An International Comparison on Need Analysis of Web Counseling System Design

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Abstract— Recently, more people are working abroad, and there is an increasing number of people with mental health problems. It is very difficult to find a place to get treatment, therefore online counseling is becoming more and more popular these days. We are making an online web counseling system to support the mental health of people working abroad. The design of this web counseling site needs to be in color, and the screen is all they can see, and people who look at a web site may be alerted about something hidden, so what they see on this screen should help them feel comfortable and be encouraged to try online counseling. We researched the way online counseling is conducted in foreign countries. We noticed that the color of this web counseling site is different depending on which country you are from. When it comes to web counseling, color is definitely important.

Index Terms— web counseling, design, analysis of variance, international comparison

I. INTRODUCTION

According to figures released by the Foreign Affairs Ministry, since 2005 Japanese people living abroad has topped ten million and is increasing year by year[1]. Also, there are a lot of foreigners living in and visiting Japan, especially from the U.S and China [2], [3]. People living in foreign countries face many problems, such as language, culture, human relationships and having to live alone away from their families. This causes mental health problems. We organized a project team to support those people working abroad. Our team has professionals, who help out with legal matters, computer technology, psychological problems and nursing [4], [5]. Online counseling is very useful, and can often be accessed by people living far away and in their own language. For example, Chinese and English speaking people living in Japan can get help, even if they don't speak Japanese. Japanese people living abroad in a remote area where there are no psychiatrists or psychologists can also seek counseling online.

There are two reasons why design is so important. We have to take into account these reasons when designing a web counseling system.

One point is that counseling is different from other online activities such as shopping or playing games. Counseling has different needs from ordinary shoppers or online users, so the system and screen must be designed differently. The normal web site design may not be suitable for counseling. We also know from past research that those people with mental health problems are seeking a particular design, which is different from the kinds of designs that are attractive to others [6]. For example, on line shopping has a special kind of design which may attract people suddenly, and only at that moment. On the other hand, counseling is not a spur of the moment activity, and people need to feel assured that they can continue this for a certain period of time. And they need to feel confident that they can trust their counselors.

The second reason is that there are many foreigners, both in Japan and other countries. When making an effective design, the desires of users will be different from country to country.

It has been found out that preferred colors are different from country to country. For example, among 20 countries including Japan, China, Germany, and the U.S. research was done to find out which colors people like best, and feel familiar with [7]. The color Japanese and American people like best is bright purple. Next comes bright red. Chinese people like white best, then bright purple. A familiar color to Japanese people is bright red, next white. Chinese people prefer bright red, next bright orange. American people are familiar with bright red and bright purple. Countries have different preferences regarding colors.

There was a survey done in each country to find out which colors are appropriate to online counseling. In Japan, China and the U.S., the background color and the color for words were investigated. This data was statistically analyzed.

II. DETAILS OF SURVEY

Out of 122 subjects ages 18 to 25; 39 were Japanese, 52 were Chinese and 31 were Americans. This survey was done in Jan., 2010 in Japan; in June, 2010 in China; Sept., 2010 in U.S.

In the survey, people were shown five different colors for backgrounds and words. Their impressions were evaluated at 6 levels from very good to very bad. Figures 1 and 2 show what the survey looked like.
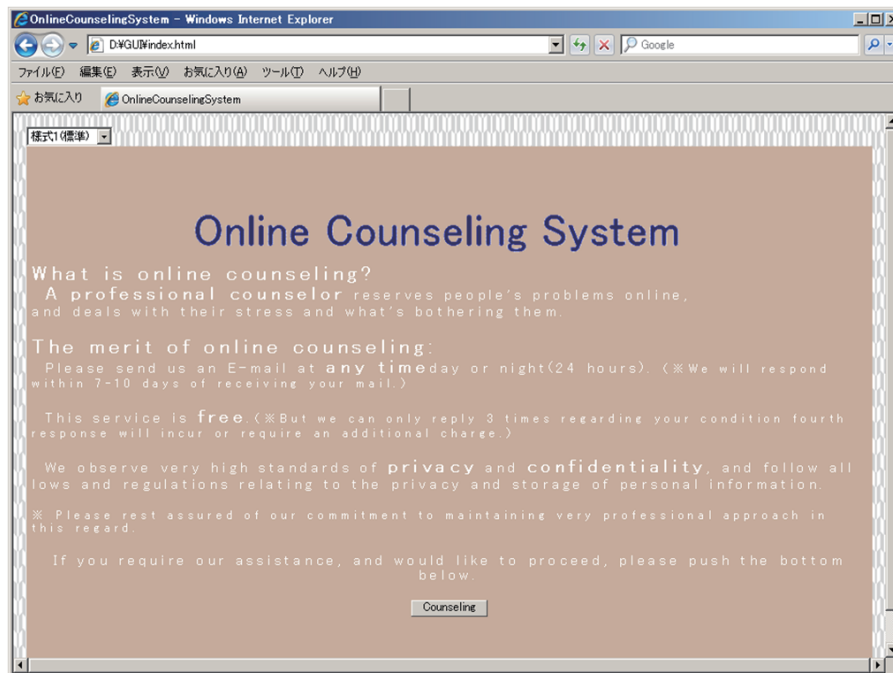
Figure 1. An example of background color of Web counseling system (beige).
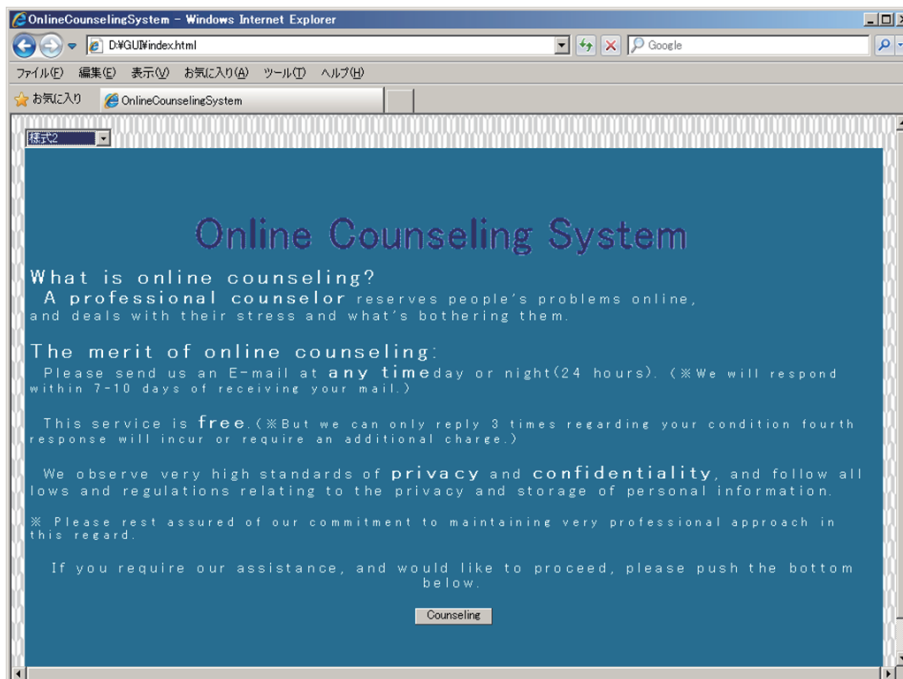

Figure 2. An example of background color of Web counseling system (blue).

The subjects were asked which colors they prefer, if they were actually going to do online counseling. They looked at all five colors at the same time printed on paper. Colors were on the left side and the rankings were written on the right side from very good to very bad. An analysis was also made about the size of letters.

The colors for background and words were selected for their effectiveness and helping people feel relaxed ([8], [9]). The colors were represented like this. Red: #de424c, Blue: #006b95, Purple: #5f3785, Beige: #ceb59f, Green: #008f59.

How effective colors are is shown in Table I ([8], [9], [10]).

TABLE I.
AN EXAMPLE OF MEANING OF COLOR.

Color	Meaning
Red	Red makes people feel more energetic and gives people a better feeling. But it also makes people feel nervous and more aggressive.
Blue	Blue helps people feel more and more relaxed and calm. But it also makes people feel cold and lonely.
Green	Green helps people feel peaceful and has a healing effect. But it also makes people feel selfish and lazy.
Purple	Purple gives people a noble feeling. It is a mysterious color and makes people think deeply. But it is not realistic, and makes people feel vague and uneasy.
Beige	Beige helps people to relax and is thought of as being sincere. But many people feel that beige is conservative and unattractive.

III. ANALYSIS AND CONSIDERATION OF RESULTS

Two factors, background color and country were used to make two-way ANOVA data layout. Only those colors which showed a significant difference are considered here.

As a result, although no main effect of countries was found, main effect of background colors ($F(4, 460) = 36.42, p < .01$) and interaction effect of countries and background colors were significant ($F(8, 460) = 5.09, p < .01$). Therefore we verified whether there are differences for each background color among the three countries. Looking at red, the total impression was not good. In the U.S., people ($M = 2.27, SD = 0.94$) thought red was not good even more than Japan ($M = 3.19, SD = 1.33$) (a significance was found ($p < .05$) between U. S. and Japan in the multiple comparison) or China ($M = 3.76, SD = 1.43$) (a significance was found ($p < .01$) between U. S. and China in the multiple comparison). Figure 3 shows results of red.

Red was a familiar color among all countries, but in terms of online counseling red was not the preferred background color. This does not match previous research. Especially in the U.S., red was not suitable as a background color for online counseling.

Next, considering color of the words, the result of this analysis is explained. The two factors, the color of words and country were used to make two-way ANOVA data layout. As a result, main effect of countries ($F(2, 116) = 4.68, p < .05$), main effect of colors of words ($F(4, 464) = 54.20, p < .01$) and interaction effect
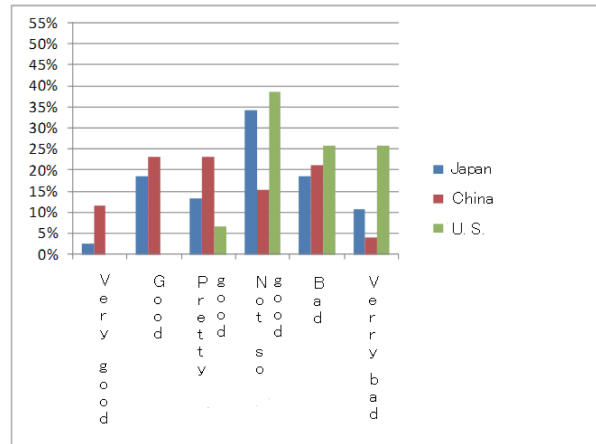

Figure 3. Evaluation for background color red.

of colors of words and countries ($F(8, 464) = 4.82, p < .01$) were found. Therefore we verified whether there are differences for each color of words among the three countries.

There was a significant difference for colors written in red and green. Red ($M = 5.0, SD = 0.93$) was considered the best in the U.S compared to Japan ($M = 3.6, SD = 1.14$) (a significance was found ($p < .01$) between U. S. and Japan in the multiple comparison) and China ($M = 4.72, SD = 1, 10$) (a significance was found ($p < .05$) between China and Japan in the multiple comparison) with regard to words. Figure 4 shows the results for words written in red.
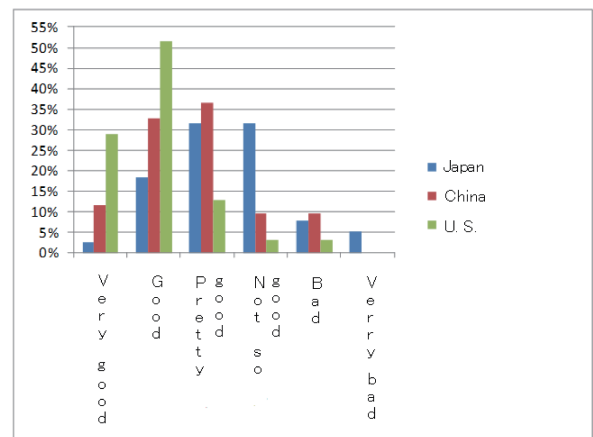

Figure 4. Evaluation for text color red.

Words written in Green were considered best in China ($M = 4.57, SD = 1.04$) (a significance was found ($p < .05$) between China and Japan in the multiple comparison) and the U.S ($M = 4.55, SD = 1.04$), compared to Japan ($M = 3.76, SD = 1.36$) (a significance was found ($p < .05$) between U. S. and Japan in the multiple comparison). Figure 5 is for the color green.

There was also an analysis made about the size of letters, but there was no significant difference about size.
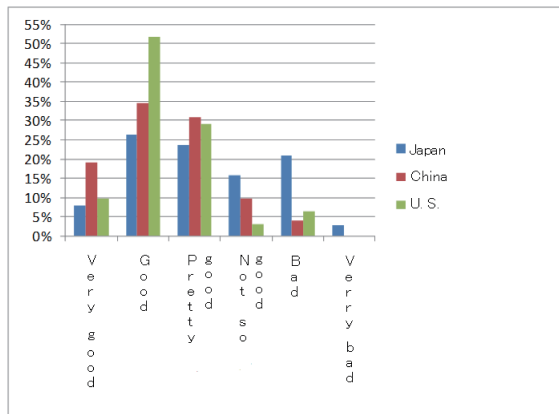
Figure 5. Evaluation for text color green.

IV. CONCLUSION

A survey was done to evaluate the design for online counseling and a comparison was made between three countries, Japan, the U.S. and China. This result was analyzed by statistical method. There was a difference between color preferences for online counseling and in general. When red is used as a background color and for words, one must consider carefully the difference among countries.

In future research, we would like to do a survey involving many people living in different countries. What is desirable in terms of time spent in online counseling, age and gender will be considered when designing an online counseling web site.

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