = .4$ ]. However, consistent with our expectation, there was a significant effect of font on perceptions of formality [ $F(1, 62) = 38.80, p < .0001$ ]. Pairwise comparisons using LSD suggested that all fonts are significantly different from each other at  $p < .2$ . As shown in figure 19, Songti elicited the highest rating of trust than the other fonts and Libian elicited the second highest rating of trust. There was also a significant interaction between font and website type [ $F(1, 62) = 8.64, p = .005$ ]. Songti was rated to make users feel more trusting in the context of news website than

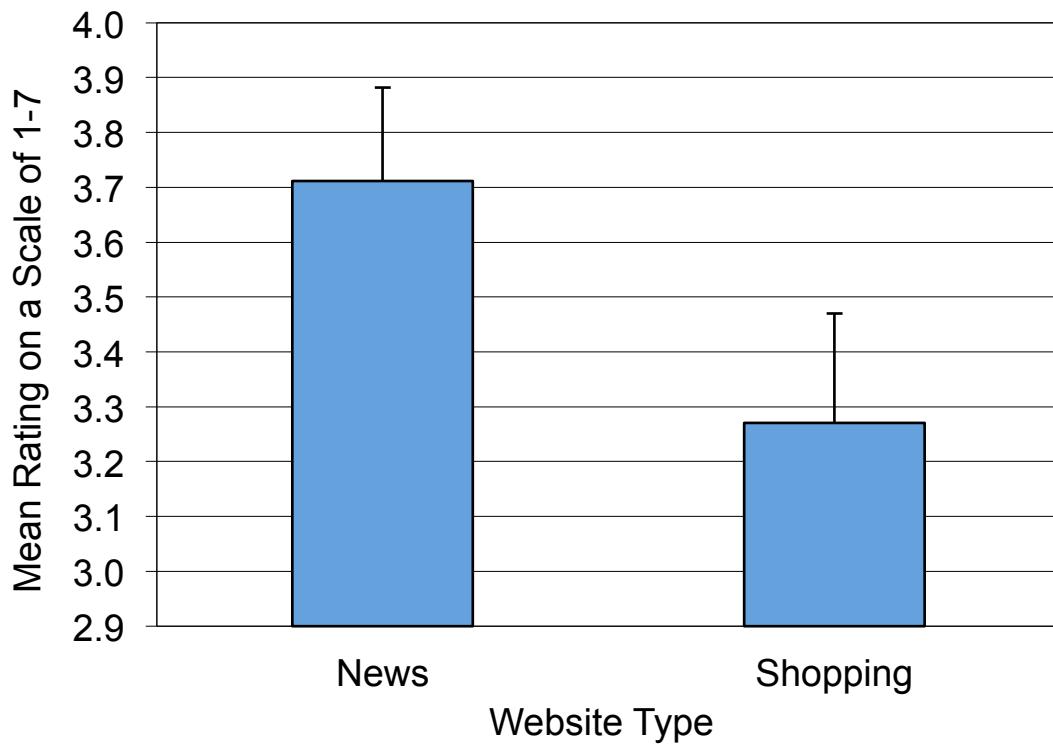
AFFECTIVE AND COGNITIVE RESPONSES TO CHINESE FONTS IN WEB INTERFACE DESIGN  
shopping website. There was no effect of website type on the ratings of perceived trust on

Libian, Xingkai, and Hanzi Pen.



**Figure 19 Estimated marginal means on a scale of 1(strongly disagree) – 7(strongly agree)  
by font and website type**

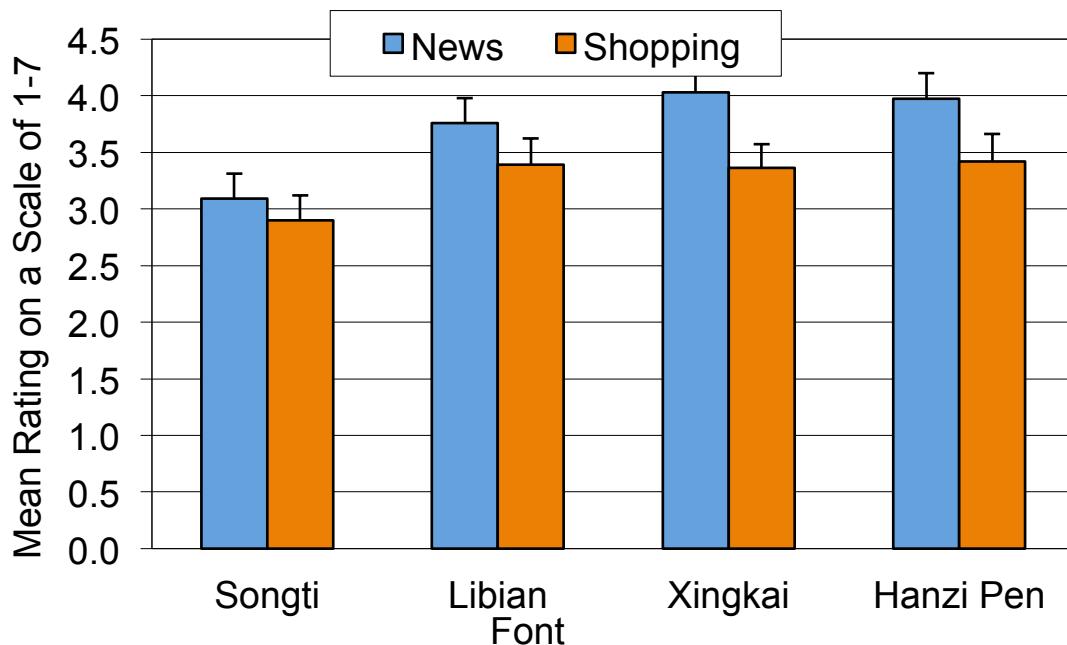
Our fourth research question was how website type and font affect perception on how emotional the website makes users feel. There was, in fact, a significant effect of website type on perceptions of formality [ $F(1, 62) = 3.43, p = .07$ ]. As shown in figure 20, news website elicited a higher rating of feeling emotional compared to shopping website.



**Figure 20 Estimated marginal means on a scale of 1(strongly disagree) – 7(strongly agree)  
by website type**

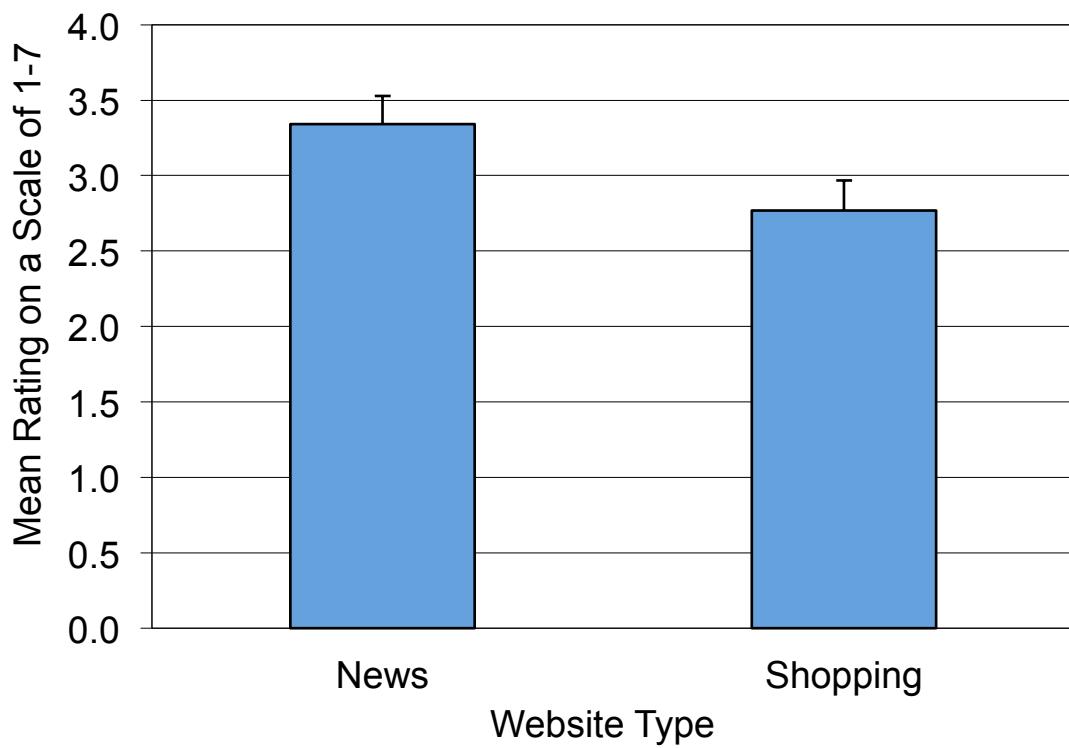
In addition, there was a significant effect of font on perceptions of formality [ $F(1, 62) = 15.75, p < .0001$ ]. Pairwise comparisons using LSD suggested that Songti is significantly different from other fonts at  $p < .003$ . Libian is significantly different from other fonts at  $p < .5$ . Xingkai and Hanzi Pen are not significantly different from each other. As shown in figure 21, Xingkai elicited the highest rating of feeling emotional and it is closely followed by Hanzi Pen. There was also a significant interaction between font and website type [ $F(1, 62) = 1.56, p = .22$ ]. Both Xingkai and Hanzi Pen were rated higher in making users feel emotional in the context of news website

AFFECTIVE AND COGNITIVE RESPONSES TO CHINESE FONTS IN WEB INTERFACE DESIGN than shopping website. There was no effect of website type on the ratings of making users feel emotional on Songti and Libian.



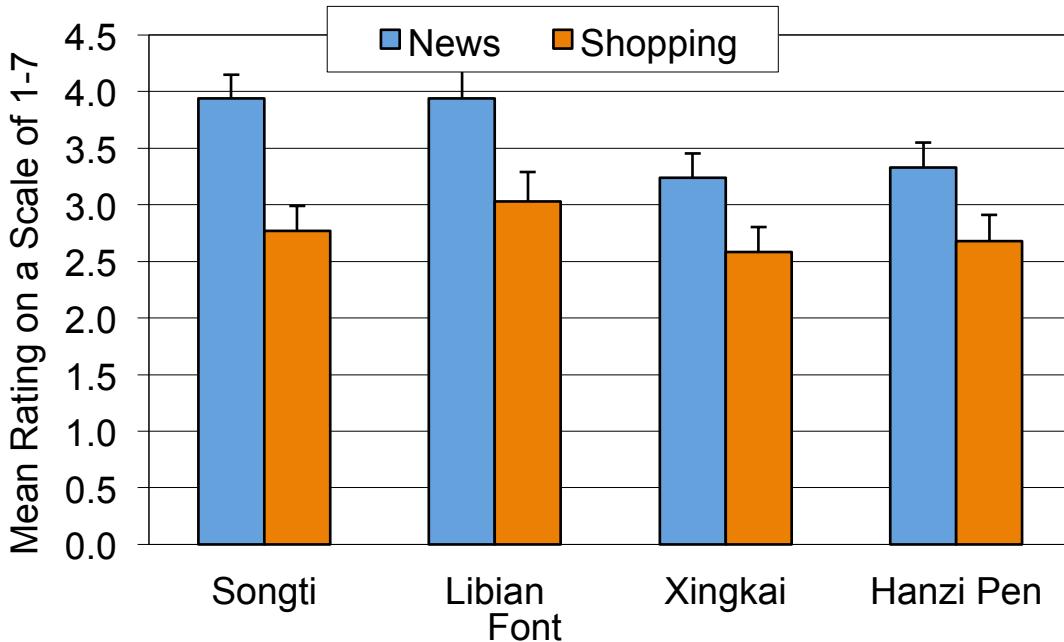
**Figure 21 Estimated marginal means on a scale of 1(strongly disagree) – 7(strongly agree)  
by font and website type**

Our fifth research question was how website type and font affect perceived homesickness. There was a significant effect of website type on perceptions of homesickness [ $F(1, 62) = 4.32, p = .04$ ]. As shown in figure 22, news website elicited a higher rating of homesickness compared to shopping website.



**Figure 22 Estimated marginal means on a scale of 1(strongly disagree) – 7(strongly agree) by website type**

There was also a significant effect of font on perceptions of homesickness [ $F(1, 62) = 1.43, p = .24$ ]. Pairwise comparisons using LSD suggested that all fonts are significantly different from each other at  $p < .6$ . As shown in figure 23, Libian elicited the highest rating of homesickness and Songti elicited the second highest rating of homesickness compared to the other fonts. There was no significant interaction between font and website type [ $F(1, 62) = .21, p = .65$ ].



### Discussion

Overall, we found that the use of Songti and Libian increased the ratings on perceived formality, trust, and homesickness and decreased the ratings on making users feel personal and emotional. The use of Xingkai and Hanzi Pen, on the other hand, decreased the ratings on perceived formality, trust, and homesickness and increased the ratings on making users feel personal and emotional. News website, as a website type, significantly increased the ratings on making users feel emotional and homesick.

From the results, we can see that fonts can affect multiple dimensions in affective evaluation. The use of Songti and Libian may increase formality and trust but it also leads to a decrease in making users feel personal and emotional. On the contrary, the use of Xingkai and Hanzi Pen appeals to emotions well and connects with users on a personal level but it lacks formality and trust when used to present website content. The implication on interface design in Chinese characters is that designers need to be aware of the tradeoffs

AFFECTIVE AND COGNITIVE RESPONSES TO CHINESE FONTS IN WEB INTERFACE DESIGN  
when choosing a font or typography when designing a website. Depending on the purpose of the website, designers may choose to use a more formal and trusting font such as Songti and Libian in order to keep a distance from the users and keep user experience polite and professional. On the other hand, designers may choose to use a more personal and emotional font such as Xingkai and Hanzi Pen in order to appeal to users on a more personal level and make user experience casual and intimate. Designers may also use a combination of these different fonts to invoke various affective responses at different parts of a single website.

Apart from fonts, website type also played a role in affecting users' affective responses particularly in eliciting emotions and homesickness. Between news website and shopping website, news website made users feel more emotional and homesick. This could be due to the fact that news is usually localized yet shopping tends to be globalized. The content on the homepage of a news website is commonly local news that users can relate to instantly. In this study, the content of news website prototypes consisted of breaking news in China with a photo of China's president, Xi Jinping. Shopping website, in contrast, can have items from all over the world. This is especially true in China where Korean and Japanese products are hugely popular and it is not uncommon that Chinese people sometimes shop for products on websites that sell foreign goods. It's almost impossible to find a shopping website that sells Chinese-style products exclusively. The homepage of the most popular Chinese shopping website, taobao.com, features a number of products from South Korea and many Korean and Japanese style guides. In this study, the content of shopping website prototypes featured an Asian girl dressed in Japanese style clothing with

AFFECTIVE AND COGNITIVE RESPONSES TO CHINESE FONTS IN WEB INTERFACE DESIGN  
Korean style makeup. Although website type has inevitable effects on users' affective responses, certain fonts can lead to more pronounced affective responses in a given website type environment than others.

There was significant website type and font interactions. In the context of news website, Songti more significantly increased the rating of website formality and made users feel more trusting; Xingkai made users feel more emotional; Hanzi Pen made users feel more emotional and personal. In the context of shopping website, Hanzi Pen decreased the rating of website formality more significantly. The implication on design is that depending on the type of website a designer is designing; the use of different fonts can lead to exaggerated affective responses. For instance, the use of Songti on a news website is particularly formal and trusting due to users' perceptions on Songti in a news website context. On the other hand, the use of Hanzi Pen on a shopping website is particularly informal due to users' perceptions on Hanzi Pen in a shopping website context. This can help achieve design goals in a more effective way. If a web designer is designing a shopping website for vacation or beach clothing items, the use of Hanzi Pen can work in favor of the designer since it will invoke additional casual feelings when a shopping website is presented in Hanzi Pen. On the other hand, if a web designer is designing a donation page for a news website, the use of Hanzi Pen can also be beneficial since it appeals to people's emotions and connect with them on a personal level particularly well in the context of news website. Therefore, knowing how website type interact with fonts can significantly increase design efficiency and help designers better design a website for Chinese characters.

## AFFECTIVE AND COGNITIVE RESPONSES TO CHINESE FONTS IN WEB INTERFACE DESIGN **Limitations and Future Directions**

Although this study closely examines how fonts and website type determine users' affective responses when using a Chinese website in order to provide recommendations on how web interface can be better designed for Chinese characters, limitations can result from prototype constraints, demographic factors, and study design. Each of these limitations will be examined in further detail below.

**Prototype limitations.** The prototypes designed in this study are limited to two website types (news and shopping) and four fonts (Songti, Libian, Xingkai, and Hanzi Pen). Each website prototype is designed in one isolated font. Each prototype only contains a homepage without working navigation. In future studies, prototypes could be designed for more types of websites in more fonts. It would be helpful to design a prototype for each major category of website in China using all currently available Chinese web fonts and apply the method of this study to the additional prototypes. It would also be interesting to look into font-font interactions where combinations of fonts are used within one website to examine how font-font interactions, if any, affect users' affective responses. Further studies can also be done on investigating how navigation structure (centralized, distributed, radial, etc.) can affect users' affective responses. All these can also be done with respect to different types of websites to examine font combinations and website type interactions and navigations and website type interactions and how they can affect users' affective responses.

**Demographic limitations.** The study was done at Cornell with only 67 Cornell Chinese international students as participants. They were all between the age of 18 and 35.

## AFFECTIVE AND COGNITIVE RESPONSES TO CHINESE FONTS IN WEB INTERFACE DESIGN

This is a highly selective sample. Although they provided valuable responses to the survey

questions, their affective responses can hardly represent the views of the broader China population. As such, given a specific aim and target audience, the study could be repeated in China with a greater number of participants who have more diverse backgrounds. The greater participant pool could potentially lead to more comprehensive results. The study could also include people of younger or older ages depending on the type of website designed. Specific studies targeting a more defined audience and website type could be carried out to arrive at more applicable conclusions.

**Study design limitations.** This study only collected the most basic demographic data from participants including their age, year in school, native language, and the country they were born in. As a result, their affective responses were not evaluated in a way that associated with their socio-demographic characteristics. It is important to note, however, that their affective responses can have significant correlations with their socio-demographic characteristics – people from a wealthy family background may perceive a Chinese font in a given website environment differently from people from a more modest family background. Future study could aim to collect more information on each participant. Some examples could be their parents' highest education level, annual family income, amount of student loans, and so on. With these data, further analysis focusing on the match between participants' socio-demographic characteristics and their affective responses could be carried out. This analysis will be valuable because it can provide more accurate and tailored insights into how using various Chinese fonts can target specific user groups and help achieve various goals of specific Chinese web interface design.

## AFFECTIVE AND COGNITIVE RESPONSES TO CHINESE FONTS IN WEB INTERFACE DESIGN

Another possible future study is to investigate if any existing Chinese websites

already take advantage of the differences in affective response of Chinese population to website font choices. If so, it would be interesting to see in what ways the affective responses are used to contribute to their goals and how effective they are. If not, the findings from this study can serve as a starting point for Chinese websites to experiment.

### References

- Adamson, G. (2011). *Global design history*. London: Routledge.
- Anonymous. (2014). Top 10 Most Popular Chinese Websites. Retrieved April 23, 2016, from <https://www.writtenchinese.com/top-10-popular-chinese-websites/>
- Bulat, A. (2012). Font Psychology: What Your Font Says About Your Website - MonsterPost. Retrieved April 29, 2016, from <http://blog.templatemonster.com/2012/05/16/font-psychology/>
- Cyr, D., Bonanni, C., & Ilsever, J. (2004). Design and e-loyalty across cultures in electronic commerce. *Proceedings of the 6th International Conference on Electronic Commerce – ICEC '04*.
- Schaefer, K. (2011). East Asian Cultural Perception in UX / Interface Design. Retrieved April 29, 2016, from <http://www.onextrapixel.com/2011/10/19/east-asian-cultural-perception-in-ux-interface-design/>
- Jia, Y., & Jia, X. (2005). Chinese Characters, Chinese Culture and Chinese Mind. *Intercultural Communication Studies*, 16(1), 151-151. Retrieved September 2, 2015, from

AFFECTIVE AND COGNITIVE RESPONSES TO CHINESE FONTS IN WEB INTERFACE DESIGN  
<http://web.uri.edu/iaics/files/12-Yuxin-Jia-Xuerui-Jia.pdf>

Marcus, A. (2003). User-interface design and China. *Interactions*, 21-21.

Marcus, A., & Gould, E. (2000). Crosscurrents: Cultural dimensions and global Web user interface design. *Interactions*, 32-46.

M. (2013). How Typefaces Influence Perception and Persuasion | Advertising Florida. Retrieved April 29, 2016, from <http://www.mdgadvertising.com/blog/how-typefaces-influence-perception-and-persuasion/>

Mariko, T. (2014). Typography between Chinese complex characters and Latin Letters.

Jackson, C., Monica, C., & Sylvia, T. RE-TRANS-formation of Chinese Typography.

Masuda, T., Gonzalez, R., Kwan, L., Nisbett, R. E. (2008). Culture and aesthetic preference: Comparing the attention to context of East Asians and Americans. *Personality and Social Psychology Bulletin*. doi: 10.1177/0146167208320555.

McKirdy, E. (2015, February 4). China's net users outnumber entire U.S. population 2-1.

Retrieved April 23, 2016, from <http://www.cnn.com/2015/02/03/world/china-internet-growth-2014/>

Morris, E. (2012). Hear, All Ye People; Harken, O Earth. Retrieved April 29, 2016, from [http://opinionator.blogs.nytimes.com/2012/08/08/hear-all-ye-people-harken-o-earth/?utm\\_source=slashdot](http://opinionator.blogs.nytimes.com/2012/08/08/hear-all-ye-people-harken-o-earth/?utm_source=slashdot)

Nisbett, R. E. (2003). *The geography of thought: How Asians and Westerners think differently, and why*. Free Press, New York.

Ruluks, S. (2014). A brief history of web design for designers. Explained with animations. Retrieved April 29, 2016, from <http://blog.froont.com/brief-history-of-web-design-for-designers/>

AFFECTIVE AND COGNITIVE RESPONSES TO CHINESE FONTS IN WEB INTERFACE DESIGN  
Schaefer, K. (2015, March 2). The Complete Beginner's Guide to Chinese Fonts. Retrieved

April 24, 2016, from <http://webdesign.tutsplus.com/articles/the-complete-beginners-guide-to-chinese-fonts--cms-23444>

Stinson, L. (2015). Can a Font Make Us Believe Something is True? Retrieved April 29, 2016, from <https://eyeondesign.aiga.org/can-a-font-make-us-believe-something-is-true/>

Szymanski, D. M., & Hise, R. T. (2000). E-satisfaction: An initial examination. Journal of Retailing, 76(3), 309-322. doi:10.1016/s0022-4359(00)00035-x

Wolter, A. (2016). The Psychology of Fonts & Their Impact on Conversions. Retrieved April 29, 2016, from <http://www.undullify.com/psychology-fonts-impact-conversions/>

Xu, K. (2010). Showcase Of Web Design In China: From Imitation To Innovation – Smashing Magazine. Retrieved April 29, 2016, from <https://www.smashingmagazine.com/2010/03/showcase-of-web-design-in-china-from-imitation-to-innovation-and-user-centered-design/>